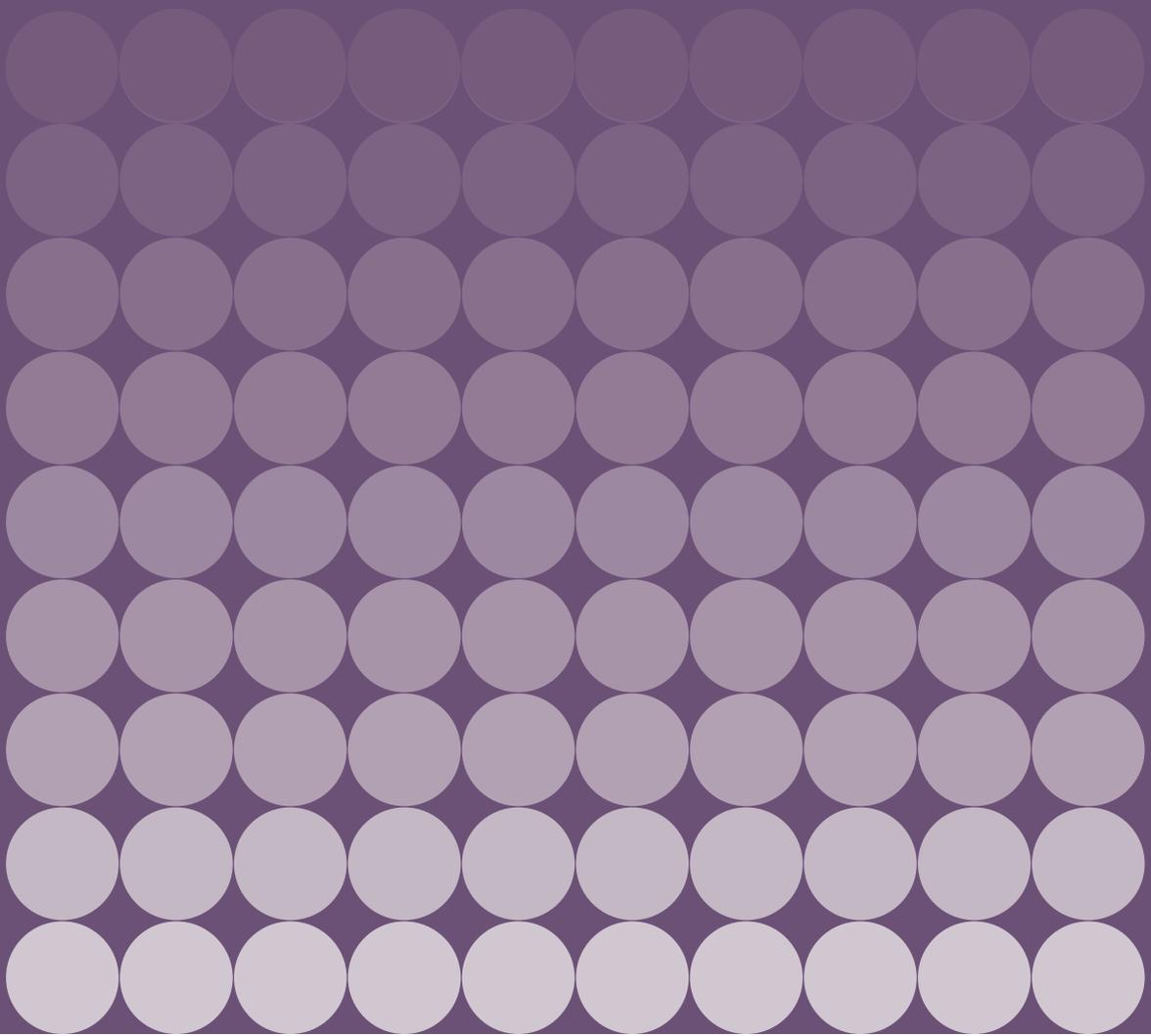


ARMS INDUSTRY TRANSFORMATION AND INTEGRATION

The Choices of East Central Europe

YUDIT KISS



**Arms Industry
Transformation
and Integration**

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East Central Europe**

**STOCKHOLM INTERNATIONAL
PEACE RESEARCH INSTITUTE**

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Preface

At the end of the cold war the countries of East Central Europe had a common inheritance of heavy militarization. Their economies were orientated to support the industrial capacities needed to manufacture large volumes of military equipment for the armed forces of the Warsaw Pact. After the collapse of the Warsaw Pact, these countries had a shared strategic objective of joining the institutions associated with the West—the European Union (EU) and the North Atlantic Treaty Organization (NATO).

The military industrial inheritance, combined with the ambition for integration into Western institutions, posed a series of public policy challenges. All NATO members are expected to contribute to the overall effort of the alliance, and preparations for membership emphasized the need for relevant military capabilities. However, the capabilities needed were of a different kind from those that were in place at the end of the cold war. Transforming the military sector required new policies and implied new kinds of investment.

Preparing to join the EU required moving away from a command economy and establishing policies and structures to operate a mixed market economy. Rebalancing the shares of public and private contributions to the national economy was a key element in reshaping economic and fiscal policies. Reducing the scale of national resources allocated to the military sector from the very high levels witnessed during the cold war was one priority within the overall effort to ensure that public expenditure was rationalized and organized on a different basis from the past.

The transformation needed to join Western institutions created some contradictory cross-pressures on Bulgaria, the Czech Republic, Hungary, Poland, Romania and Slovakia. However, while they faced certain common challenges, these countries were (and are) far from homogeneous. Each has specific political, economic, military and societal features that shaped the national response. The strategies adopted to transform the arms industries were not the same.

Arms Industry Transformation and Integration is the first authoritative account of how the countries of East Central Europe responded to these major economic and social changes. It presents the well-documented results of many years of highly detailed research by an economist native to the region, including close to 100 interviews conducted over two decades with those most closely connected with the topic in companies and government agencies. The author's repeated visits to the companies and countries studied here have provided her with a unique insight into their development over time and an unparalleled understanding of how each country's

newly acquired memberships in the EU and NATO affected individual enterprises.

By showing how six national defence industries adjusted to a new political and economic environment in both the domestic and international contexts, this readable and accessible book will prove invaluable to those studying and dealing with similar changes around the world as well as to scholars of international relations, strategic studies and political economy, historians and the defence industry itself.

I would like to thank Yudit Kiss for her patient and diligent work over many years to map the way in which each country tackled the challenges posed. Her unique knowledge and expertise—gathered through continuous engagement with responsible individuals in government, industry and the expert community—is reflected in the pages of this book.

Tilman Brück
SIPRI Director
Stockholm, February 2014

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To publish a book like this in today's world of reduced research budgets, information dumping, pressure to provide instant information and deliver speedy judgments is a statement. SIPRI deserves immense acknowledgement for making such a statement. As the result of a long process of data gathering and processing, the manuscript had to be updated on several occasions. Each round was time consuming, but did not necessitate a fundamental change of approach. New developments fit into the overall frame of analysis, confirming that a systemic, long-term, comprehensive approach which takes into consideration the economic, historical and social background as well as political developments is indispensable for understanding the complexities of weapon production and distribution.

I thank SIPRI for offering me the opportunity to carry out such research. Special thanks go to SIPRI's former Director, Alyson J. K. Bailes, with whom I first discussed this project and who has been a constant source of encouragement, generously sharing her knowledge and writings ever since. Very big thanks to Ian Anthony for being the patient godfather of this project and to Jetta Gilligan Borg for her conscientious editing work. Thanks are also due to Olle Persson of the SIPRI Library and Documentation Department for his valuable assistance.

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universal knowledge, far beyond economics, have been a reference for me ever since I finished my university studies.

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I am very grateful to the Small Arms Survey for several research opportunities and fruitful encounters through projects with Keith Krause, Aaron Karp, Philip Alpers and many others. Special thanks go to Peter Batchelor, the former Project Director, and to Eric Berman, the present Managing Director, for always being helpful and encouraging of my undertakings.

Last, but not least, I thank my family, both in Geneva and in Budapest, for their unfailing support, empathy and patience.

Yudit Kiss
Geneva, February 2014

Abbreviations

APC	Armoured personnel carrier
AQAP	Allied Quality Assurance Publications
C ⁴ I	Command, control, communications, computers and intelligence
CBR	Chemical, biological and radiological
CBRN	Chemical, biological, radiological and nuclear
CEO	Chief executive officer
CFE	Conventional Armed Forces in Europe (Treaty)
CFSP	Common Foreign and Security Policy
COC	Code of Conduct
Comecon	Council for Mutual Economic Assistance
DOD	Department of Defense
EADS	European Aeronautic Defence and Space Company
ECE	East Central Europe
EDA	European Defence Agency
EPAA	European Phased Adaptive Approach
ESDP	European Security and Defence Policy
EU	European Union
FDI	Foreign direct investment
GDP	Gross domestic product
IFF	Identification friend or foe
IMET	International Military Education and Training
IMF	International Monetary Fund
ISAF	International Security Assistance Force
ISO	International Organization for Standardization
IT	Information technology
ITC	Information technology and communications
KFOR	Kosovo Force
MANPADS	Man-portable air-defence system
MBO	Management buyout
MET	Ministry of Economy and Transport
MFA	Ministry of Foreign Affairs
MND	Ministry of National Defence
MOD	Ministry of Defence
MOE	Ministry of Economy
MRAP	Mine-resistant, ambush-protected

NATO	North Atlantic Treaty Organization
NBC	Nuclear, biological and chemical
NCAGE	NATO Commercial and Government Entity
NGO	Non-governmental organization
NRF	NATO Response Force
NSIP	NATO Security Investment Programme
PRT	Provincial Reconstruction Team
R&D	Research and development
SAC	Strategic Airlift Capability
SALW	Small arms and light weapons
SEZ	Special economic zone
SFOR	Stabilization Force
SME	Small- and medium-sized enterprise
SOE	State-owned enterprises
UAE	United Arab Emirates
UAV	Unmanned aerial vehicle
UN	United Nations

Additional abbreviations are defined in the text.

1. Introduction

I. Post-cold war East Central Europe

The arms industry in the former Eastern bloc has been radically transformed since the political upheavals that accompanied the collapse of Soviet power starting in the late 1980s. This study focuses on changes in the arms industries of East Central Europe (ECE), a region comprising Bulgaria, the Czech Republic, Hungary, Poland, Romania and Slovakia, and the lessons and insights that the topic offers. All six countries were for several decades satellite states of the Soviet Union and members of the Warsaw Treaty Organization (often referred to as the Warsaw Pact), which was committed to mutual defence against a common enemy, the North Atlantic Treaty Organization (NATO).¹ All had one party-dominated political systems and state-controlled command economies, interlinked through the Council for Mutual Economic Assistance (Comecon), the Eastern bloc's economic organization.² East Central Europe is a politically and historically neutral way of referring to a region uniting countries that over the past decades have been called 'countries in transition', on their way towards a Western economic and political model; 'aspirant' or 'applicant countries', waiting to join the European Union (EU) and NATO; 'emerging countries' or, more specifically, 'emerging markets', representing new business opportunities; and 'new Europe' or, more neutrally, 'new EU member countries', to distinguish them from the older, more established ones.

The ECE countries have undergone dramatic changes in the past two decades. All rejected their established political and economic systems in 1989 and started on a path towards pluralist parliamentary democracy and free market economy, opening themselves to business with the West and the rest of the world. Liberated from the bonds of the Warsaw Pact and Comecon, they started to search for new international affiliations and forms of cooperation. All of the ECE countries' economies have undergone fundamental restructuring; after numerous ups and downs, they have by

¹ The Treaty of Friendship, Cooperation and Mutual Assistance, which established the Warsaw Pact, was signed in Warsaw on 14 May 1955 between Albania, Bulgaria, Czechoslovakia, the German Democratic Republic (East Germany), Hungary, Poland, Romania and the Soviet Union. East Germany left the Warsaw Pact in 1990, a few months before the organization's dissolution in 1991. German reunification presented East Germany with a radically different set of opportunities and challenges to those of the ECE countries. It is therefore not discussed in this volume. Albania left the Warsaw Pact in 1968. On the Czech Republic, Hungary, Poland and Slovakia see also Kiss, Y., SIPRI, *The Defence Industry in East-Central Europe: Restructuring and Conversion* (Oxford University Press: Oxford, 1997).

² Comecon was an economic organization comprising the Warsaw Pact members as well as Cuba, Mongolia and Viet Nam. It disbanded in 1991.

and large become more efficient and better integrated into the international economic system than they were. The political systems of the ECE countries remain extremely fragile but are a far cry from the monolithic and authoritarian regimes of the past. All are now members of NATO—the Czech Republic, Hungary and Poland since 1999, and Bulgaria, Romania and Slovakia since 2004—and of the EU, which the Czech Republic, Hungary, Poland and Slovakia joined in 2004, and Bulgaria and Romania in 2007.

During their complex transformation the ECE countries embarked on markedly different paths. Poland aspired to regain its former place in Europe quickly and introduced a radical programme of economic ‘shock therapy’ aimed at establishing a functioning capitalist economy in the shortest time possible. Czechoslovakia, the only ECE country to have had democratic traditions worthy of mention and a relatively stable and developed economy, broke into two states in 1993 amid fierce political struggles—but peacefully. Hungary, distinguished from its peers by cautious economic and political reforms since the late 1960s, entered a cycle of recessions and partial recoveries and became bogged down by internal political struggles. Bulgaria and Romania lagged behind in reform for most of the 1990s but embarked on fast-track courses from the early 2000s in order to meet the requirements of EU and NATO membership.

While nominally everything in the ECE countries changed radically, society, economic structures and mechanisms evidently did not transform from one day to the next. In the complicated and demanding adjustment processes that each country went through, the old system’s methods, formulas, networks and mechanisms were as much used as the new ones. One notable legacy of the past was a fixation with targets, which were perceived as the aims of transition as well as its engines and criteria of success. Similar to the quotas of the Communist era’s five-year plans, they served as a mobilizing force while simultaneously embodying change. In politics, after a short period of hesitation, the targets were EU and NATO accession. In economics, targets were set for privatization, increased exports to Western markets and attracting foreign direct investment (FDI), more or less in that order of priority.

Pressure to make rapid adjustments came from both inside and outside. The fixation with targets was reinforced by the external actors that had a major and often decisive role in shaping the pace, nature and direction of the whole process. The EU and NATO provided structures and stimulated movement in the desired directions, and the candidate countries were eager to follow instructions, copy and adapt the structures, policies and mechanisms of those bodies’ members. The International Monetary Fund (IMF) and the World Bank also played crucial roles. Transition reports published on the ECE countries have measured success in the speed of

state asset dismantlement, the increase of exports—particularly the share of exports to the West in total exports—or the amount of FDI received.

The targets set were demanding, particularly because of the limited resources and the general political and social turmoil that characterized the post-1989 period in the ECE countries. Too much had to be accomplished in a relatively short time. It might have appeared easier and simpler to follow models than to invent new ones; the rapidity and the assisted nature of the process diminished the enormous creative potential of the transformation. Little place was left for trial and error.

Transition targets represented fundamental changes and were important drivers of economic and societal transformation. However, they became absolute and exclusive indicators of change, with no qualitative criteria attached. The ways in which the demands of the EU and NATO accession processes were fulfilled, their impact on economy and society, and how this fits into long-term development goals were rarely questioned. Analysis of which segments of the economy attracted foreign capital, under what conditions and with what wider economic and social consequences as well as what companies exported, from where and to where, was rarely undertaken. In the heat of rapid changes fundamental questions about the meaning and impact of these ‘absolute’ goals were rarely asked (post factum, if ever), making it more difficult to deal with their consequences. Nothing prepared the ECE countries, barely 10 days after becoming NATO members, to find themselves at war on the territory of their former comrade country, Yugoslavia, as part of NATO’s military operations. The effects of EU enlargement, such as the crowding out of domestic producers and accelerated brain drain, also created major tensions and backlash in each new member country.

In addition, when the ECE countries joined the EU it was already in search of an attractive and effective new identity. NATO was in an even worse state of uncertainty concerning its future and aims. This further complicated the uneasy task of integration. The challenge of the next decade is to digest the demands and ramifications of the twin EU and NATO enlargement processes, both for the new members and for the EU and NATO themselves. Enlargements offer an unexpected opportunity for the ECE countries to contribute to the renovation of the EU and NATO by making use of their experiences and creativity in order to help turn both organizations into versatile, efficient systems that are able to cope with the challenges of the 21st century.

II. The importance of the topic

The arms industry was one of the pillars of the cold war economic and political system and played a unique role in the dramatic changes that have

reshaped the ECE countries since the late 1980s. When the old system collapsed arms production collapsed with it, along with the rest of the military sector, marginalized due to its close association with the *ancien régime*. However, within a few years arms production had recovered and the military sector had become an acknowledged and occasionally even widely appreciated segment of the new social systems. One key reason for this was that, once the ECE countries had become NATO candidates, it was through the Atlantic alliance that their integration into the new institutional environment and the much-desired Western economic and social model started. NATO became the key mediator in the process and its membership criteria enjoyed high priority, which inevitably left an imprint on the whole transformation process. Among other things, NATO membership requirements included increased military spending and the re-equipment of the armed forces to new standards, leading to the re-legitimatization of the military establishment.

Even after its partial resurrection, the ECE arms industry does not represent a large segment of the world's arms production and remains marginal to the global arms-production networks that have come to dominate the sector. Neither is the arms industry a prominent economic engine in any of the ECE countries. Nevertheless, a study of the transformation and current status of the ECE arms industry is worthwhile not only to understand its place in the evolution of the new domestic political and economic systems, but also because the experiences of the ECE arms industry can yield wider insights and lessons for the ECE countries and the rest of the world, particularly in the recent economic crisis.

The first set of questions that this volume addresses concerns the current nature and status of the ECE arms industry. At present, the arms industry represents only a modest share of gross domestic product (GDP), industrial production and employment in the ECE countries. Arms exports, once so critical to the region's economies, have similarly dropped off and in some countries are almost negligible. However, in this sector raw figures tend to show only the tip of the iceberg and say little about the invisible part, about how military-related considerations affect the economy or what drivers move the sector. In order to obtain a clearer and deeper understanding it is necessary to explore the day-to-day operation of arms firms and the military establishment and, in doing so, to look for qualitative indicators of their position and status in the new economic and political systems of the ECE countries. Another question that is particularly important under the current circumstances is the contribution of the arms industry to the economic transformations of the ECE countries—its role in the inevitable adjustments to the new economic realities.

A second question that this study examines is the place of today's ECE arms producers in the global arms industry. Today, none of the ECE coun-

tries ranks among the major producers or exporters of arms. Even the most successful companies that have managed to secure stable supplier's positions in one of the transatlantic or trans-European production chains typically occupy second- or third-tier positions. Only a handful have succeeded in establishing stable, first-tier supplier status or fulfil a key function in the international development and production processes for new weapons. This relatively small region, nevertheless, has become a scene of worldwide competition among today's arms industry giants. In the early 1990s key international arms industry players set up shop in East Central Europe. They primarily identified the region as an important, if somewhat limited, market and, after a while, as a cheap and convenient contributor to the global arms-producing networks. This study clarifies the position of the ECE arms producers in the global arms industry and, in doing so, casts some light on the form and functioning of that global industry.

The third aspect of the study illuminates the role that ECE arms production now plays in global security—and insecurity. Security-related research and policy must first address the source, weapon production, and ask what kinds of arms are produced, by which companies, under what conditions and for what purpose. In the past weapon production was a key factor in the cold war bloc division; it occupied a central place in the economic and political systems of Eastern bloc countries, leaving its imprint on the entire society and on foreign relations. Arms produced in the ECE countries mainly went to supply the huge Warsaw Pact forces intended to counterbalance NATO and so deter military attack. Some also found their way outside the region, particularly to 'fellow traveller' and non-aligned countries, and, occasionally, also to other markets. From the time that the systemic changes began, the ECE countries treated weapons as simple commodities of which they had plenty to offer. In addition to their considerable production capacities, they had large stocks. A side effect of the massive reductions in conventional forces called for by the Treaty on Conventional Armed Forces in Europe (CFE Treaty), signed by the NATO and Warsaw Pact members in 1990, was the intensification of attempts to export newly produced and second-hand equipment, sometimes with little regard to their impact on security.³ In the past two decades arms manufactured in the ECE have appeared in conflict areas in Africa, Asia and Latin America, as well as in such European hot spots as Georgia or the territory of the former Yugoslavia. This study identifies and quantifies the

³ The CFE Treaty was signed in Paris on 19 Nov. 1990 and entered into force on 9 Nov. 1992. It provided for significant cuts in the conventional military arsenals of NATO and former Warsaw Pact states. Since it entered into force, more than 60 000 battle tanks, armoured combat vehicles, artillery, combat aircraft and attack helicopters have been taken out of service. On the CFE Treaty see the website of the Organization for Security and Co-operation in Europe, <<http://www.osce.org/>>; and Lachowski, Z., *Confidence- and Security-Building Measures in the New Europe*, SIPRI Research Report no. 18 (Oxford University Press: Oxford, 2004).

sources of weapon supply from the ECE countries and explores the new drivers of arms production and trade. It also questions how and how far ECE arms producers and governments have taken into consideration the impact of their arms exports on global security.⁴

Finally, this volume draws broader lessons from the experiences of arms industry transformation in the ECE countries. Twenty years ago arms makers in East Central Europe found themselves in a situation where many of the world's defence industrial (and other industrial) producers are today: a drastic change of their economic, political and social environment. The period since the end of the cold war has witnessed the demise of many arms producers in the ECE countries, including many of the most important and most influential ones. It is therefore important to find out how those that have survived have done so: by what combination of good management, stamina, government policy and sheer luck have they stayed in business? What lessons does this offer for governments and companies in the post-2008 global economy?

III. Methodology

Studying the arms industry in East Central Europe is still a painfully slow and difficult undertaking. Increased transparency was one of the key targets of military reform in all of the ECE countries, but this had only limited impact on the arms industry. Data on arms production is still scarce and contradictory. Compared to the past, there is a welcome abundance of secondary sources such as media reports, official publications and documents, company websites, exhibition catalogues and translated pages of local newspapers, many of them available through the Internet. These sources, however, are not always reliable. Many countries still classify information on the arms industry as secret—or have once again started to do so after a period of greater openness. Media reports and official publications often contain vague and contradictory data. Added to this, information becomes obsolete quickly due to the rapid changes in the sector. Using public statements, interviews and newspaper reports usually requires distinguishing between rhetoric and fact and between emerging new trends and wishful thinking. As a rule, in this volume the source used is that which is closest to the sector; where possible, several sources are cited.

In order to obtain more reliable information about the deep structural changes in the sector between 1992 and 2012 the author carried out 85 in-depth interviews at companies and government agencies and attempted to acquire first-hand information directly from them. This was a time-

⁴ The arms trade, despite its critical importance, is not the focus of this study.

consuming and often frustrating activity. In the early 1990s, when the first of these interviews took place, there were still many instances when strict official vetting and ministry authorization were requested before any visits to arms companies. Very soon, however, companies and governments became eager to manifest their transparency: they published data, showed visitors around the premises and were willing to give longer interviews. Companies appeared to welcome meetings with outsiders as opportunities to explore their past and future potential. This change reflected both the increasing political liberalization in the countries and the decreasing importance of the arms industry. Later, particularly after the countries joined NATO and some companies entered into partnerships with major international players, company premises again became difficult to enter—and occasionally difficult to leave because of new security measures.

The meetings were rich, complex sources of information. In-depth personal interviews could, of course, be as misleading as the material found in secondary sources; the stories told in directors' offices sometimes contradicted published information. Questions about output, sales or exports often remained unanswered. However, company managers and government officials were willing to present their development strategies and to talk about their strengths and weaknesses, workforce issues, the difficulties of finding markets and resources, the future of their research and development (R&D) departments, or the shortcomings of their suppliers. They were eager to talk about their development goals and the paths they envisaged taking to achieve them, the relationship between the struggles of individual companies and the country's arms industry policy, and so on. Interviews were not recorded electronically as that tended to disturb the free flow of conversation. Transcripts of the interviews reconstructed from the author's notes were sent to the interviewees for their approval and amendment.

Beyond the actual content of the interviews, the visits provided valuable insight into managerial cultures, value systems, and the wider social and regional contexts in which companies operated. The atmosphere, human interactions, technology, appearance and even the decor in factory floors and offices; how managers dressed and arranged their environments; and the way people related to each other, all reflected both the true situation in the company or ministry and the profound transformation of the sector. In the early 1990s computers were often status symbols, but within a decade they had become indispensable tools of production and communication. Initially, most company directors were former army officers, often with some kind of technical training; by the 1990s the bulk were civil engineers; and by the late 2000s most had business training. In the early 1990s interpreters were needed for the majority of interviews; by the 2000s most company managers (or their deputies) were able to communicate in English. In

the beginning women were only visible in the noisy workshops, performing unskilled labour, or in the offices, employed as secretaries. In the past two decades they have made a place for themselves in the highest echelons of the sector, often becoming members of management.

Company shop floors also gave a visual image of synergies, organization methods and labour relations, sometimes telling more about a company's restructuring than the words spoken two stories above in the director's office. Using public transport, like many of the employees, helped to visualize the wider environment in which the firms functioned and perceive their integration in the local economy. Even failures could be instructive. Spending a day in pouring rain in front of a company gate waiting in vain for the director to turn up for a meeting arranged several weeks earlier told as much about the prevailing management culture as the prompt, although polite, refusals received from the chief executive officers (CEOs) of large transnational firms implanted in East Central Europe. It was necessary to learn to interpret the signs properly and decide whether a failed interview was due to the old times' fear of exposure, simple inefficiency or the new times' business mentality that considered academic research a sheer waste of time.

Returning to the same company several times was a luxury, providing clear insight into its development over time. Manager turnover was extremely high after the political system changes began, so the rare occasions when the same director headed a firm for several years presented a unique opportunity to take stock of company and wider industry developments. By the late 2000s management continuity was not a sign of inertia as it had been in the past. Instead, it illustrated the perseverance and creativity of the directors, which became a crucial factor in their company's survival.

Detailed case studies of the most important companies can be found in the appendix following each country chapter, but most of these experiences are not described directly in this volume. They form an 'invisible background' to the text that has informed many of its statements and conclusions.

2. The post-cold war evolution of the arms industry

The landmark changes that have taken place in security and defence policy and the related institutions worldwide after the end of the cold war have led to reshaping of the international arms industry, including that of East Central Europe. This chapter examines some of the key factors that caused and influenced this process and presents an overview of the international arms industry today, with a focus on Europe and the United States. Finally, it describes specific developments in the ECE countries.

I. Drivers of the transformation of the arms industry

Three interrelated factors have been the principal drivers in the transformation of the arms industry in the past two decades: changes in the global security environment, the revolution in military affairs and globalization.

Changes in the global security environment

The cold war system was built and maintained with the aim of countering the mutual threats posed by NATO and the Warsaw Pact. Both Eastern and Western blocs lavishly financed, protected and promoted their arms industries in order to serve their military communities. Military build-ups principally served the purpose of deterring military conflict between the blocs, and each bloc sought to outmatch the other in conventional and nuclear weapons. To the extent that it prevented a conflict in Europe, the system was successful. When the two political and economic systems did confront each other militarily, it occurred on the periphery of their spheres of influence.

This state of affairs started to change rapidly in the late 1980s when the Warsaw Pact abandoned its 'offensive defence' military doctrine. Negotiations started with NATO that culminated in the 1990 CFE Treaty, effectively committing the European countries on both sides to significant reductions of their conventional forces. As the cold war drew to a close it initially seemed that the world would become more peaceful and stable. Tension between the two superpowers was relieved, and democratization and peaceful transformation began in the former Communist countries in Europe and in a handful of other regions, such as Latin America. A peace agreement was reached in Northern Ireland; apartheid ended in South

Africa; and some rays of hope appeared even in the Middle East with the signing of the Oslo agreements. Seemingly, the enormous material and creative resources that previously had been tied to military activities could now be dedicated to social development and the peaceful resolution of conflicts.

Nevertheless, a new cycle of violent conflicts began, starting with the first Gulf War in 1990. By 1994 more armed conflicts were active worldwide than at any time since 1945.¹ However, while violent armed conflicts took place during the disintegration of the former Soviet Union and Yugoslavia, none directly threatened to upset the international balance of power as the cold war had. The 1990s also saw the reunification of Germany and the peaceful split of Czechoslovakia. The 11 September 2001 terrorist attacks on the USA were a dramatic watershed that created a general feeling of insecurity. They demonstrated that vulnerability was universal: not even the territory of the world's sole military and economic superpower was safe, and the results and means of its own development could easily be turned against it. All over the world people had to confront the reality that, regardless of the social system or the geographic position of their country, their occupation or ideological convictions, they could become victims of a lethal attack. An intense, although brief, moment of international solidarity followed.

Unfortunately, rather than channelling this solidarity into cooperative action in the area of international conflict resolution, another path was taken. The attacks catalysed the emerging foreign policy direction of the USA, which was marked by a strongly unilateralist, belligerent attitude. The image of a new enemy—terrorists, more specifically Islamist terrorists—and a cause, the 'global war on terrorism', crystallized rapidly and led to radical revision of security and military policies. The USA responded to the September 2001 attacks with the invasion of Afghanistan, in which it engaged its Western allies, although principally after the fact. The 2003 intervention in Iraq led to an open split between the traditional Atlantic allies and their new partners in the ECE countries that made evident the deep differences of approach to addressing new threats. The subsequent terrorist attacks that took place in European capitals—in March 2004 in Madrid and in July 2005 in London—reinforced and were used to justify the US approach, although in the face of strong popular opposition in Western Europe. However, they also made clear that the contemporary security threats had to be tackled in a comprehensive way, not just by military force.

Two decades after the end of the cold war, novel security challenges and enemies have emerged that are difficult to define and address. Insecurity is

¹ Harbom, L. and Wallensteen, P., 'Armed conflicts, 1946–2009', *Journal of Peace Research*, vol. 407, no. 4 (July 2010), pp. 505–509.

seen not just in terms of traditional military threats but as a range of new, diffuse threats and risks, including terrorism, natural disasters, renewed fighting for control of natural resources, pandemics and explosive regional conflicts. New strategies and tools are needed to address them. The solid cold war blocs of alliances with clear goals, hierarchies, institutional structures and arms industries geared to stabilizing the status quo have been replaced by a multiplying number of security actors in constantly shifting constellations of power.² In this new, continually changing political and security environment, rapid adjustment and reaction have become crucial.

The role of the traditional security providers has also evolved and in some instances, such as states or NATO, it has weakened. After the cold war the USA gained uncontested and overwhelming economic, political and military strength, a situation that carried evident risks. President George W. Bush's neoconservative revolution had a marked security and military agenda that was based on the assumption that the USA's mission was to secure economic and military dominance and impose its values around the world by all possible means, including military ones. US unilateralism became possible and was reinforced by the rapid technological progress that the country's arms industry has made since the 1980s, and it was bolstered by increasing military budgets.

The balance of power between states and regional and international organizations is also shifting. The United Nations, regional organizations such as the African Union and the EU, and NATO have become more active in managing conflict and building peace, although their roles and significance are not yet fully defined. Important regional players such as Brazil, China and India, three emerging economic powers with considerable military potential, have also started to seek more prominent political roles. Led by an increasingly confident Vladimir Putin (and by his nominee, Dmitry Medvedev), who introduced a new type of authoritarianism, Russia has recovered from the shock caused by the collapse of the Warsaw Pact and the Soviet Union. It is eager to secure its place in the new world order, skillfully using changing political alliances and non-military 'weapons', such as controlling gas supplies to its neighbours.

² See e.g. Bailes, A. J. K., 'A world of risk', *SIPRI Yearbook 2007: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2007), pp. 1–20; Bailes, A. J. K., 'Designing a comprehensive security policy for Europe and European states', eds A. Aldis and M. Drent, *Common Norms and Good Practices of Civil–Military Relations in the EU*, Harmonie Paper no. 21 (Centre for European Security Studies: Groningen, July 2008); Krause, K. and Milliken, J., 'The challenge of non-state armed groups', *Contemporary Security Policy*, vol. 30, no. 2 (Aug. 2009); and Bailes, A. J. K., Krause, K. and Winkler, T., *The Shifting Face of Violence*, Geneva Centre for the Democratic Control of Armed Forces (DCAF) Policy Paper no. 18 (DCAF: Geneva, 2007).

The revolution in military affairs

The revolution in military affairs, which grew out of a mutually reinforcing combination of technical advances and new operational concepts, has affected the arms industry fundamentally in three areas: production processes, perceptions of conflict and the means of fighting them, and escalating financial requirements leading to higher military budgets.

The industrial antecedent of the revolution in military affairs was a change in the technological development of heavy industry that began in the Japanese car-making sector. The post-Fordist mode of production was replaced by ‘lean manufacturing’, characterized by the elimination of waste, flexibility, continuous improvement of the products and working methods, and consumer-focused production. These changes led to better quality products and reduced production time and cost. Coupled with a new mode of industrial organization—virtual partnerships or enterprises (temporary alliances to share skills and resources that are supported by computer networks)—the system was called ‘agile manufacturing’. It spread first in the USA and then, simultaneously with accelerating globalization, throughout the world.³

Agile manufacturing was gradually adopted in the US military industry as arms companies realized that, thanks to new production methods and the increasing integration of information technology (IT), civil producers had become more efficient and flexible than in the past. The pressure to catch up with civil producers became imperative as demand decreased and tougher financial constraints were created by military budget cutbacks in the immediate aftermath of the cold war. The introduction of agile manufacturing and its requirements led to a true paradigm shift.⁴ The new production system used computer-controlled, flexible machine tools and lean manufacturing processes in virtual enterprises that could rapidly be reconfigured and were able to produce increasingly ‘knowledge-intensive’ high-tech weapons at low volumes.⁵ The systems integrated the latest results of civil developments, particularly in IT, into the manufacturing process and into the weapon systems themselves.⁶

These changes contributed to the creation of a new arms industry base by the early 2000s. Instead of monolithic blocs of large-scale, national pro-

³ Nagel, R. N., Goldman, S. L. and Preiss, K., ‘Summary and action agendas’, eds S. L. Goldman and K. Preiss, *21st Century Manufacturing Enterprise Strategy*, vol. 1, *An Industry-Led View* (Lehigh University, Iacocca Institute: Bethlehem, PA, 1991); and Bitzinger, R. A., ‘The revolution in military affairs and the global defence industry: reactions and interactions’, *Security Challenges*, vol. 4, no. 4 (summer 2008).

⁴ Latham, A., ‘The contemporary restructuring of the US arms industry: toward “agile manufacturing”’, *Contemporary Security Policy*, vol. 18, no. 1 (Apr. 1997).

⁵ Latham (note 4), p. 109.

⁶ Hayward, K., ‘The globalization of defense industries’, *Survival*, vol. 42, no. 2 (summer 2000), p. 117; and Latham (note 4).

ducers, the sector has become a looser network of companies of different types, sizes and natures that cooperate or compete with each other in rapidly changing constellations.⁷ The production system has expanded significantly; more actors participate in it through networks that extend both geographically and in terms of the partnerships and resources used to produce goods and services. Arms support, logistic, maintenance and development services have become organic parts of the revamped arms industry. Agile manufacturing has also changed the nature of primary contractors: system providers have become more important relative to conventional platform manufacturers. The integration of new production or research centres and their products into highly performing systems has become the crucial step. The elements of a production system can now be used to manufacture a wide variety of products that can be used for military purposes, in natural disaster mitigation or in counterterrorism. Major arms contractors no longer have to be military industrial producers. Companies in the financial, IT and communications sectors thus find it easier to enter arms production and the related markets.

The capital-intensive nature of the new military technologies, the facts that weapons can be remotely guided and that computer-controlled equipment can perform tasks that were previously done by humans have changed perceptions of war-fighting, risk, security threats and international relations. The possibility of reducing human losses—for the users of high-tech equipment—has liberated the imagination of military actors and shifted responsibilities for political decision makers. The recent armed conflicts in Kosovo, Iraq and Afghanistan bear the marks of virtual warfare waged at the desks of military strategists. In a mutually reinforcing dynamic, the new perceptions of threats and the new technological possibilities have created radical changes in equipment needs. Instead of the large weapon platforms (tanks, armoured vehicles, aircraft and ships) that addressed cold war military needs, today's armed forces require more, increasingly flexible and mobile systems that can be used in various situations.

The new, complex weapon systems require novel high-performance materials and significant R&D and other resources and are thus extremely expensive, their costs increasing exponentially. To pay for them, military

⁷ A study of the defence market was commissioned by the US Department of Defense. See Bialos, J. P., Fisher, C. E. and Koehl, S. L., *Fortresses & Icebergs: The Evolution of the Transatlantic Defense Market and the Implications for U.S. National Security Policy*, vol. 2, *Country Studies* (Johns Hopkins University, Center for Transatlantic Relations and School of Advanced International Studies: Washington, DC, 2009). See also Kapstein, E. B., *Arsenal's End? American Power and the Global Defense Industry* (Center for a New American Security: Washington, DC, Feb. 2010).

budgets must be increased or pooled, and sometimes supplemented by private capital, which brings with it a new set of ramifications.⁸

Globalization

Globalization can be defined as the ‘integration of economies around the world, particularly through the movement of goods, services, and capital across borders’ and also as the ‘movement of people (labor) and knowledge (technology) across international borders’.⁹ These centuries-long processes have accelerated and taken new forms in the past two decades because of fundamental technological changes and the fact that, once liberated from the constraints of the political and institutional barriers presented by the Communist bloc, the capitalist system was free to expand. Due to intensifying globalization, to the increased ease of international transactions and to the systemic dismantling of boundaries and frontiers that have restricted the free flow of capital assets, weapon production continually enters new areas, in both geographic and economic terms. Two manifestations of globalization—the emergence of global industrial actors and the liberalization of markets—particularly affected the arms sector. In order to remain competitive, arms firms were obliged to streamline and integrate their assets as they simultaneously widened the scope of their activities. Deregulation not only made possible the free movement of capital, technology, people and know-how around the world, but also enabled arms companies to create global production networks in order to enter new markets and take advantage of economies of scale, making use of cost and tax reductions.

The globalization of arms production proceeded relatively slowly for a long period but accelerated after the end of the cold war. The development and manufacturing of arms today is characterized by ‘new industrial linkages, international subcontracting, joint ventures, cross-border mergers and acquisitions instead of traditional, single country patterns’.¹⁰ Integration into the global arms-producing and distribution networks has become a precondition of survival for arms manufacturers. Attempts to isolate domestic arms industries and promote endogenous development seem doomed to fail except in extreme cases like North Korea. While the

⁸ Vlachos-Dengler, K., *Off Track? The Future of the European Defense Industry* (RAND: Santa Monica, CA, 2004), p. 71; and ‘The cost of weapons: defence spending in a time of austerity’, *The Economist*, 26 Aug. 2010.

⁹ International Monetary Fund staff, ‘Globalization: a brief overview’, May 2008, <<http://www.imf.org/external/np/exr/ib/2008/053008.htm>>.

¹⁰ Bitzinger, R. A. (ed.), *The Modern Defense Industry: Political, Economic, and Technological Issues* (Praeger Security International: Santa Barbara, CA, 2009), p. 6. See also Bitzinger, R. A., ‘Globalization in the post-cold war defense industry: challenges and opportunities’, eds A. R. Markusen and S. S. Costigan, *Arming the Future: A Defense Industry for the 21st Century* (Council on Foreign Relations Press: New York, 1999).

creation of these modern production networks can help companies to reduce their operating costs, they also represent significant security risks. The increasing movement of military products facilitates the diversion of the weapons that may be used in conflicts—from small arms and light weapons (SALW) to the materials and know-how for the production of nuclear weapons. Globalization of arms production has the worrying collateral effects of contributing to the proliferation of arms, arms-producing capacity and new conflict actors. The global arms industry produces large quantities of various weapons that are easily accessible for use in the most unstable parts of the world. It has also made it more difficult to trace and control arms and dual-use materials. The spreading of arms-producing assets can be more dangerous than the proliferation of weapons themselves since it multiplies the potential number of sources of arms. In the early 1990s, when the process was just about to begin, Richard Bitzinger noted that the internationalization of weapon production is, or can be, a new form of proliferation.¹¹

II. The new structure of the arms industry

By the early 2000s the main features of a new international military industrial sector had become apparent. They reflected the changed conditions: new security threats that must be met by new types of weapon produced under different technological, political and economic conditions.

In its new form the military industrial sector is characterized by complexity, diversity and volatility. Hugely influential arms-producing ‘giants’ and a profusion of smaller players and specialized subcontractors cooperate and compete, often linked by ownership and joint projects. This structure has been compared to a bowl of spaghetti, where moving one strand sets the contents of the whole bowl in motion.¹² Markets and procurement practices have both changed fundamentally since the cold war, as has the relationship between the arms industry and the state. Arms producers must operate in rapidly changing regulatory and policy environments, but increasingly the arms-producing giants seek to shape national and international rules and policy to their advantage, with evident success.

A substantial body of work has been written on the changes in the US and West European arms industry since the 1990s; the rest of this chapter therefore provides only a brief summary of these events and a survey of

¹¹ See Bitzinger, R. A., ‘The globalization of the arms industry: the next proliferation challenge’, *International Security*, vol. 19, no. 2 (fall 1994), pp. 170–98.

¹² Vlachos-Dengler (note 8), p. 6.

those trends that are relevant to an understanding of the transformation of the arms industry in East Central Europe.¹³

Arms producers

Consolidation and the emergence of global giants

Reacting to shrinking military budgets, the post-cold war decay of arms markets and increasing costs due to the revolution in military affairs, in 1993 the administration of President Bill Clinton presented US arms producers with a stark choice: consolidate or perish.¹⁴ The industry responded with impressive speed and efficiency. Suzanne Patrick, US Deputy Under Secretary of Defense for Industrial Policy, noted that ‘What were 51 separate U.S. defense business units in 1980 became 5 large defense-focused firms by 1997—and those 5 firms became 4 by 2001. . . . The early to mid-1990s saw the merging of industry giants, and soon a repositioning of smaller and mid-size firms.’¹⁵ By the early 2000s consolidations, mergers and acquisitions led to a leaner and more flexible military sector and the emergence of four industrial arms-producing giants in the USA: Boeing, Lockheed Martin, Northrop Grumman and Raytheon. Smaller companies that managed to stabilize their positions at that time included General Dynamics, General Electric (GE), Honeywell, United Defense Industries (which was later acquired by BAE Systems) and United Technologies Cor-

¹³ See e.g. eds Markusen and Costigan (note 10); Bitzinger, ‘Globalization in the post-cold war defense industry’ (note 10); Jones, S. G., ‘The rise of Europe’s defense industry’, US–Europe Analysis Series, Brookings Institution, May 2005, <http://www.brookings.edu/papers/2005/05europe_jones.aspx>; Dunne, J. P. et al., ‘Concentration in the international arms industry’, University of the West of England, School of Economics, Economics Discussion Paper Series no. 03/01, 2003, <<http://carecon.org.uk/DPs/>>; Flournoy, M. A. et al., *European Defense Integration: Bridging the Gap between Strategy and Capabilities* (Center for Strategic and International Studies: Washington, DC, Oct. 2005); Vlachos-Dengler (note 8); Masson, H. and Paulin, C., *Perspectives d’évolution de l’industrie de défense en Europe* [Outlook for the defence industry in Europe] (Fondation pour la Recherche Stratégique: Paris, Sep. 2007); Thompson, L. C. and Ronis, S. R. (eds), *U.S. Defense Industrial Base: National Security Implications of a Globalized World* (National Defense University Press: Washington, DC, 2006); James, A. D., ‘The defence industry and “transformation”: a European perspective’, *Security Challenges*, vol. 4, no. 4 (summer 2008), pp. 39–55; Ben-Ari, G. et al., Defense-Industrial Initiatives Group, *European Defense Trends: Budgets, Regulatory Frameworks, and the Industrial Base*, Annotated Brief (Center for Strategic and International Studies: Washington, DC, May 2010); Guay, T., ‘Globalization and the transatlantic defense industrial base’, *UNISCI Discussion Papers*, no. 19 (Jan. 2009); Bialos et al. (note 7); and ed. Bitzinger, *The Modern Defense Industry* (note 10).

¹⁴ Oden, M., ‘Cashing in, cashing out, and converting: restructuring of the defense industrial base in the 1990s’, eds Markusen and Costigan (note 10). See also Dunne, J. P. and Surry, E., ‘Arms production’, *SIPRI Yearbook 2006: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2006), pp. 387–418.

¹⁵ Patrick, S., Under Secretary of Defense (Industrial Policy), Remarks at an American Institute of Aeronautics and Astronautics Conference, Feb. 2002, quoted in Bialos, Fisher and Koehl (note 7), vol. 2, p. 638.

poration (UTC). Another 5 to 10 mid-sized companies and many smaller niche players survived.¹⁶

In contrast to the past, when large arms firms specialized in one or two areas of weapon production, today's US 'mega defence companies' are active in several fields from aerospace to land systems and each has expanded into the IT sector, so that they are engaged in electronics and software as well. They have become 'critical lead system integrators' able to manage large, complicated acquisition programmes, amalgamating several disparate systems of military hardware and software into a single functioning arrangement of systems.¹⁷

The US arms-producing giants dominate the world's arms industry. In 2011, 4 of the 5 top defence companies and 7 of the top 10 such companies were US firms. In the same year, the largest of the US giants, Lockheed Martin, realized \$36 billion in defence revenues. This sum is more than twice the combined defence budgets of the six ECE countries (\$17.6 billion) that are discussed in this book. The largest Europe-based company, BAE Systems, which has extremely tight connections with the US defence industrial base, realized \$29 billion.¹⁸

West European firms reacted to the changed international environment more slowly and less radically than their US counterparts. They were less competitive and dynamic and functioned in a more permissive environment with more government support. European economic integration efforts had a limited impact on Europe's arms industry.¹⁹ Even though arms trade became more liberalized, with several European countries, principally the United Kingdom, purchasing weapons from non-European sources, the status of the national champions was not challenged. Changes started when European governments and institutions realized that the fundamental transformations that were taking place in the US arms industry base might threaten the survival of their own arms industries and called for revamping of the sector.

¹⁶ Vlachos-Dengler (note 8); and Flournoy et al. (note 13). By 2011 General Dynamics had higher arms sales than Raytheon and Northrop Grumman. Jackson, S. T., 'The SIPRI Top 100 arms-producing companies, 2011', *SIPRI Yearbook 2013: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2013).

¹⁷ ed. Bitzinger, *The Modern Defense Industry* (note 10), pp. 176–77.

¹⁸ Jackson (note 16); and SIPRI Military Expenditure Database, <<http://www.sipri.org/databases/milex>>.

¹⁹ Article 223 (later 296 and now 346) of the Treaty of Rome excludes the 'production of or trade in arms, munitions and war material' from EU legislation and regulations in deference to the member states' national security concerns. European Commission, Interpretative Communication on the application of Article 296 of the Treaty in the field of defence procurement, COM(2006) 779 final, Brussels, 7 Dec. 2006. The Treaty Establishing the European Economic Community (Treaty of Rome) was signed on 25 Mar. 1957 and entered into force on 1 Jan. 1958. The formal title was changed in 1992 to the Treaty Establishing the European Community and again in 2009 to the Treaty on the Functioning of the European Union. The original and amended texts are available at <<http://eur-lex.europa.eu/en/treaties/index.htm>>.

As a result of the mergers and acquisitions process that followed, by the mid-2000s five giants—BAE Systems, the European Aeronautic Defence and Space Company (EADS, now known as Airbus Group), Finmeccanica, MBDA (a joint venture co-owned by BAE Systems, EADS and Finmeccanica) and Thales—had emerged in Europe and solidified their positions on the world scene. They remain among the top 10 arms producers measured by sales.²⁰ Both EADS and MBDA are pan-European rather than national ventures.²¹

Subcontractors

The arms industry giants are only the tip of an iceberg. An extremely diverse, complex, dynamic and often opaque world exists beneath them comprising globally dispersed, multi-level networks of subcontractors providing specialized knowledge, products and capacity far more quickly and cheaply than the primary producers could. Subcontractors and intermediaries far outnumber primary producers. The increasing marketization of the military sector has also prompted an impressive proliferation of military-related trade, consultancy, logistics and service companies. This trend has been boosted by the fact that ministries of defence have recently started to seek the services of system integrators, rather than producers of particular final products or platforms. They increasingly articulate their requests in the form of a need or a target instead of a specific product. Tender winners are expected to provide the best that the industry can produce, whether civil or military, not only what their own company or team can offer.

Subcontractors are diverse and range in size from those that employ a handful of people to those that employ thousands. They can be exclusively defence-oriented or completely civil, or any combination. They can also be traditional or high-tech producers or integrators for other subcontractors. Some are state owned, some private. Companies in subcontractor networks tend to be smaller than prime contractors (a contractor that has a direct contract for an entire project), but they are often more advanced technologically and more efficient. Cutting-edge technologies, innovations, new products and methods are often developed at the lower echelons of the supplier chain. A recent trend is for prime contractors to share R&D and development costs with their suppliers in order to cut expenses, lower risks and reinforce ties with them.²²

²⁰ Vlachos-Dengler (note 8), p. 4; and Jackson (note 16).

²¹ Vlachos-Dengler (note 8); Schmitt, B. (ed.), *Between Cooperation and Competition: The Transatlantic Defence Market*, Chaillot Paper no. 44 (Western European Union Institute for Security Studies: Paris, Jan. 2001); and Schmitt, B., *The European Union and Armaments: Getting a Bigger Bang for the Euro*, Chaillot Paper no. 63 (Western European Union Institute for Security Studies: Paris, Aug. 2003), p. 10.

²² Hayward (note 6); and Vlachos-Dengler (note 8).

Usually a subcontractor's goal is to become a first-tier or, ideally, an exclusive supplier. While this status might assure financial and existential security, it can also lead to over-dependence on one major customer or overspecialization. At the bottom of the supplier chain, companies have to weigh the costs and benefits of low-level, restricted participation in major supplier chains against production that is focused on other markets.

Relationships between major prime contractors and their subcontractors are generally obscure. The prime contractors may be awarded major procurement deals and, subsequently, place orders of considerable size with subcontractors. However, smaller and more flexible companies with specialized products or know-how enjoy more freedom and can focus on minor defence-related subcontracts or create alliances with a wide range of firms that often compete with each other. Before a major procurement contract is awarded, the bidders build up parallel supplier chains, often employing the same subcontractors. Subcontractors are sometimes able to serve two masters and benefit from their competition until a contract is signed. This practice makes the sector more flexible but can push prices up and lead to a considerable waste of resources.²³

Diversity and blurring identities

Despite the period of consolidation in the arms industry, the sector today is more diverse than ever before. In part this is because privatization, internationalization and other transformations have taken place at different paces and to different extents in different parts of the world. Some arms-producing companies have become integrated industry segments of transnational corporations; some traditional arms producers have enjoyed generous government support as national flagships, while others have been left alone to struggle for survival; and still others are dynamic newcomers that are eager to assert their place on the market. Some companies are linked through intergovernmental cooperative projects; some create their own guilds or lobbies; and some try to fend for themselves. Depending on their position in the international markets and the domestic economy, and the nature of the company, they have reacted differently to economic changes and security threats.

One aspect of diversification is that arms industry firms today have multiple identities, whose differences are often barely discernible. For example, it has become increasingly difficult to define the national identity of many companies since production premises, markets and ownership are not necessarily at the same geographical location, and the development of new products can involve input from subcontractors around the globe. The

²³ On the subtle play of competition and cooperation in these projects see Kapstein, E. B., 'Capturing Fortress Europe: international collaboration and the Joint Strike Fighter', *Survival*, vol. 46, no. 3 (autumn 2004), pp. 137–60.

share of external inputs in military development and production is very high in the USA, where market protection is strong, and may be even higher in the European arms industry.²⁴ One major consequence of the creation of wide and complex subcontractor networks is that borders between national and international entities are becoming ever more blurred.

Privatization has blurred ownership identities in the arms industry. Privatization of the arms industry and of other defence-related activities manifests itself in a variety of forms, including off-the-shelf procurement, the outsourcing of security-related services, the use of private security firms, public-private partnerships (partnerships between government and the private sector) and the privatization of arms industry assets. State ownership in the arms industry, which still exists but at a much lower level than 20 years ago, provides a degree of protection and stability to the industry but is often regarded with suspicion by potential business partners and tends to push down the market value of arms producers.²⁵ In principle, privatization can open up the sector and push it towards better performance. The breaking up of state monopolies and the softening of the secrecy rules that traditionally characterized the arms industry are welcome signs of increasing transparency. At the same time, privatization inevitably turns the provision of security into a commercial undertaking that has serious risks.²⁶ Along with globalization, the increasing commercialization complicates the identification of a company's motivations and activities. Manpower issues or export orientation have one meaning for companies that are firmly implanted in a national economic context and another for those that are part of a loose network of producers, integrators and traders or those that function as enclaves in isolation. Furthermore, while public provision of security is expected to serve the common good in a region's or country's security, at least in principle, private undertakings are primarily geared towards maximizing profit. There is thus justified concern about the proliferation of purely private contractors in the military

²⁴ This is not new phenomenon. Pierre A. Chao's examples, from the creation of the atom bomb by refugees from Central Europe after World War II to the design of the next generation of the F-35 (Joint Strike Fighter) using a wide array of European (mostly British) components, convincingly demonstrate that none of the outstanding components of the US military arsenal has been developed without outside help. Chao, P. A., 'The future of the US defense industrial base: national security implications of a globalized world', eds Thompson and Ronis (note 13), pp. 4-5.

²⁵ On the varying degrees of privatization in the European arms industry see O'Donnell, C. M., 'How should Europe respond to sovereign investors in its defence sector?', Policy Brief, Center for European Reform, Sep. 2010, <<http://www.cer.org.uk/publications/archive/policy-brief/2010/how-should-europe-respond-sovereign-investors-its-defence-sec>>.

²⁶ In his presentation of the stages of the internationalization of defence-related production and trade Bitzinger notes that the present stage of the process is principally driven by economic and not strategic considerations as it was in the past. Bitzinger, 'Globalization in the post-cold war defense industry' (note 10).

field.²⁷ Commercial confidentiality also provides new obstacles to transparency.

Civil versus military identity has also become difficult to distinguish. The merging of civil and military activities and the increasing use of dual-use products and technology (i.e. those that have both civil and military applications) have made the boundaries of the military sector more difficult to delineate. Even companies with no military background can now win major military contracts. Most arms industry actors have a significant share of civil production in order to take advantage of dual uses of their technologies and to compensate for the fluctuations of the arms or civil markets. However, a critical mass of arms-related output or revenues is generally necessary for companies to be considered arms-related entities. This critical mass depends on the nature of the production, the size of the company and external factors, such as security certificates, the adaptation of military standards and participation in military networks. In deciding how much of their resources to devote to defence-related work, companies seek an optimal or convenient balance between full military sector dependence and being able to generate enough revenue to make it worthwhile to accept the complications and restrictions that are specific to the field. Generally, most companies aim for a mix of civil and military activities. It is an open—and perhaps redundant—question whether this leads to the civilization of military production, the militarization of civil production or a combination of the two.

Uneven development

Arms producers and related companies operate on a playing field that is far from level. Assets, production facilities, resources, know-how and market access are unevenly distributed. The sector is defined by the needs and activities of the large players. The global dominance of US-based arms producers is undisputed. While the UK's BAE Systems had the highest arms sales of any arms producer worldwide in 2008, global arms production was still dominated by US firms. In 2011 the combined arms sales of the top four US players—Boeing, Lockheed Martin, Raytheon and General Dynamics (which had replaced Northrop Grumman in the top four)—was \$114 billion, compared to \$69.6 billion for the top four European producers, BAE Systems, EADS, Finmeccanica and Thales.²⁸ In Europe the big countries and their large companies also set the defence and security agenda. Arms industry assets and their financing were and continue to be concentrated in

²⁷ See e.g. Bailes, A. J. K. and Frommelt, I. (eds), SIPRI, *Business and Security: Public-Private Sector Relationships in a New Security Environment* (Oxford University Press: Oxford, 2004); and Markusen, A., *The Case against Privatizing National Security* (Council on Foreign Relations: New York, 2001).

²⁸ Jackson (note 16). See more in Neuman, S. G., 'Power, influence, and hierarchy: defense industries in a unipolar world', *Defence and Peace Economics*, vol. 21, no. 1 (2010), pp. 105–34.

France, Germany, Italy, Spain, Sweden and the UK, which in 2001 represented more than 90 per cent of Europe's arms industry capabilities, 85 per cent of EU military spending and 98 per cent of military R&D expenditure.²⁹ In 2012 four countries—France, Germany, Italy and the UK—provided approximately 73 per cent of EU defence spending. With the addition of Spain, the Netherlands, Poland, Greece, Sweden and Belgium, 10 countries accounted for 91 per cent of EU spending.³⁰

These differences are likely to increase since the uneven nature of development in the sector has been accentuated in the past two decades. The gaps between European and US defence and procurement budgets and R&D expenditure are increasing. The dissimilarity between the size, markets, turnover and business opportunities of European and US companies is also growing. On both sides of the Atlantic the gap between the large-scale, dominant arms-producing companies and the rest of the national arms industry is widening as well.

Significant differences are increasing between the major arms-producing branches in terms of technological level, asset value, size, degree of integration, international networks, market share, organizational structure and way of functioning. For example, at the high-end of the industry, the aerospace and IT branches are characterized by cutting-edge technology, high-quality inputs and substantial R&D investment. They are extremely capital-intensive, have long research, application and production cycles, and provide a limited amount of often customized, expensive items to specific, usually government-related markets, in a selected circle of countries. At the same time, at the bottom of the sector, the bulk of the traditional SALW producers are geared towards low-capital-intensive, relatively cheap mass production, with comparatively short production cycles, targeting a wide range of markets all over the world. Firms in other sectors between these polar opposites, such as the conventional heavy armament or naval construction firms, display significant differences and are also configured in a variety of ways.

The increasing differentiation and uneven development is accentuated further by the varying pace of development in the different parts of the world. Arms industry consolidation followed dissimilar rhythms on the opposite sides of the Atlantic. West European governments only began to encourage industrial consolidation in 1997–98, by which time the consolidation process in the USA was already slowing.³¹ By the time a handful of

²⁹ ed. Schmitt (note 21), p. 10.

³⁰ Keohane, D. and Blommestijn, C., 'Strength in numbers? Comparing EU military capabilities in 2009 with 1999', Policy Brief no. 5, European Union Institute for Security Studies, Dec 2009, <<http://www.iss.europa.eu/publications/detail/article/strength-in-numbers-comparing-eu-military-capabilities-in-2009-with-1999/>>, p. 3.

³¹ Jones (note 13), p. 5; and Jones, S. G., 'The rise of a European defense', *Political Science Quarterly*, vol. 121, no. 2 (summer 2006), pp. 241–67.

European giants emerged and were ready to compete, cooperate or merge with their US counterparts, the USA's policy was focused on promoting and protecting its domestic arms industry. When European military policy began to be institutionalized, with increasing emphasis on the development of a predominantly European arms industry base in the early 2000s, George W. Bush, then serving his second term as US President, sought to make US policy less exclusive.

When West European and US firms were busy merging and acquiring new companies, the arms producers in East Central Europe were experiencing a period of decentralization and disintegration. By the early 2000s, when the West European and US firms had started to look for production partners in the ECE countries, only Poland and Romania had relatively sizeable arms-producing companies because only they had not dismantled their flagship arms producers. None of the Top 100 arms producers for 2011 identified by SIPRI was based in East Central Europe.³²

The dissimilarities between the segments of the global arms industry are so marked that they can appear to belong to different eras. At one end of the scale 'futuristic' military developers and producers supply sophisticated, high-tech weapons that can be used to wage virtual wars on their design tables and, ultimately, in the field. At the other are local non-state actors taking an entirely different approach and using simpler more traditional and even crude but effective improvised weapons. The meeting of these different realities in asymmetrical conflict can prove catastrophic, as recent experiences in Afghanistan and Iraq have painfully demonstrated. Actors who are able to mediate between these dramatically different worlds can be extremely useful and help to prevent conflict or assist in crisis management. Unfortunately, most of them have instead pursued personal enrichment or destructive projects. The Russian businessman Viktor Bout made his fortune by bridging the development gaps between the advanced and traditional segments of global arms production.³³ The 2001 terrorist attacks on the USA used a combination of traditional guerrilla techniques and sophisticated IT.³⁴ One of the strengths of organizations like al-Qaeda is their employment of a unique and efficient combination of such elements.

³² Jackson (note 16).

³³ Farah, D. and Braun, S., 'The merchant of death', *Foreign Policy*, Nov./Dec. 2006; Bidder, B., Follath, E. and Schepp, M., 'Trapping the lord of war, the rise and fall of Viktor Bout', *Der Spiegel*, 10 June 2010; Fuller, T., 'Arms suspect vows to win case in U.S. after extradition order', *New York Times*, 20 Aug. 2010; 'Bout case: new intrigue in Manhattan court', *Voice of Russia*, 22 July 2011, <<http://english.ruvr.ru/2011/07/22/53593875.html>>; and US Attorney, Southern District of New York, 'International arms dealer Viktor Bout sentenced in Manhattan federal court to 25 years in prison for terrorism crimes', Press release, 5 Apr. 2012, <http://www.justice.gov/usao/nys/press_releases/April12/boutviktorsentencingpr.pdf>.

³⁴ Stepanova, E., *Terrorism in Asymmetrical Conflict: Ideological and Structural Aspects*, SIPRI Research Report no. 23 (Oxford University Press: Oxford, 2008).

A changing market

The end of the cold war had a huge impact on military budgets and the overall size of the international arms market. For the cold war adversaries the emphasis shifted from building up to massively reducing their conventional arsenals. This not only affected their procurement programmes, but also meant that new production had to compete with second-hand equipment in the export markets. European military budgets remained stagnant or increased only modestly, which naturally affected the arms market. Since the 1990s the bulk of European countries have had decreasing, flat or at most slightly increasing military budgets except for the new NATO members, which pledged to raise their military expenditure to match (or at least approach) the alliance average.³⁵ The ECE countries increased their budgets during that period, and approximately 20 per cent of their defence budgets were spent on equipment, including research and development. The level of spending was on a par with that of France in the same period. Nonetheless, military R&D dropped by 16 per cent from €12.3 billion (\$11.0 billion) to €10.3 billion (\$15.1 billion) between 2001 and 2008.³⁶

In the USA the downward trend reversed and the military budget started to increase in the late 1990s. By 2005 it had reached \$503 billion, representing approximately half of the world's total military spending and over three-quarters of global military R&D spending.³⁷ The 2007 budget also increased, with a significant portion allocated for weapon programmes. The 2008 budget pushed military spending higher than it had been since World War II, exceeding spending at the height of the 1950–53 Korean War and the 1965–73 US military intervention in Viet Nam.³⁸ In 2009 US military spending rose to \$661 billion.³⁹ The share of procurement has grown steadily in the US military budget, while it has stagnated or increased only modestly in the military budgets of most European countries. Between 1991 and 2004 total defence spending of the six largest EU arms-producing countries (France, Germany, Italy, Spain, Sweden and the UK) fell by 12 per cent. Military-related R&D fell 47 per cent between 1999 and 2003, from \$8.1 billion to \$3.9 billion and has been basically flat since then. US spending on procurement and R&D more than doubled between 2000 and 2008, increasing from \$116 billion to \$255 billion. According to European Defence Agency (EDA) figures, in 2007 EU member states spent \$60 billion on equipment and R&D; in the same year the USA spent \$154.9 billion, more

³⁵ SIPRI Military Expenditure Database (note 18).

³⁶ Ben-Ari et al. (note 13), pp. 1–8, 31.

³⁷ SIPRI Military Expenditure Database (note 18); and Chao (note 24), pp. 4–5.

³⁸ Matthews, W., 'The GDP argument: should defense spending be tied to U.S. economic growth?', *Armed Forces Journal*, Mar. 2007.

³⁹ SIPRI Military Expenditure Database (note 18).

than three times more on equipment and almost six times more on R&D. The share of equipment and R&D in the US defence budget is approximately one-third, while the EU members allocate 20.5 per cent for equipment and R&D.⁴⁰

US arms producers have been able to count on a gradually increasing homeland security budget, which has provided them with another valuable alternative market. The military budgets of certain emerging countries, such as China, India, Russia and Saudi Arabia, have also increased.⁴¹ Some new international agencies, such as the EDA, have also entered the market, albeit with a relatively limited budget.

The impact of the financial crisis that began in 2008 did not immediately affect defence budgets since most large-scale procurement projects had already been planned or begun, but experts expected substantial real cuts in defence outlays after 2011 because of mounting inflationary and fiscal pressures.⁴² By 2010 most defence budgets had been significantly downsized.

The world arms market has also experienced significant changes. In the mid-1990s, during a temporary military budget slump, the Clinton administration pushed to increase US military exports worldwide. In the 1980s the Soviet Union and the USA each had one-third of the global military export market; by 2000 the USA had more than half of the same market with most of the gains at the expense of the former Warsaw Pact countries.⁴³ Russia later resumed arms exporting on a large scale, but it continues to lag behind the USA. A handful of powerful competitors, such as the European giants, hope to challenge the USA's dominant position, but US-based arms producers dominate two of the world's most important arms markets—the US domestic market and export markets. The US defence market accounts for almost half of the world's arms purchases, and 90 per cent of it is covered by US firms that regularly also capture 40–50 per cent of export markets. The large US domestic production runs allow US weapon systems to be sold outside the USA at very competitive prices.⁴⁴ The annual report of the Congressional Research Service stated that in 2008, during a drop in global arms sales, the USA signed weapon agreements valued at \$37.8 billion, or 68.4 per cent of all global arms business.⁴⁵

⁴⁰ ed. Bitzinger, *The Modern Defense Industry* (note 10), pp. 177, 181.

⁴¹ Lague, D., 'Beijing increases defense spending', *New York Times*, 4 Mar. 2007; and Perlo-Freeman, S. et al, 'Military expenditure', *SIPRI Yearbook 2011: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2011).

⁴² NATO Parliamentary Assembly, 'The global financial crisis and its impact on defence budgets', 2009 Annual Session, 178 ESC 09 E rev 1, information document, <<http://www.nato-pa.int/default.asp?SHORTCUT=1928>>; and Madslie, J., 'Military spending sets new record', BBC News, 8 June 2009, <<http://news.bbc.co.uk/2/hi/8086117.stm>>.

⁴³ Chao (note 24), p. 5.

⁴⁴ ed. Bitzinger, *The Modern Defense Industry* (note 10), pp. 177–78.

⁴⁵ Shanker, T., 'Despite slump, U.S. role as top arms supplier grows', *New York Times*, 7 Sep. 2009.

Transatlantic arms industry relations alternate between cooperation and competition. Companies on both sides of the Atlantic try to push each other out of the market while simultaneously seeking collaboration and, ultimately, co-ownership. Every move on the economic or political scene requires precise in-depth analysis and prompt reaction to change, a balance that necessitates extreme flexibility. European companies are eager to enter the lucrative and large US market, while also building up a primarily European-based industrial network. US firms jealously guard their unique relationship with the Department of Defense (DOD) and simultaneously look for inputs, partnerships and cooperation opportunities around the world. The US market is difficult to enter as a prime contractor or direct owner but offers advantageous opportunities at the subcontractor level. The cooperation–competition dynamic is also present in the interplay between the large established companies and some mid-sized conglomerates in the emerging economies that are gaining importance in the global defence industry.⁴⁶

The role of the state

Despite increasing privatization, the role of the state remains important. The decisions of national governments are still the basis for an arms industry firm's existence and are of primary importance. Nevertheless, the relationship between states and domestic arms producers has become less exclusive. The new structure of the arms sector in theory means that companies have considerable freedom in the way they execute an order, while military decision makers are not limited to the product range of their countries' key companies. Thus, national governments depend less on their country's arms industry bases to arm their forces than they once did.

This is not always a matter of choice. In the ECE countries and elsewhere, governments are obliged to update their military arsenal with foreign products not only because such products may be cheaper or they need to enter international weapon networks, but also because many domestic facilities have been destroyed since the end of the cold war. The surviving firms are unable to supply products that meet the new requirements. Large-scale procurement decisions have enormous political, economic and diplomatic ramifications and thus are subject to substantial manipulation and direct intervention by states, which are urged to do so by their key companies. This was particularly the case for the ECE countries when they were newcomers to the market and needed to modernize their armed

⁴⁶ ECORYS SCS Group, *FWC Sector Competitiveness Studies: Study on the Impact of Emerging Defence Markets and Competitors on the Competitiveness of the European Defence Sector*, Final report for the EU Commission (ECORYS: Rotterdam, 12 Feb. 2010); and 'Defense News top 100 for 2009', *Defense News*, 28 June 2010.

forces. They became the scene of spectacular competition between key arms industry players.

As far as the state's role in the arms industry is concerned, regional and country differences remain important. Countries' traditions and assets differ, as do their arms industry policies. Major differences exist in the share of state participation, market openness or R&D promotion. Some governments still find national flagships or their remnants indispensable and take measures to preserve and protect them. The degree and form of protection vary from practically abandoning domestic industrial bases, as in Slovakia and Sweden, to protecting national 'monuments', as in France and Poland. Differences clearly manifest themselves in procurement decisions. In the USA prime contractors are almost exclusively domestic.⁴⁷ In Europe there is a clear difference between the British and the French models. British policy is based on a value-for-money principle that opens up military procurement to foreign companies. In France, where state involvement in the sector is still considerable, procurement decisions are often aimed at benefiting domestic firms, in some cases even without a formal tender.⁴⁸

The balance of power between governments, international institutions and leading arms producers is permanently changing, but politics still often have the upper hand. Even in the most liberal and free market-oriented countries, state agencies continue to intervene directly in the sector. There is a complex interplay between government and defence-related entities. The US arms industry consolidation wave of the 1990s, for example, was initiated by the government but led to a situation in which global arms industry firms became very efficient at convincing the government to choose what they had to offer.⁴⁹ The wave of US mergers ended when political actors intervened again; the last planned mega-merger in the USA was blocked by state agencies in the summer of 1998.⁵⁰

Governments still have a wide array of tools with which to influence the sector, including procurement decisions and various forms of subsidy, such as funding for R&D, direct financial aid or export subsidies. Legislation is a powerful but less direct way to exercise power over the military sector. Governments decide what to emphasize, whether to preserve and promote their national arms-production base or push it towards international inte-

⁴⁷ ed. Bitzinger, *The Modern Defense Industry* (note 10), p. 177. See also Kluth, M., 'The politics and economics of European defense industry consolidation', Unpublished manuscript, 2006, p. 8; and Spiegel, P., 'Navy deal will test Pentagon priorities', *Financial Times*, 27 May 2004.

⁴⁸ John Lovering cites the examples of a French aircraft carrier contract that was awarded to the French company DCNS without prior tender and in Italy the easily won tenders of state-controlled Fincantieri. Lovering, J., 'Which way to turn? The European defense industry after the cold war', eds Markusen and Costigan (note 10). On the strong imprint of domestic suppliers see also Bialos et al. (note 7); and Kluth (note 47).

⁴⁹ eds Markusen and Costigan (note 10).

⁵⁰ Vlachos-Dengler (note 8), pp. 71–72.

gration or, most commonly, what combination of the two to select. Foreign procurement, or the threat of it, is also often used to discipline the largest national arms producers and to stimulate greater competitiveness among domestic firms.

From the perspective of the arms-producing companies, the changing relationship with the state has created a situation that is more complex, yet provides greater opportunities. They can no longer operate under the comfortable assumption that they have a captive market; procurement has become a more open process where they must bid, compete and prove their competence. At the same time, as their economic weight has increased, the giant arms producers have also accrued political power. Both European and US giants operate in what is practically an oligopoly. Their status and stature make it possible for them to influence their governments' policies, even shaping arms industry guidelines or setting the terms of government contracts that they will undertake. In the USA core arms industry actors have successfully lobbied for the introduction of 'buy American', 'tightening home security', 'post-war reconstruction' and 'global war on terrorism' policies and have benefited from the associated business opportunities.

The largest arms producers also undertake immense and costly restructuring and development projects that governments are often obliged to finance, although with little control over the process or guarantee of its efficiency. Financial markets also regularly overrate the arms-producing giants, which further raises their profile and economic importance. The economic and political clout of the arms-producing giants, the scope of their activities and the influence of their interest groups, which goes far beyond national boundaries, even enable them to act as supranational entities and have considerable impact on international relations and policy-making. As early as the 1990s, when the economic weight and political power of the arms-producing giants was less overwhelming than it is today, several observers warned of a situation in which neither market forces nor government measures could counterbalance the influence of the major arms companies.⁵¹

European arms industry firms seem to aspire to relationships like those between the DOD and the core arms producers in the USA. They usually pursue a two-track policy. They lobby national governments, using the arguments of sovereign defence and security policy. Simultaneously, they seek ways to enter into the supplier chains of global arms companies. Recently, they have also increasingly used the large room for manoeuvre that has opened as a result of EU-level defence and security initiatives and Europe-level organization of arms industry actors. Arms companies rapidly

⁵¹ Markusen, A. and Costigan, S., 'The military industrial challenge', eds Markusen and Costigan (note 10); and Markusen, A., 'The rise of world weapons', *Foreign Policy*, no. 114 (spring 1999), pp. 40–51.

realized that this new situation would enable them to act above the heads of national governments. By influencing defence-related legislation and policy at the European level, they have occasionally achieved more than they could via individual deals that must constantly be adjusted to the stop-and-go policies of national governments. The imprint of the European arms industry actors is increasingly visible on both national and international arms industry policy guidelines.

Limitations and weaknesses of the new arms industry structure

One of the declared aims of the state-induced mega-mergers was to increase efficiency in the defence sector and provide better economic choices for governments. In principle, the emergence of new types of firms at the centre of the defence scene has the potential to improve economic efficiency and the quality of security provision. Lead system integrators should be able to increase the flexibility of the procurement process, diminish its costs and increase the speed of delivery and the quality of the products provided.

The results, however, have been mixed. Consolidation undoubtedly brought some efficiency gains, particularly in financial and operational terms. A significant upsurge also occurred in military technology development, which was made possible by the pooling of resources. For shareholders the value and profit margins of arms-producing companies are still high and, even after the 2008 financial meltdown, the defence industry has remained an attractive investment option. According to Richard Aboulafia, vice president of the Virginia-based Teal Group, defence stocks still represent 'a refuge for investors, given mounting fears about a double-dip recession. . . . It's a safe haven compared to what else is out there. . . . It's as close as you can get to guaranteed returns.'⁵²

However, the profit-generating capacity of the firms does not necessarily coincide with efficiency measured in terms of productivity, favourable input and output, investment and return ratios, and increased internal synergy. Neither does it necessarily provide more security for taxpayers and customers. From the perspective of future technological and economic development, mergers do not seem to have brought the desired beneficial results. The giant actors of the global arms industry are not necessarily outstanding performers. The European Big Four (BAE Systems, EADS, Finmeccanica and Thales) are not even very profitable.⁵³ A recent study on

⁵² Quoted in Shalal-Esa, A., 'U.S. defense industry girding for predicted slump', Reuters, 3 Sep. 2010. See also Ben-Ari et al. (note 13), pp. 9–11; 'Defence', Special report, *Financial Times*, 8 Sep. 2009; and Boessenkool, A., 'Firms seek strategies for riding out downturn', *Defense News*, 20 July 2009.

⁵³ Vlachos-Dengler (note 8), p. 55.

the European arms industry shows that smaller defence and security companies tend to be more efficient and profitable than their larger competitors. The opposite trend applies in the civil industry.⁵⁴

In 1999 Ann Markusen drew attention to the facts that ‘surprisingly few plants’ have closed in the wave of arms industry consolidations in the 1990s in the USA and that ‘mergers have diminished competition, discouraged reinvestment in civilian product lines, and concentrated political power in the hands of a few firms’.⁵⁵ In 2005 Jacques Gansler, former Under Secretary of Defense for Acquisition, Technology, and Logistics in the Clinton administration, also noted that the US mega-mergers had led to the consolidation of firms at the financial level but tended to leave factories untouched, reduced competition and killed ‘innovation . . . “the real benefit of competition”’.⁵⁶ US arms industry reports tend to confirm this and highlight the fact that the price of weapon systems is continually rising.⁵⁷ A 2009 US Government Accountability Office report found that 96 of the largest weapon systems were nearly \$300 billion over budget.⁵⁸

One possible explanation for this is that the restructuring process was interrupted by changes in the international security environment and military expenditure increases from the late 1990s. Arms contractors saw with relief new opportunities opening up that made survival possible without them having to undertake demanding internal restructuring. It is revealing that it is now, more than a decade later and when confronted with the present crisis and budgetary restrictions, the world’s leading arms firms have started to consider radical measures to improve their efficiency and reduce production costs.⁵⁹ Another explanation may lie in the changing nature of arms producers. The trade and logistics companies and financial investors becoming increasingly involved in arms production may have particular networking, organizing and management skills that primary producers lack. They may also be able to deliver products faster and without regard to the limitations of a specific company or sector and be able to spot synergies and hidden reserves where a single company could not. However, there is an implicit danger with this increasing separation from the economic and technical realities of production. Financial investors are rarely aware of or

⁵⁴ Ben-Ari et al. (note 13), pp. 34–36.

⁵⁵ Markusen (note 51), p. 41.

⁵⁶ Quoted in Jacobson, K., ‘Jacques Gansler wonders what has happened to the defense industrial base’, *Manufacturing & Technology News*, 14 Nov. 2005.

⁵⁷ Matthews, W., ‘Monopoly money: relying on single suppliers could cost in the long run’, *Armed Forces Journal*, Mar. 2006; and Matthews, W., ‘Dis-integration: is private management of big defense programs out of control?’, *Armed Forces Journal*, Feb. 2006.

⁵⁸ Epstein, K., ‘Defense budget reflects shifting priorities: budget-cutting meets new geopolitical and fiscal realities in the Defense Secretary’s proposed spending plan’, *Bloomberg BusinessWeek*, 6 Apr. 2009.

⁵⁹ Shalal-Esa (note 52); ‘The cost of weapons’ (note 8); and Seetharaman, D., ‘U.S. arms makers adjust to new realities’, Reuters, 8 Sep. 2010.

interested in the realities of the production process. They may neglect important monetary, material or other reserves, synergies and the inherent development potential of the existing assets, while imposing other, primarily financial, profitability considerations. With the gradual alienation from the production process and its practical constraints and potentials, the arms industry is losing its built-in safety valves.

Furthermore, governments have less power over basically commercial companies than over exclusively military prime contractors. Whatever means states use to try to maintain control over the sector, if privately owned arms firms are responsible to institutional investors, the company management must consider financial interests, often at the expense of production. As Gansler noted, they primarily serve ‘the near-term objectives that Wall Street is driving them to’.⁶⁰ These tendencies have contributed to ballooning prices and serious delays in deliveries of major weapon systems.⁶¹ Markusen noted that the situation is not only inefficient but potentially dangerous: ‘mergers and weapons deals, which serve short-term stockholder interests and generate generous commissions, will not necessarily ensure efficient defense outfitting or, for that matter, international security’.⁶²

The post-2008 economic crisis has revealed the deep-rooted problems and destructive nature of the sweeping ‘financialization’ of the economy.⁶³ Most arms producers of the leading states are tightly connected to the main financial investors. Their future and the future of the large production networks attached to them depend to a great extent on the directions the investment companies and the governments of their home countries follow in the future. Thanks to partnership with institutional investors they could become even more powerful, but they could also be marginalized. At present it is difficult to foresee what will happen. One thing is clear: their fate is much less tied to security considerations than to economic or financial ones, which is in itself a major security threat.

Democratic control, monitoring and risk

Procurement decisions and legal frameworks are the main tools by which national governments and international institutions control the industry and, to a certain extent, guide it towards acting for the common good. Thus, the emerging tendency of arms industries to seek to shape government

⁶⁰ Quoted in Jacobson (note 56).

⁶¹ Matthews, ‘Dis-integration’ (note 57).

⁶² Markusen (note 51), p. 48.

⁶³ Gerald A. Epstein defines financialization as ‘the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies’. Epstein, G. A. (ed.), ‘Introduction: financialization and the world economy’, *Financialization and the World Economy* (Edward Elgar: Northampton, MA, 2006), p. 3.

policy is extremely dangerous. According to Transparency International, the arms industry is the world's second most corrupt economic sector.⁶⁴

It does not help that the sector has become more difficult to observe and control with the multiplication of arms industry actors, forms of production and transfer, and opportunities to interfere in national and international legislation.⁶⁵ The internationalization of the production process is far more advanced at the lower levels of the supplier chain than at the prime contractor level, adding to the difficulty of monitoring. Hence, it is often at this level that the undesired proliferation of arms-related know-how and technology takes place. International criminal and terrorist networks are becoming ever more important buyers and producers of a wide range of weapons, which has led to the creation of expanding new markets and has generated new spirals of violence that are difficult to control.

Civil society organizations and even some representatives of the traditional political establishment have called for more transparency and democratic control, demonstrating a growing awareness of this dangerous side effect of the sector's modernization. Stricter international regulation of the arms industry and markets should, in principle, cover a wider range of activities and contain potential problems. Furthermore, international civil society organizations have in recent years become increasingly efficient at representing global interests, sometimes almost taking on or contributing to the functions of state and international organizations, for example by mobilizing political forces to strengthen control over arms production and the arms trade.

A widening array of questions urgently needs global action and the widest possible participation of governments and non-governmental organizations (NGOs). Recent decades have witnessed the increasing mobilization of civil society in arms control and related areas, the successful introduction of binding regulations and the establishment of international agencies to safeguard global security. Even though, for the time being, the implementation of these regulations is less than satisfactory, the impressive campaign to ban landmines and the initiative to control the trade in SALW are major achievements of these movements. Independent research and monitoring agencies, such as Amnesty International, Human Rights Watch, the International Crisis Group, Saferworld, SIPRI and the Small Arms

⁶⁴ Transparency International, 'Transparency International UK (TI UK) welcomes the announcement of the creation of a European defence industry anti-corruption working group', Press release, July 2006, <http://archive.transparency.org/news_room/in_focus/2006/defence_sector>.

⁶⁵ Bitzinger, 'Globalization in the post-cold war defense industry' (note 10), p. 184; Hayward (note 6); James, A. D., 'The prospects for a transatlantic defence industry', ed. Schmitt (note 21); and Rohde, J. and James, A. D., *The Future of Transatlantic Armaments Co-operation*, German Institute for International and Security Affairs (SWP) Working Paper FG3-WP02 (SWP: Berlin, July 2004).

Survey, are becoming important means to control and contain the arms sector.⁶⁶

III. The arms industries of East Central Europe: crisis and partial recovery

The fundamental changes that reshaped the global arms industry affected the arms industry actors of the ECE countries later than elsewhere because they were completely absorbed with their own complex transformation processes. The kinds of opportunity and risk presented by the changed situation were not immediately apparent to them.

In the process of systemic changes that completely reshaped their economic and political structures since the late 1980s, the countries of East Central Europe rushed to adopt free-market capitalism after decades of planned economy. In the early 1990s the region's economies suffered deep transition crises that were made worse by political instability. GDP levels fell sharply, often by two-digit numbers.⁶⁷ The arms industry was one of the worst hit branches, along with the textile and agriculture sectors.⁶⁸ Following the end of the cold war, military expenditure and the share of defence budgets devoted to procurement dropped dramatically in East Central Europe.⁶⁹ After decades of state protection, arms producers were increasingly exposed to the rigours of a market economy. Despite varying levels of residual state ownership, support and protection, they were forced to respond to market forces by restructuring, producing more marketable products (including civil goods), merging with or acquiring and absorbing their competitors, or simply closing down. Their task was particularly chal-

⁶⁶ See e.g. Control Arms, *Arms without Borders: Why a Globalized Trade Needs Global Controls*, (Amnesty International, International Action Network on Small Arms and Oxfam: London, Oct. 2006).

⁶⁷ Kornai, J., 'The postsocialist transition and the state: reflections in the light of Hungarian fiscal problems', *American Economic Review*, vol. 82, no. 2 (May 1992), pp. 1–21; and Kornai, J., 'The great transformation of Central Eastern Europe: success and disappointment', *Economics of Transition*, vol. 14, no. 2 (Apr. 2006), pp. 207–44; and Cowen Karp, R. (ed.), SIPRI, *Central and Eastern Europe: The Challenge of Transition* (Oxford University Press: Oxford, 1993). See also the Transition Reports of the European Bank for Reconstruction and Development (EBRD), in particular *Transition Report 2000: Employment, Skills and Transition* (EBRD: London, 2000); and *Transition Report 2009: Transition in Crisis?* (EBRD: London, 2009).

⁶⁸ On the post-cold war transformation of the East Central European arms industry see Anthony, I. (ed.), *The Future of the Defence Industries in Central and Eastern Europe*, SIPRI Research Report no. 7 (Oxford University Press: Oxford, 1994); Markusen, A. and Yudken, J., *Dismantling the Cold War Economy* (Basic Books: New York, 1992); and Kiss, Y., SIPRI, *The Defence Industry in East-Central Europe: Restructuring and Conversion* (Oxford University Press: Oxford, 1997).

⁶⁹ George, P. et al., 'World military expenditure', *SIPRI Yearbook 1995: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1995), pp. 408–14; and George, P., Courades Allbeck, A. and Loose-Weintraub, E., 'Military expenditure', *SIPRI Yearbook 1997: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1997), p. 180.

Table 2.1. Number of people employed in arms production in 1986 and 2000

Country	Employed in 1986	Employed in 2000
Bulgaria	30 000	5 000
Czech Republic	30 000	18 000
Hungary	30 000	2 000
Poland	250 000	60 000
Romania	90 000	16 000
Slovakia	75 000	50 000

Source: Bonn International Center for Conversion (BICC), *Conversion Survey: Global Disarmament, Demilitarization and Demobilization* (Nomos: Baden-Baden, May 2002), p. 153.

lenging, especially as the end of the cold war had virtually eliminated many of their traditional markets.

Between 1990 and 1994 arms industry output fell to 10 per cent of its late 1980s peak level in the former Czechoslovakia and in Hungary; to 10–30 per cent in both Bulgaria and Romania; and to approximately 50 per cent in Poland.⁷⁰

Between 1986 and 2000 the number of people employed in arms production fell significantly (table 2.1). In 1993–94 a slow recovery started, thanks to overall economic improvements and changed government policies towards the sector. Economic growth resumed first in Poland, then in the Czech Republic, Hungary and Slovakia. Bulgaria began to show promising signs of recovery from 1998, and Romania started to reverse its downward trends in the early 2000s. The slow economic recovery provided the means for active arms industry policies when governments felt inclined to introduce new guidelines, as most did in reaction to the changed international environment and unresolved internal economic difficulties. This made possible partial consolidation of the sector involving a small group of the most dynamic companies, although the bulk of arms manufacturers stagnated or faced bankruptcy.

Arms industry policy in the ECE countries after the end of the cold war has had five stages. In the first stage, following the political turnovers in the late 1980s, radical dismantlement policies dominated. The national armed forces, military institutions and arms industries were directly associated with the former economic and political system and had an unfavourable reputation. Arms production was declared wasteful and inefficient, an unnecessary burden on the transforming economies. In the former Czechoslovakia arms production was condemned as harmful and immoral, both because of its impact on the economy and its ultimate *raison d'être*—war. State authorities in East Central Europe stopped supporting domestic arms

⁷⁰ Kiss (note 68).

makers. The way these new policies were introduced varied from country to country, from active state-promoted conversion programmes in the former Czechoslovakia to 'passive abandonment' in Hungary.

In the second stage, from the first half of the 1990s, new arguments emerged in decision-making circles claiming that the arms industry had to be rescued for economic reasons. This was the worst period of the transition crises in East Central Europe. The countries were overwhelmed by the enormous economic and social costs of transition and were desperately short of resources to address even the most urgent issues. In the past, the arms industry had been one of the leading export branches with a higher than average technological level and an excellent workforce. The supporters of the sector claimed that it should be preserved and promoted as a key export sector, a revenue generator, a major employer and a potential engine of growth. The ECE countries launched bold export promotion campaigns, targeting all possible market openings and trying to sell their immense stocks of conventional weapons. This was the period when they were often cited by international watchdogs for illicit arms trading with countries of dubious reputation or subject to United Nations sanctions.⁷¹ It was during this period that President Václav Havel's Czech Republic suddenly changed its position and approved the promotion of foreign arms sales.

National security considerations were another major argument for rescuing the arms industry that was also expressed in economic terms. It was proposed that the newly independent countries needed to create their own security systems, which would only be affordable with domestic weapon production.

In the third stage, from 1994, several countries in East Central Europe were invited to start preparation for NATO membership. Defence-related actors welcomed the invitations with enthusiasm. The long overdue restructuring of the sector was placed in the overall framework of military sector reform geared towards admission. Domestic arms industries had to be prepared to cater to a significantly reduced and revamped national army and to be able to offer products for NATO-led operations. The new situation presented radical new challenges, including implementing NATO standards in arms production and an increased requirement for transparency. This was a turning point in the post-cold war arms industry restructuring process in East Central Europe. The range and depth of the change went far beyond earlier reforms, which had been based on existing, modestly increasing resources that the arms industry actors strove to reallocate and reorganize. Since NATO membership enjoyed significant popular backing, political decision makers were able to increase military

⁷¹ Amnesty International et al. (note 66).

expenditure. In the upwardly revised military budgets, modernization played an important part. The arms producers were able to present optimistic scenarios, mobilize their reserves and seek additional resources in hope of future demand and revenues. State agencies were willing to contribute additional funding for the introduction of new products or the acquisition of quality certificates. Preparation for NATO membership was a major impetus for revamping the arms industry even for those countries that were not invited to join in the first enlargement round: Bulgaria, Romania and Slovakia, which at the time was explicitly nationalistic and anti-NATO.

During this period, from the mid-1990s to the early 2000s, the sector modestly expanded by mobilizing extra domestic resources and with some help from NATO, mostly within the Partnership for Peace (PFP, a programme of bilateral partnerships between NATO and individual states, which all of the ECE countries joined in early 1994). There were also some export deals, which were widely interpreted as harbingers of bright new times and of full-scale international integration with significant cooperation opportunities and abundant markets.

The fourth stage was dominated by preparations for EU accession. The ECE countries started discussions towards accession to the EU in the early 1990s and submitted applications for membership between 1994 and 1996, although they would not be accepted for several years. The prospect of EU membership had a less direct impact on the military sector than that of NATO membership but did accelerate and solidify major changes, particularly those related to organizational structures and regulatory changes. By this time the arms companies in East Central Europe felt more confident and were more actively seeking Western commercial contacts. They feared that once they become EU members some of their comparative advantages would erode; thus, they made efforts to accelerate modernization and to seek new international contacts.

In the fifth stage, the 2001 terrorist attacks on the USA and the Bush administration's subsequent 'global war on terrorism' had an unexpected direct impact on the arms industry in East Central Europe. Globally, military and security considerations gained priority over economic, political and social considerations and reorganized the system of alliances and enemies. Thanks to their geopolitical positions, Bulgaria and Romania were pushed to the forefront of military and diplomatic activity. Together with Slovakia, they had foreseen a long period of preparation for NATO membership and a difficult accession process, but they were now catapulted into the position of outstanding allies and invited to join the alliance formally within a year. This accelerated internal changes and reorganized power and political relationships in all three countries. The new NATO members joined the military interventions in Afghanistan and Iraq, which

confirmed their position within the alliance and opened potential market and cooperation opportunities for their arms firms. They were able to hope for increased demand for their products, both for military interventions and post-war reconstruction efforts.

The elements of the different stages mutually reinforced each other, creating a genuine momentum for change and were present in each of the countries studied in this volume. In some they had a stronger impact, in others less, depending on the way in which each country adjusted to the new circumstances. The heritage, assets and ambitions of each ECE country affected the path that it chose, as the following chapters illustrate.

3. Poland: a qualified success story

Poland was the forerunner of political system changes in East Central Europe. In the February–April 1989 round-table talks the *Solidarność* (Solidarity) trade union together with other opposition groups managed to accomplish an historical breakthrough with the government, leading to the first negotiated system change in the region. The Solidarity movement won an overwhelming victory in the June 1989 parliamentary elections; Tadeusz Mazowiecki became prime minister in August 1989; and in December 1990 Lech Wałęsa was elected president. Since then right-wing and left-wing coalition governments have alternated in Poland. In general, the policies of the left-wing coalitions have favoured economic liberalism, political democracy and international openness, while the right-wing governments have advocated a more interventionist and protectionist policy both in economics and politics, often using nationalist and populist ideas to gain public support.

Aleksander Kwaśniewski, representing *Sojusz Lewicy Demokratycznej* (SLD, Democratic Left Alliance), was elected president in 1995 and re-elected in 2000. He was replaced in 2005 by Lech Kaczyński of the conservative *Prawo i Sprawiedliwość* (PIS, Law and Justice Party), led by his twin brother, Jarosław Kaczyński. The centre-right party *Platforma Obywatelska* (PO, Civic Platform), which presented a more balanced and constructive policy, won the subsequent elections in October 2007 and Donald Tusk became prime minister. In April 2010 several senior Polish politicians, including Lech Kaczyński, were killed in an aeroplane crash. Bronisław Komorowski, also of Civic Platform, was elected president in July 2010. In October 2011 PO again won and the coalition government led by Tusk remained in power.

Originally, it seemed that a liberal–socialist economic and social system would be introduced in Poland, but within months of the first post-Communist government was formed, the course of events changed. Assisted by economists from the University of Chicago, particularly Jeffrey Sachs, Poland introduced changes to rapidly convert its economy into a functioning market economy and achieve macroeconomic stability after a long period of disequilibrium. Most state-owned enterprises (SOEs) were privatized or liquidated; state subsidies and social safety nets were dismantled; wages were frozen and prices were liberalized; markets were opened to international competition; and strict budgetary and monetary discipline was introduced practically overnight. The immediate result was a dramatic drop in production and living standards, but by 1993 Poland showed the first signs of recovery. Economic growth resumed in 1994 and

has been robust ever since. In 2004 Poland became a European Union member. Indispensable structural reforms (partially accomplished on the way to accession) and considerable EU funding (a planned €67 billion, \$83 billion, by 2013) accelerated positive developments. Poland is one of few European countries that has been able to cope with the post-2008 economic crisis. In 2009 Poland had a 1.7 per cent GDP increase, making it unique among EU member countries. The country has been referred to as the champion and model of ECE transformation.¹

However, this impressive recovery did not solve some of Poland's structural problems. Growth was primarily due to rapid expansion of the private sector and, from the early 2000s, massive exports from foreign firms that had established themselves in the country thanks to generous government incentives. The export structure, however, remained antiquated; in 2008 high-technology products represented only about 4 per cent of Poland's exports, compared to about 15 per cent for the entire EU.² Small- and medium-sized businesses struggled in the shadow of huge international and domestic companies. Owing to the low level of investment and research and development, structural changes in manufacturing also lagged far behind those occurring outside Poland. The tertiary sector of the economy (the service industry sector) emerged as a major employer and contributor to the growth of Poland's GDP, while agriculture, which continued to employ a large share of the population and enjoyed significant privileges, was a burden and contributed comparatively little. Youth and long-term unemployment, in particular, increased dramatically during the 1990s, and the slightly more favourable unemployment statistics of the late 2000s reflected the low level of economic activity. Poland has one of the lowest workforce participation rates in the EU. Although the standard of living had risen by the turn of the century, social inequalities also increased.³

Politics further complicated the country's economic development. During the first decades of post-cold war transformation, until the Civic Platform managed to stabilize the situation, political life was characterized

¹ European Bank for Reconstruction and Development (EBRD), *Transition Report 2010: Recovery and Reform* (EBRD: London, 2010); Center for Social and Economic Research (CASE), *Polish Economic Outlook*, 1/2010 (44); Cienski, J., 'Polish economy surges ahead', *Financial Times*, 28 Aug. 2009; and Kołodko, G. W., 'Institutions, policies and growth', ed. G. W. Kołodko, *The Polish Miracle: Lessons for the Emerging Markets* (Ashgate: London, 2005).

² Eurostat, 'High-tech exports: exports of high technology products as a share of total exports (from 2007, SITC Rev. 4)', 10 Nov. 2010, <http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=htec_si_exp4>.

³ Narożny, M., 'High unemployment in Poland—not only a labour market problem', Directorate General for Economic and Financial Affairs, *ECFIN Country Focus*, vol. 3, no. 6 (15 June 2006); Podemski, K. et al., *Poland, Social Inequality and Why It Matters for the Economic and Democratic Development of Europe and Its Citizens: Post-Communist Central and Eastern Europe in Comparative Perspective* (University of Oxford, Eureka: Oxford, 2009); and Wóycicka, I., *Poland: In-work Poverty and Labour Market Segmentation: A Study of National Policies* (European Commission, DG Employment, Social Affairs and Equal Opportunities: Brussels, May 2010).

by increasing instability and polarization. Nearly 20 governments have been formed, and each went through several major reshufflings. Society became increasingly divided between large groups of 'losers' and small groups of 'winners'. By the end of the first decade of the 2000s, however, the results of both economic development and political stabilization were consolidated and the country was able to face the challenges of the world economic crisis relatively well prepared.

I. Arms industry policy in the 1990s: protection

Special treatment

The radical nature and speed of change in Poland were unique in East Central Europe. The other countries of the region, including Hungary with its long history of economic and political reforms, were much slower and more cautious in implementing fundamental changes. In this context it is all the more surprising that certain sectors, among them arms production, were actively protected by the state. In the early stage of Poland's transformation, soon after the end of the cold war, state-owned enterprises were divided into three groups: the best ones were sold to domestic or foreign investors; those deemed hopeless were liquidated or left to their fate; and the remainder were earmarked for restructuring by state agencies, in hope of future privatization. The arms industry and other strategically important enterprises formed a special cluster in this third group.

The commitment to protect and promote the arms industry has remained relatively consistent through nearly 25 years of far-reaching political and economic transformation. Each government has modified certain development and procurement projects, but the basic approach to the arms industry and the way of treating it has remained essentially unaltered. One reason for this continuity is the political consensus concerning the sector. Both the old and the emerging new economic elite, on both left and right, have seen arms production as an engine of growth and a major export sector whose progress is indispensable for the country's renewal.

Unlike those of other former Warsaw Pact members, the Polish armed forces managed to preserve some of their prestige despite the role they played during the state of emergency that was declared by Wojciech Jaruzelski, the Prime Minister, in 1981. When post-cold war political change began, the armed forces were able to present themselves as one of the guarantors of regained national sovereignty, which created less resistance to increased military budgets than in other former Soviet-bloc countries.⁴ Poland soon expressed its desire to join NATO and become a

⁴ Epstein, R. A., 'When legacies meet policies: NATO and the refashioning of Polish military tradition', *East European Politics and Societies*, vol. 20, no. 2 (May 2006).

privileged partner of the United States, and it began intense efforts to cultivate military and arms industry ties with both. The country's military assets were preserved in part owing to the deep-rooted conviction that sooner or later the West would need them. Another factor behind the protection and promotion of the arms industry was the Solidarity trade union. Solidarity had considerable influence on economic and political decision making in the 1990s and was ready to support arms industry workers. It advocated saving the sector and was prepared to negotiate compromise solutions for that purpose.

Institutional continuity also contributed to the survival of the arms industry. The state agencies in charge of it preserved a considerable portion of the former structure and personnel, and key ministries retained their military departments, usually employing staff with long experience in the field. Later, in 2002, in an attempt to boost the industry and give new momentum to the restructuring and privatization process, many of the SOEs were consolidated into two capital groups owned and protected by the state, which created a sense of security for the core Polish arms industry producers. Even if they were negatively affected at times by the cancellation of a government project or a change in policy, they could plan for the medium-term without having to worry about their immediate future.

Although Poland had had some early advocates of reform socialism, such as the political economist Włodzimierz Brus, until the late 1980s the political establishment was reluctant to permit economic reform measures. When market economy rules were introduced virtually overnight, Polish entrepreneurs had little practical experience on which to build. This reinforced the view among political decision makers that if the domestic arms industry were to survive it could not be exposed to market competition like other sectors but needed a period of state-guided adjustment. Most company directors in the arms industry were allowed to retain their jobs and given a chance to prove themselves not only out of goodwill, but also because of the shortage of experienced industrial managers.

Protection

Many arms producers went bankrupt during the 'tsunami' of the 1990s, as it was termed by Arkadiusz Krężel, former president and chairman of the management board of the Agencja Rozwoju Przemysłu (ARP, Industrial Development Agency), and most of those remaining struggled for day-to-day survival. Companies were forced to cut back radically. In the mid-1980s the arms industry's 150 plants employed about 250 000 people.⁵ By the end of the 1990s the number of those employed fell under 60 000, and by 2004

⁵ Jeziorski, M., 'The state of arms', *Warsaw Voice*, 26 May 2004.

Table 3.1. Basic data on the Polish arms industry, selected years 1988–2011

Available data is limited for several years.

Year	Output		No. of core companies	No. of employees	Exports (US \$ m.)	Exports as share of output (%)
	Złoty b.	US\$ m.				
1988	3 100	72 000	39	250 000	258.2	10
1992	870	638	..	..	370	50
1992	580	239	..	..	370	50
1999	..	..	..	60 000	100	..
2000	..	..	..	..	40	..
2003	..	..	..	..	..	12
2004	..	..	39	35 000	300	..
2009	..	..	..	..	560	..
2010	..	..	..	..	300	..
2011	..	..	39	26 000	..	..

Sources: Nelson, M. K., 'The Polish defense industry: restructuring in the midst of economic transition', eds A. Markusen, S. DiGiovanna and M. C. Leary, *From Defense to Development?: International Perspectives on Realizing the Peace Dividend* (Routledge: New York, 2003), p. 85; Wieczorek, P. and Zukrowska, K., Bonn International Center for Conversion (BICC), *Conversion in Poland: The Defense Industry and Base Redevelopment*, BICC Brief 8 (BICC: Bonn, Nov. 1996), p. 7; Perczynski, M., Wieczorek, P. and Zukrowska, K., 'Country survey V: Poland and its arms industry', *Defence and Peace Economics*, vol. 6, no. 1 (1995), p. 70; Piatkowski, K., 'Poland's arms industry at the crossroads', English summary of *Polska w Europie*, vol. 43, no. 1 (2004); Saferworld, 'Poland', *Arms Production, Exports and Decision-Making in Central and Eastern Europe* (Saferworld: London, June 2002), pp. 8–10; Kułakowski, S., 'A way to stabilisation', *Polish Defence Industry*, no. 3 (2005); 'Polish arms industry expects weak year', *Warsaw Business Journal*, 6 Oct. 2010; Anderson, R., 'Defence industry: consolidation is best strategy for Bumar', *Financial Times*, 29 June 2011; Jeziorski, M., 'The state of arms', *Warsaw Voice*, 26 May 2004; Jach, K., 'Plan of attack', *Warsaw Business Journal*, 20 Mar. 2006; and Sobiepanek-Kukuryka, Z., *Defense Market: Defense Industry Equipment* (US Department of State, US Commercial Service: Warsaw, May 2003).

it was estimated at 35 000 and has since remained at that level. At Huta Stalowa Wola (HSW), one of Poland's largest military producers during the cold war, the number of staff employed fell from 22 000 in the late 1980s to 14 500 by 1993, to 1434 by 2006 and to 1300 in 2012.⁶

Between 1988 and 1992 arms industry output plummeted from 3100 million złotys (\$72 billion) to 870 million złotys (\$638 million) and dropped further to 580 million złotys (\$239 billion) by 1995 (see table 3.1). The share

⁶ Significant staff reductions were also partially due to the separation of the company into several successor firms. See Kiss, Y., SIPRI, *The Defence Industry in East-Central Europe: Restructuring and Conversion* (Oxford University Press: Oxford, 1997), p. 124; and, for 2006, ALTAIR Air Agency (Agencja Lotnicza ALTAIR Sp. z o.o.), 'Industry without a strategy', 24 Aug. 2007, <http://www.altair.com.pl/news/view?news_id=240>; '40 mln zł inwestycji w przyszłym roku w Hucie Stalowa Wola: ten rok zakończy na plusie' [40 million złoty investment next year in Stalowa Wola Steelworks: this year will end in the black], *Newseria*, 23 Nov. 2012, <http://www.newseria.pl/news/40_mln_zl_inwestycji_w_p2022981663>.

of arms production in overall industrial output dropped from 2.07 per cent in 1986 to 0.36 per cent in 1992 and reached 0.42 per cent by 1997.⁷ The fall in arms production was spectacular; between 1988 and 1995 the volume of military production fell by 80 per cent.⁸ The output of Zakłady Mechaniczne Bumar-Łabędy (Bumar-Łabędy Mechanical Plant), Poland's top tank producer decreased from 250 tanks annually in 1986 to 100 in 1990.⁹ Parallel to the drastic drop in arms exports (nearly 25 per cent between 1992 and 1999), domestic demand for the industry's products also diminished radically. Between 1989 and 1997 the Ministry of National Defence (MND) reduced its orders by 43 per cent.¹⁰ By the late 1990s the arms industry was using approximately 30 per cent of its capacity.¹¹ Despite government efforts to revive arms production during the 1990s, the arms industry's decline continued.¹² Most of the enterprises' financial resources were spent on labour, even though large numbers of workers were dismissed, left the arms industry or took early retirement. Those who stayed were often not adequately paid due to financial difficulties. By the end of the decade the industry was near collapse.

In addition to the direct losses that arms industry companies suffered, they were also forced to adjust to new 'game rules' in the changing economy. Before 1989 they had enjoyed priority in the acquisition of raw materials and technology, had been given preferential credits and were exempt from taxes.¹³ Now, practically overnight, most of these privileges were abolished, aggravating their situation. Companies also suffered a considerable financial loss because of the so-called zero option policy: in the early 1990s Poland had agreed to renounce all claims to compensation for military equipment delivered to the Soviet Union in exchange for the assets of the former Soviet military bases in the country.¹⁴

The firms' losses would have been even greater without the protection provided by state agencies. Government declarations made clear that core companies considered vital for national security were not going to close.

⁷ Nelson, M. K., 'The Polish defense industry: restructuring in the midst of economic transition', eds A. Markusen, S. DiGiovanna and M. C. Leary, *From Defense to Development?: International Perspectives on Realizing the Peace Dividend* (Routledge: New York, 2003), p. 86.

⁸ Wieczorek, P. and Zukrowska, K., *Conversion in Poland: The Defense Industry and Base Redevelopment*, Bonn International Center for Conversion (BICC) Brief no. 8 (BICC: Bonn, Nov 1996), p. 8.

⁹ Engelberg, S., 'International report: Polish arms makers adjust to peace', *New York Times*, 3 Sep. 1990.

¹⁰ Piatkowski, K., 'Poland's arms industry at the crossroads', English summary of *Polska w Europie*, vol. 43, no. 1 (2004).

¹¹ Ratajczyk, A., 'Edging closer to Nato', *Warsaw Voice*, 26 Oct. 1997.

¹² Holdanowicz, G., 'Polish defence industry: living on the edge', *Jane's Defence Weekly*, 16 Apr. 2003, pp. 22–25.

¹³ Sobiepanek-Kukuryka, Z., *Defense Market in Poland: Up-date* (US Department of State, US Commercial Service: Warsaw, May 2005).

¹⁴ Jeziorski (note 5).

Table 3.2. Major arms producers in Poland, 1991 and 1993

Enterprise (location)	Employment in 1991	Share of military production (%)	
		1991	1993
<i>Ammunition, small weapons</i>			
Mesko (Skarzysko-Kamienna)	1 820	46.8	25.3
Łucznicz (Radom)	740	15.6	18.5
Dezamet (Nowa Deba)	356	52.5	15.6
Niewiadów (Niewiadów)	252	1.9	17.8
Tarnów (Tarnów)	880	34.7	30.1
<i>Optical and electronic instruments</i>			
Przemysłowe Centrum Optyki (Warsaw)	1 100	90.0	90.0
Radmor (Gdynia)	420	43.3	28.5
Warel (Warsaw)	570	81.1	45.1
Radwar (Warsaw)	1 011	84.0	55.0
<i>Armoured and other vehicles</i>			
Bumar-Łabędy (Gliwice)	1 520	71.4	38.7
Huta Stalowa Wola (Stalowa Wola)	1 876	8.6	5.5
Hydral (Wrocław)	1 365	58.9	19.3
PZL-Wola (Warsaw)	1 010	25.0	20.7
<i>Aircraft</i>			
WSK-PZL-Mielec (Mielec)	7 495	53.8	40.5
WSK-PZL-Świdnik (Świdnik)	5 868	81.0	82.0
WSK-PZL-Rzeszów (Rzeszów)	5 707	66.6	30.5
PZL-Warszawa-Okecie (Warsaw)	704	31.8	8.1
<i>Chemical production</i>			
Nitro-Chem (Bydgoszcz)	379	4.6	0.5
ZTS Nitron (Krupski Młyn)	40	0.5	0.5
<i>Shipbuilding</i>			
Stocznia Polnocna (Gdansk)	930	94.7	83.0
<i>Other (spare parts)</i>			
PZL-Warszawa II (Warsaw)	1 070	68.8	–

Source: Reproduced, with minor modification, from Kiss, Y., SIPRI, *The Defence Industry in East-Central Europe: Restructuring and Conversion* (Oxford University Press: Oxford, 1997), p. 108.

However, the definition and number of core companies kept changing. In 1989, 128 firms had enjoyed the privileged status of ‘special-production enterprises’. Of those, 39 core firms produced military equipment as a final product (see table 3.2 for the main producers in 1991 and 1993).¹⁵ A 1999 law on restructuring of the arms industry referred to 65 entities in relation to the country’s ‘defence industrial potential’, while a 2002 arms industry

¹⁵ Wieczorek and Zukrowska (note 8), p. 7.

strategy document used the term ‘key arms manufacturers’.¹⁶ A February 2002 amendment to the 1999 law defined ‘companies of particular significance for the economy and defence’, listing 168 enterprises. In addition to arms producers these included transport, telecommunications and energy companies. Companies on this list were eligible for direct offsets, a form of obligatory and targeted foreign direct investment from the supplier.¹⁷

According to the president of the Polish Chamber of National Defence Manufacturers (PCNDM), Sławomir Kułakowski, in 2006 there were over 1000 Polish companies producing arms and military equipment, providing services for the armed forces, carrying out R&D activities for the military sector, trading with special equipment or performing subcontracted work.¹⁸ Of these, 69 companies were considered of ‘strategic defence importance’: 39 producers of arms and military equipment, 15 R&D units, 3 foreign trade companies, and 12 military maintenance–production facilities. All companies were regrouped under the Treasury and the MND.¹⁹ References to ‘core defence industrial companies’ in government documents usually referred to these 39 arms producers. A principal goal of arms industry firms became to remain in or enter the group of protected core producers, since such status would guarantee their survival. Meeting this goal was prioritized even at the expense of restructuring or seeking new markets.

During the 1990s several large-scale government projects were set up to rescue the arms industry, but none of them was properly carried through even though some of the proposed measures were introduced. State agencies used both direct and indirect methods to assist arms industry firms. Although the Polish economy had supposedly been completely liberalized and direct state subsidies were to have been abolished, arms producers continued to receive them. Between 1992 and 2001 arms companies received around 1.1 billion złotys (\$270 million) in government subsidies to maintain manufacturing and maintenance capacities for use in times of crisis or war. Between 1994 and 1999 the subsidies were 115–167 million złotys (\$40–62 million) per year, although they fell below 30 million złotys (\$7 million) in 2001.²⁰

By 1996 the debts of the principal arms industry companies had been halved thanks to various government measures.²¹ A typical method was a

¹⁶ Law of 7 Oct. 1999 to promote the restructuring of the defence industry and technical modernization of the Polish armed forces, *Journal of Laws*, 1999 no. 83, item 932, as amended.

¹⁷ Modrzejewski, A., ‘Polish arms industry structure and potential’, *Polish Defence Yearbook 2007: Industry, Armed Forces and Security Services*, vol. 2 (2) (Technika Wojskowa and Polish Chamber of National Defence Manufacturers: Warsaw, 2007), p. 11. See also the discussion of offsets below.

¹⁸ Kułakowski, S., President of the Polish Chamber of National Defense Manufacturers, Interview with author, Warsaw, 3 Oct. 2007.

¹⁹ Jaworski, J., Director of the International Cooperation Office, Polish Chamber of National Defence Manufacturers, Interview with author, Warsaw, 8 May 2006; and Kułakowski (note 18).

²⁰ Holdanowicz (note 12).

²¹ Nelson (note 7), p. 88.

combination of writing off and restructuring debts. In July 1997 Bank Przemysłowo-Handlowy (BPH bank) completed a three-year debt reduction arrangement with the tank producer ZM Bumar-Łabędy that wrote off 85 per cent of the firm's 175 million złotys (\$53 million) debts. According to ZM Bumar-Łabędy's general manager, Henryk Pfeifer, the company survived because it had increased civil production, which accounted for more than 40 per cent of its output.²² Some companies entered into debt-equity swap arrangements; for example, 150 civil entities, including a coal company, a local bank and the city office, became shareholders of the Zakłady Tworzyw Sztucznych Pronit (ZTS, Plastics Works) gunpowder and ammunition factory located in Pionki.²³ Despite the government's considerable efforts, companies continued to suffer losses and most continued to be heavily indebted. By 1999 the arm industry's revenue was 3.7 billion złotys (\$933 million), and its assets were worth over 5 billion złotys (\$1.3 billion); the combined debt climbed to 283 million złotys (\$71 million).²⁴ A new large-scale government plan to promote restructuring of the defence industry and technical modernization of the Polish armed forces was approved by the parliament in 1999.²⁵ It proposed further reduction of the debts of 34 of the core arms producers.²⁶

Arms industry firms received direct government help and gained access to additional funds under non-military expenditure headings, such as job creation, regional or local development, environmental projects, conversion, and small- and medium-sized enterprise (SME) promotion. A law on public assistance to enterprises of special importance for the labour market also facilitated reducing their debts. The government earmarked 700 million złotys (\$180 million) to be allocated among 47 companies, including the military shipyards managed by ARP, a development agency whose shares were owned by the Treasury.²⁷ During the 1990s ARP was the only state agency that explicitly proposed conversion policy to the enterprises under its supervision. In 1999 it provided conversion assistance worth 117 million złotys (\$29 million) to six companies: ZM Dezamet, HSW, ZM Łucznik, ZM Mesko, ZTS Pronit and Państwowe Zakłady Lotnicze-Świdnik (PZL-Świdnik, State Aviation Works). Of this, 100 million złotys (\$25 million) came from the national labour fund and the rest from ARP's own budget. Most of the money was used to create civil subsidiaries at the companies. Nevertheless, all six companies continued to participate in major military projects.

²² Pfeifer, H. President and General Director and Oleksy, P., Marketing manager, ZM Bumar-Łabędy, Interview with author, Gliwice, 25 Mar. 1994.

²³ Ratajczyk (note 11).

²⁴ Lekki, P., 'Best defence', *Polish Voice*, no. 16 (2000).

²⁵ Law of 7 Oct. 1999 (note 16).

²⁶ Nelson (note 7), p. 90.

²⁷ 'All together now?', *Warsaw Voice*, 13 Feb. 2003.

Arms producers were also helped by orders from state agencies. From 1993–94, when the first signs of economic recovery appeared, resources were rapidly channelled into the arms industry. Several large-scale projects were launched to develop and produce up-to-date military equipment domestically, facilitating Poland's access to NATO and the international military community. Decision makers stressed that the purchase of similar equipment abroad would have increased the cost of the required modernization four- or fivefold.²⁸ The Military 2012 programme for modernization of the Polish armed forces, which was approved by the government in September 1997, required that 80 per cent of the MND's needs should be met domestically.²⁹ Such a policy of import substitution was exclusively applied in the military sector. In the rest of the economy a *laissez-faire* policy and the dumping of foreign products prevailed, in many cases leading to complete collapse of the domestic production base.

In order to support the ailing military industrial sector, state agencies also used indirect methods such as promoting sales of Polish arms abroad, organizing arms fairs and assisting companies to obtain quality-assurance certificates. They also attempted to act as a 'matchmaker' between Polish and international arms-producing firms. Authorities and company representatives hoped that foreign cooperation and partnerships would generate sufficient additional income to enable the Polish companies to survive. During the 1990s, eager to secure revenues, many Polish arms producers became omnivorous, accepting any subcontracting offer from a foreign firm. In some cases this policy paid off, in others it led to dispersion of their activities into too many areas and further erosion of their already dramatically diminished assets.

Direct and indirect state subsidies, orders and assistance, even when on a drastically diminished scale compared with the past, provided protection, revenues and, perhaps more important, a *raison d'être* to the arms-making companies. Despite this remarkable state backing, most of the domestic arms producers were still in poor shape by the early 2000s. According to defence industrial policy guidelines they were meant to lead the country's export expansion; however, they were barely able to sell their products abroad. Ninety-five per cent of the arms industry's output went to the MND and the Ministry of Interior and Administration. In 2001 the total operational costs of the 38 core arms producers surpassed their combined sales by 183 million złoty (\$45 million).³⁰ According to the Ministry of Economy

²⁸ Jeziorski (note 5).

²⁹ Ratajczyk (note 11); and 'Strategia konsolidacji i wspierania rozwoju polskiego prze mysłu obronnego w latach 2007–2012' [Strategy for the consolidation and support for development of the Polish defence sector in 2007–2012], Adopted by the Council of Ministers, 31 Aug. 2007, <<http://www.mg.gov.pl/NR/rdonlyres/5DFEEDCC-DBBF-490A-B112-662B59CC586D/37327/Strategia2013.pdf>>.

³⁰ Jach, K., 'Plan of attack', *Warsaw Business Journal*, 20 Mar. 2006.

(MOE), by the end of 2001 only seven arms producers could be considered healthy: Wytwórnia Sprzętu Komunikacyjnego (WSK, Transport Equipment Factory) PZL-Rzeszów (engine parts); Przedsiębiorstwo Sprzętu Ochronnego (PSO, Protective Equipment Company) Maskpol (masks and other protective gear); Stomil-Poznań (tyres for aircraft and helicopters); PZL-Świdnik (helicopters); ZR Radmor (radio communications devices); ZTS Nitron (explosives); and Centrum Naukowo-Produkcyjne Elektroniki Profesjonalnej Radwar (CNPEP Radwar, electronics for various products, including radar, command-and-control systems, and artillery and missile systems). Most of the other arms producers were in danger of bankruptcy.³¹

By the early 2000s artificially maintaining the arms industry increasingly appeared to be a costly and futile exercise. Several domestic experts questioned the future of a sector that absorbed enormous resources without fulfilling the high expectations attached to it by state policy. The arms industry was increasingly viewed as the ‘proverbial ball and chain of the national economy’,³² and pouring more money into it was perceived by many as a wasteful exercise or, at best, a long-term investment that was unlikely to yield benefits in the foreseeable future.

II. Arms industry policy in the 2000s: promotion

Joining NATO, which Poland did in 1999, brought major changes for the arms industry. In order to achieve interoperability with other NATO members Poland had to accelerate the modernization of its armed forces, using principally high-tech Western weapons. The government selected several major modernization projects and opted to acquire F-16 combat aircraft from the USA, Leopard-2 tanks from Germany, anti-tank guided missiles from Israel, and Patria armoured fighting vehicles from Finland. Decision makers ensured that domestic producers benefited from these deals through licensed production, subcontracting or offsets. ‘Polonization’—the participation of Polish partners in the manufacturing and delivery of the imported weapons—became one of the most important criteria in evaluating foreign bids.

In the course of their attempts to forge cooperation deals with leading Western companies, state decision makers became even more aware of the poor state of the domestic arms industry and the urgent need to redress it. In 2002 the Council of Ministers adopted the ‘Strategy for structural transformation of the industrial defence potential in 2002–2005’.³³ The

³¹ Holdanowicz (note 12).

³² Kinski, A., ‘Malaysia, Iraq—and more . . . would Poland increase her share in the international defence trade?’, *Polish Defence Yearbook 2007* (note 17), p. 22.

³³ Polish Ministry of Economy, *Strategia Przekształceń Strukturalnych Przemysłowego Potencjału Obronnego w Latach 2002–2005* [Strategy for structural transformation of the industrial defence potential in 2002–2005], Document adopted by the Council of Ministers, 14 May 2002,

authorities acknowledged that previous projects to restructure the defence industry had failed to achieve their objective—the establishment of a stable and effective production structure for the sector. The purpose of the new strategy was to ‘create effective economic-financial mechanisms, which will enable reinvigoration and development of the defence industry, especially in the context of participation of the domestic industry in the Polish Armed Forces’ modernization process’.³⁴

The programme rested on three pillars: (a) creating two capital groups led by state-owned holding companies that could supervise execution of government policy in relation to some key Polish arms producers; (b) actively promoting exports in conjunction with Poland’s foreign military missions; and (c) linking modernization of the armed forces with the restructuring of domestic arms production. The three pillars of the new government policy were mutually reinforcing and created favourable momentum for profound change.

The programme was expected to generate significant profits through the consolidation and radical restructuring of arms industry companies that included strategic changes to their profiles and reduction of production costs. These imperatives were not new; all previous government programmes had expressed similar goals. The major difference was the establishment of two capital groups that were given the responsibility and the resources to carry out the programme. One of the new capital groups, the Aviation and Radio Electronics Industries Group, united aircraft and electronics producers, under the control of ARP. The other capital group included ammunition, rocket and tank manufacturers and was put under the control of the also wholly Treasury-owned PHZ Bumar foreign trade company.³⁵ The two capital groups were encouraged to implement fundamental changes at the core defence companies that were distributed between them; they also had to concentrate and efficiently reorganize manufacturing, in order to achieve economies of scale and assure the security of domestic supplies, and coordinate financing projects and R&D. They were expected to promote exports and intensify cooperation with foreign firms in order to bring additional resources into the Polish economy.

In order to facilitate implementation of the programme, the government pledged to transfer funds and place orders at the two capital holding com-

<http://bip.msp.gov.pl/portal/bip/22/346/Strategia_przekształcen_strukturalnych_przemyslowego_potencjalu_obronnego_w_lata.html>; and Kułakowski, S., ‘Polish defence industry’, *Polish Defence Industry*, no. 2 (Apr. 2004), pp. 5–10.

³⁴ Polish Ministry of Treasury, ‘Privatization lines for Treasury assets in 2004’, 28 Aug. 2003, <<http://www.msp.gov.pl/en/privatisation/privatisation-lines>>.

³⁵ When it became a holding company for the capital group, the company changed its name from Przedsiębiorstwo Handlu Zagranicznego (PHZ, Foreign Trading Company) Bumar to Bumar spółka z ograniczoną odpowiedzialnością (Sp. z o.o., limited liability company), but it was still frequently referred to as PHZ Bumar.

panies to actively promote their exports, to help their members benefit from direct offsets and to link weapon purchases on foreign markets to the development of Polish defence companies. Thus, the prevailing policy of protection gradually switched to one of active promotion of domestic arms firms. State authorities also reacted to a previous request by Polish arms producers and promised to introduce a system of six-year contracts between the armed forces and arms producers that had won tenders, thereby enabling the arms companies to plan at least medium-term production.³⁶ The trade unions and state authorities also managed to negotiate an employment restructuring scheme that offered a double-track solution: older employees were offered early retirement benefits, equal to 100 per cent of their pensions, while younger workers were given the opportunity to participate in retraining programmes.³⁷

The capital groups

The multiplicity of official stakeholders has been an obstacle to arms industry reform. Most military companies were owned by the Treasury and supervised by the MOE. Their activities were geared towards the needs of the MND, which had considerable impact on key development and procurement decisions. The MND was also the owner of a group of large production and repair enterprises. The Ministry of Science and Higher Education promoted military research projects through its Security and National Defence Research Department and awarded project grants that were crucial for launching new production lines. Hardly any of these institutional stakeholders were capable of taking charge of companies or stimulating and coordinating their restructuring efforts. The new government strategy gave the two holding companies considerable freedom of action, while making them directly accountable for the results of the companies under their umbrellas.

According to Arkadiusz Krężel, formerly head of ARP, the state was determined to preserve a key role for itself in the arms industry for a relatively long time but wanted to make sure that the management of the sector would become efficient. Polish authorities studied the management practices of successful European companies like EADS and Finmeccanica and some US models when they designed the two capital groups.³⁸ Their creation followed the global trend towards consolidation in the arms industry and the government hoped to assist in the formation of medium-range arms industry companies that could participate in the global arms industry and compete in international markets. The intention was to pre-

³⁶ Holdanowicz (note 12).

³⁷ A similar arrangement was introduced in the coal-mining sector. Jeziorski (note 5).

³⁸ Krężel, A., President of ARP, Interview with author, Warsaw, 8 May 2006.

serve a relatively integrated defence sector led by national flagships able to win both international and domestic tenders. Arms making was to be revitalized as a major engine of growth and in order to prove that the previous decade's efforts to protect the industry had not been futile. For the most far-sighted decision makers it was also clear that the ongoing inevitable modernization of the armed forces was a unique opportunity—and probably the last chance—to save the Polish arms industry.

The distribution of the companies between the two capital groups took place on the basis of a technical division of labour: the Bumar Group originally consisted of enterprises that produced principally heavy weapons, ammunition, tanks, missiles and equipment for land forces. (The electronics company CNPEP Radwar was a notable exception.) It was led by PHZ Bumar (later Bumar Sp. z o.o.), a foreign trade company specialized in import and export of agricultural, building, transport and other civil and military equipment. The ARP-led Aviation and Radio Electronics Industries Group united aircraft and electronics firms of a more high-tech nature. Originally, four naval shipyards were also scheduled to enter this group (see box 3.1 for the distribution of the companies between the two groups). Each capital group was allocated a specialized foreign trade company with long experience of deals related to military production: PHZ Cenzin Sp. z o.o. in the ARP-led group and PHU Cenrex (now Cenrex Sp. z o.o.) in the Bumar Group. A number of R&D institutes whose specialization corresponded to the capital groups' activity were associated with them, even though they were not included in their portfolio. For example, Ośrodek Badawczo-Rozwojowy Sprzętu Mechanicznego Sp. z o.o. (OBRSM, Mechanical Equipment Research and Development Centre) at Tarnów and Ośrodek Badawczo-Rozwojowy Urządzeń Mechanicznych (OBRUM, Research and Development Centre for Mechanical Equipment) at Gliwice, geared towards heavy weapon development, were to cooperate with the Bumar Group, while Institut Lotnictwa (Aviation Institute) and Przemysłowy Instytut Telekomunikacji (PIT, Telecommunications Research Institute), the aviation and telecommunications research centres, had closer links with ARP. According to Grzegorz Holdanowicz, a Polish defence industry expert, the companies selected to join the capital groups either manufactured equipment prioritized for procurement by 2006–2008 in the MND's 2001–2006 armed forces modernization plan or were added later by the MOE as they manufactured potential export products.

The Treasury transferred significant assets to the two capital groups. The Bumar Group's initial capital was 312 million złotys (\$76 million) while ARP's was 1.3 billion złotys (\$319 million). In 2002 the MND signed a provisional contract worth 2.5 billion złotys (\$613 million) with the Bumar Group and a similar contract worth 550 million złotys (\$135 million) with ARP, for items to be procured by 2008. The MND promised that more such

Box 3.1. The two Polish capital groups, 2002*Companies in the Bumar Group*

- **Bumar Sp. z o.o. (holding company)**
- Cenrex
- CNPEP Radwar
- Fabryka Broni Łucznicz–Radom
- Nitro-Chem
- Przemysłowe Centrum Optyki (PCO)
- PSO Maskpol
- PZL-Warszawa II
- PZL-Wola
- TM Pressta
- ZM Bumar-Łabędy
- ZM Dezamet
- ZM Kraśnik
- ZM Mesko
- ZM Tarnów
- ZPS Pionki

Companies in the Aviation and Radio Electronics Industries Group

- **Agencja Rozwoju Przemysłu (holding company)**
- Polskie Zakłady Lotnicze Mielec
- WSK PZL-Świdnik
- ZR Radmor
- PZL-Hydral
- PHZ Cenzin

Source: Polish Ministry of Economy, *Strategia Przekształceń Strukturalnych Przemysłowego Potencjału Obronnego w Latach 2002–2005* [Strategy for structural transformation of the industrial defence potential in 2002–2005], Document adopted by the Council of Ministers Warsaw, 14 May 2002, <http://bip.msp.gov.pl/portal/bip/22/346/Strategia_przekształcen_strukturalnych_przemyslowego_potencjalu_obronnego_w_lata.html>.

deals would materialize in the future. The government hoped that these measures would enable the arms industry to reach annual exports worth \$150–250 million, far exceeding the 2002 levels.³⁹

ARP and Bumar Sp. z o.o. were in charge of coordinating the production, financing and marketing of the member companies of their respective capital groups and owned the majority of their shares. However, the Treasury retained a majority or controlling stake in each of the holding companies. Various companies outside the two capital groups were scheduled for restructuring prior to joining one of the groups at a later time, and other companies were to be privatized, some of them also after restructuring.⁴⁰ State-led coordination of supply and demand through the two capital groups was meant to prevent Polish companies from competing

³⁹ Holdanowicz (note 12); and Szymczak, R., 'A call to arms', *Warsaw Voice*, 28 Feb. 2003.

⁴⁰ Jeziorski (note 5); and Polish Ministry of Treasury, 'Privatisation lines for Treasury assets in 2003', Sep. 2002, <<http://www.msp.gov.pl/en/privatisation/privatisation-lines>>, p. 8.

against each other for government orders and in export markets. The capital groups were also a way to avoid diluting the domestic arms-production base through cross-border mergers and acquisitions.

The holding companies leading the capital groups were connected through cross-ownership, a shared mandate and complementary activity. Initially, they were on equal footing; they cooperated and complemented each other. To a certain extent the two holding companies represented two different management cultures. PHZ Bumar was established in 1971, became a successful foreign trade company under the command economy and preserved some of its original character. ARP was created in 1990 in the turmoil of the introduction of the economic shock therapy. Its first president, Arkadiusz Krężel, had been close to Leszek Balcerowicz, the ‘father of Polish transition’. The ARP-led group united high-tech companies with significant international cooperation links that exported mostly to West European and US markets. The Bumar Group’s profile was more traditional and its policy has been more interventionist and dependent on political support. Initially, its companies were less involved in international production networks and their main export markets have been emerging countries (see appendix 3A, section I, for a detailed profile of the Bumar Group).

ARP has played the classic role of crisis manager. The Aviation and Radio Electronics Industries Group was just one of its development projects—together with restructuring other sectors of key significance for the economy, such as iron, steel and shipbuilding—although for several years it was a key one, absorbing a large part of the agency’s human and financial resources.⁴¹ ARP’s mandate was to revamp SOEs, put them on a solid development track and supervise their successful privatization. ARP restructured, recapitalized and promoted its companies; it suggested long-term policy solutions and provided tools to achieve them but gave its members considerable autonomy. While Bumar intended to accumulate assets and power to build a business empire, ARP’s goal was to divest; it assisted its members to become profitable and leave the holding company either through privatization or stable international cooperation and eventual mergers (for a detailed profile of ARP see appendix 3A, section II).

Bumar Sp. z o.o. acted as a prime contractor and promoter of arms industry producers. From the beginning, the Bumar Group was the larger of the two capital groups and it benefited from a snowball effect, striking large deals that provided additional revenues, influence and linkages and that led to even larger deals. The military interventions in Afghanistan and Iraq were immense opportunities for the Bumar Group because large quantities

⁴¹ ARP, *Industrial Development Agency Joint Stock Company: Annual Report 2003* (ARP: Warsaw, 2004).

of traditional heavy weapons, its specialty, were in high demand. The original offset proposals, attached to a deal signed in 2003 to purchase 48 F-16 combat aircraft from the US manufacturer Lockheed Martin, were intended to mostly benefit the aviation companies under the ARP umbrella, but in the end the Bumar Group companies landed most deals.⁴² The Bumar Group became more confident thanks to its export successes and started to create a large, unified corporate structure with strong hierarchical leadership. Its ambition was to build an empire of vertically integrated production facilities inside Poland with the prospect of extending that network in East Central Europe. It used its political connections to garner backing for its plans and to support its export promotion efforts; sales, offsets and cooperation agreements helped it to build strong links with foreign partners.

ARP strove to be as independent of politics as possible. Between 1992 and May 2006 Krężel worked with 13 different governments and affirmed that he never had to bend to political instructions; the respective ministries did not give ARP instructions but only recommended certain policy guidelines.⁴³ In the spring of 2006 Krężel was removed from his post and ARP's management has changed several times since. From its inception, the Bumar Group enjoyed unquestioned political backing, a key factor for survival in the military-related sector. However, in early 2007 the top management of the group was abruptly replaced, reportedly as 'part of a wider policy of purging the heads of state-owned companies not tied to the current government'.⁴⁴ The new management followed the policies of its predecessor, although the change created organizational disturbances and insecurity.⁴⁵ Nonetheless, the group maintained its special status in the Polish economy.

On 31 August 2007 the parliament approved the government's new arms industry policy document, passing the 'Strategy of consolidation and supporting the development of Polish defence industry in 2007–2012'.⁴⁶ The new policy guidelines generally followed those of the 2002 arms industry strategy with certain important modifications. The most important of these was the decision to further concentrate Polish arms industry facilities by merging all major military manufacturers into the Bumar Group, including those that had been under MND supervision or under ARP's Aviation and

⁴² See Seguin, B. R., *Why Did Poland Choose the F-16?*, Occasional Paper no. 11 (George Marshall Center: Garmisch-Partenkirchen, June 2007), p. 23.

⁴³ Krężel (note 38).

⁴⁴ Cienski, J., 'Bumar wins Iraq training contracts', *Financial Times*, 30 May 2007.

⁴⁵ Kułakowski, S. quoted in 'Uncertain future for domestic arms exporters', *Polish News Bulletin*, 13 Sep. 2007.

⁴⁶ 'Strategia Konsolidacji i Wspierania Rozwoju Polskiego Przemysłu Obronnego w Latach 2001–2012' (note 29). The strategy was presented to the industry by the Deputy Minister of Economy, Paweł Poncyłjusz, during a press conference at the 15th International Defence Industry Exhibition in Kielce. See Kułakowski (note 18).

Radio Electronics Industries Group. The Bumar Group was also expected to integrate the military-related units of several research institutes and dual-purpose producers.

This additional consolidation was meant to increase Poland's international competitiveness. Przemysław Gosiewski, the Deputy Prime Minister, declared: 'On today's market in Europe, we need strong and large companies. Poland will have such a company.'⁴⁷ Emphasis was increased on R&D related to military production, which was to be promoted through institutional reorganization and an increased budget. Several military research institutes were to be added to the Bumar Group and consolidated into three research institutes that focused on C⁴I (command, control, communications, computers and intelligence), air defence, weapon systems and armoured vehicles. A fourth institute would study ammunition and explosives. To support this initiative the government pledged to spend 3 billion złotys (\$1.1 billion) on military R&D by 2014.

By creating a single giant military holding company, the Polish authorities not only intended to increase Bumar's international stature but also to curtail further internal competition, a goal announced in 2002 when the two capital groups were created. The rivalry between private enterprises and SOEs owned by the MND and the MOE continued and intensified as did the struggle between arms-producing firms and other Polish companies. Holdanowicz recalled that companies under MOE supervision often had to fight for contracts against those supervised by the MND, which created large upgrade capabilities during the 1990s (i.e. companies were able to use their assets for autonomous production instead of solely for maintenance and upgrade). For example, the small-arms producer ZM Łucznik's newly developed 9-mm standard pistol lost out in bidding because the MND decided to procure the Wist pistol that had been developed by its own armament institute, Wojskowy Instytut Techniczny Uzbrojenia (WITU, Military Institute of Armament Technology), together with a privatized arms producer, Prexer Sp. z o.o. of Łódź.⁴⁸ The award of the Kołowy Transporter Opancerzony (KTO, wheeled armoured vehicle) Rosomak multi-role armoured vehicle tender to the MND's Wojskowe Zakłady Mechaniczne (WZM, Military Mechanical Plant) in Siemianowice Śląskie was also contested, with critics claiming that the company did not have the necessary assets and know-how. The decision to merge all arms companies into the Bumar Group was intended to defuse rivalry within the arms industry.

The proposal to incorporate the MND-owned production and repair facilities into the Bumar Group reflected a new element in arms industry

⁴⁷ 'Poland to consolidate defense industry firms, spend PLN 3 bln on military R&D by 2014', *Poland Business News*, 3 Sep. 2007.

⁴⁸ Holdanowicz (note 12).

policy. Slowly, decision makers realized that contracting foreign companies to service and maintain their new military equipment was expensive. If domestic repair facilities were made capable of carrying out upgrades locally, the Bumar Group together with the MND-owned companies could be the main actors in and beneficiaries of such activities.

Export promotion

According to a former vice-president of Bumar Sp. z o.o., Andrzej Spis, before the early 2000s approximately 50 per cent of Poland's military output was destined for foreign markets, while the ARP capital group's former president, Krężel, estimated that 60–65 per cent of output was exported.⁴⁹ US Foreign Commercial Service figures state that in 1986–91 Poland exported 50 per cent of its military production. In 2003 it exported about 12 per cent of its output—principally ammunition and spare parts.⁵⁰

In 1988, a peak year for Polish military exports, arms worth \$258.2 million were sold abroad.⁵¹ Between 1992 and 1999 exports dropped from \$370 million to less than \$100 million, and later even lower.⁵² According to SIPRI figures, in 1995 the value of Polish exports totalled \$187 million, but sales decreased to \$51 million in 1999 and to \$40 million in 2000.⁵³ Foreign arms sales mirrored the unresolved problems of the arms-producing industry and continued to diminish. Some in the industry attributed the worsening export performance to a lack of government support and the country's list of prohibited end-users for arms exports, which was regarded as one of the most restrictive in Europe.⁵⁴

The country's 1999 entry to NATO was considered an admission ticket to new lucrative markets, but no major new export contracts were signed until the early 2000s. In 2002, together with the adoption of the new arms industry strategy, the recently elected centre-left government started to actively promote Poland's military products abroad. The creation of the ARP and Bumar capital groups and the Polish Government's export offensive coincided with a spending boom in some emerging countries needing well-tested, relatively inexpensive military equipment that was not necessarily equipped with the very latest technologies.⁵⁵ In addition to its con-

⁴⁹ Spis, A., Vice President of Bumar Sp. z o.o., Interview with author, Warsaw, 12 May 2006; and Krężel (note 38).

⁵⁰ Sobiepanek-Kukuryka, Z., *Defense Market: Defense Industry Equipment* (US Department of State, US Commercial Service: Warsaw, May 2003).

⁵¹ Perczynski, M., Wieczorek, P. and Zukrowska, K., 'Country survey V: Poland and its arms industry', *Defence and Peace Economics*, vol. 6, issue 1 (1995), p. 70.

⁵² Piatkowski (note 10).

⁵³ Saferworld, 'Poland', *Arms Production, Exports and Decision-Making in Central and Eastern Europe* (Saferworld: London, June 2002), pp. 8–10.

⁵⁴ Holdanowicz (note 12).

⁵⁵ Kinski (note 32), p. 16.

tracts in Iraq (see below), in 2003 Poland signed a deal with Malaysia for the sale of 48 PT-91M tanks, 6 WZT-4 armoured recovery vehicles (ARVs), 5 PMC-Leguan armoured bridge-layers and 3 MID-M armoured engineering vehicles for around \$380 million. Poland also sold 80 WZT-3 ARVs to India in 2002 for \$60–75 million and 228 more in 2004 for \$202–228 million.⁵⁶ Major deals followed with Indonesia, Iraq, Viet Nam and other developing countries.

These significant new markets presented extraordinary opportunities for Polish arms makers and they fully exploited them. The new export possibilities significantly improved the arms companies' situation. Most firms under the Treasury started to produce net profits, including those in the worst financial shape, such as ZM Bumar-Łabędy, ZM Mesko, Nitro-Chem and PZL-Wola. The net earning capacity of the entire arms industry improved from –13.9 per cent in 2002 to 1.4 per cent by 2004, and the nominal value of sales increased by 24 per cent during these three years. However, efficiency gains were not evident. The companies' debts increased from 2 billion zlotys (\$489 million) in 2001 to 3 billion zlotys (\$820 million) in 2004, although the debt structure improved with a decrease in short-term debts.⁵⁷ In 2004 Poland announced that armaments were a 'new star on the horizon' alongside the country's main exports: cars, food, furniture and glassware.⁵⁸ By the end of 2004 Poland had signed arms sale contracts worth \$300 million, a record since the start of the political transformation and approximately equal to the value of arms sale contracts during the mid-1980s peak.⁵⁹

The 2003–2004 arms exports boom boosted the government's confidence. Future arms export successes were forecast with products such as PIT's long-range radar station, ZM Mesko's state-of-the-art anti-aircraft sets and Grom missiles, TM Pressta's Feniks missiles, and CNPEP Radwar's identification, friend or foe (IFF) electronic aircraft identification system.⁶⁰ Arms exports were placed at the centre of Poland's arms industry strategy, and state decision makers forecast that revenues from arms exports and offset or cooperation deals would help arms industry companies to restructure and reach their full capacity in two to three years. In 2003 Andrzej Szarawarski, Deputy Minister of the Treasury, declared: 'We want the arms industry to sign export contracts worth around \$500 million a year.' Exports were expected to represent approximately 50 per cent of the sales of arms companies.⁶¹

⁵⁶ SIPRI Arms Transfers Database, <<http://www.sipri.org/databases/armstransfers>>.

⁵⁷ Kułakowski, S., 'A way to stabilisation', *Polish Defence Industry*, no. 3 (2005).

⁵⁸ Polish Ministry of Foreign Affairs, 'Export: the driving force of the economy', *Economic Bulletin*, no. 2 (600), 12 Jan. 2004.

⁵⁹ Kułakowski (note 57), p. 10.

⁶⁰ Jeziorski (note 5).

⁶¹ Quoted in Szymczak (note 39).

The potential for exports helped companies that lagged far behind in restructuring to jump on the bandwagon of defence industrial promotion. PZL-Wola, for example, was having difficulties adjusting to the post-cold war situation. The company was scheduled for privatization several times, but no buyers were found. Thanks to Malaysia's acquisition of Bumar Łabędy's PT-91M tanks, which were fitted with a PZL-Wola S-1000R diesel engine, the company was temporarily saved. However, in 2009 a bankruptcy procedure was initiated that liquidated the company and transferred its military-related engines and aggregate production assets to the Bumar Group.⁶²

Following the example of the USA, which provided Poland with considerable financial assistance to facilitate its purchase of the F-16 combat aircraft in 2003, Poland offered credit lines to its major developing country buyers. Indonesia, for example, received a \$75 million loan to buy arms in 2005 and a \$260 million loan in 2006.⁶³ In 2008 negotiations were held on the sale of the Poprad anti-aircraft mobile missile launcher system, which required the Polish Government to provide an arms industry procurement loan worth \$55 million.⁶⁴

Some market failures of the Bumar Group, the most prominent ECE arms industry actor, reflected the weak negotiating power of firms in the region. In 2003, when the US-led invasion started, Bumar signed several important contracts in Iraq to supply the Iraqi Government: in February 2004 it took part in a bid worth \$600 million to arm the Iraqi armed forces. Both President Kwaśniewski and the Prime Minister, Leszek Miller, heavily lobbied the US administration in favour of Bumar, but the contract was given to a newly established trade entity, Nour USA. After winning the contract, Nour USA declared that it would buy equipment from Bulgarian, Polish and Ukrainian companies. According to Sławomir Kułakowski of the PCNDM, Nour USA asked the Bumar Group to present a \$150 million offer.⁶⁵ In May of 2004 the Bumar Group lost another tender, worth \$400 million, to supply additional weapons to the Iraqi Army. The winner, the US-based Anham Joint Venture, which bid \$259 million, was owned by the same shareholders as Nour USA. In order to fulfil the order Anham Joint Venture supplied mostly Ukrainian vehicles and Bulgarian, Romanian

⁶² Bumar Group, 'Restructuring plans for the Bumar Group', 18 Oct. 2009, <<http://www.bumar.com/en/news/2009/10/restructuring-plans-for-the-bumar-group-2/>>.

⁶³ 'Polish credit for Indonesia', *Polish Defence Industry*, vol. 18, no. 3 (May 2006), p. 5.

⁶⁴ Holdanowicz, G., 'Poprad mobile anti-aircraft system completes R&D phase', *Jane's International Defence Review*, no. 37 (Nov 2004), p. 34; and 'Indonesia cancels purchase of 11 Polish planes', *Defense World*, 30 July 2008, <<http://www.defenseworld.net/news/1034>>.

⁶⁵ 'Nour asks Bumar to present its price list', *Warsaw Business Journal*, 13 Feb. 2004. Later, Nour USA was sharply criticized for late and erratic deliveries. Miller, T. C., 'Poland, Spain up in arms over loss of Iraq contract', *Los Angeles Times*, 17 Feb. 2004; and Shanker, T. and Schmitt, E., 'Iraq: Nour USA Ltd's delivery delays', *New York Times*, 22 Mar. 2004.

and Ukrainian weapons in addition to some British and US equipment.⁶⁶ Both Anham Joint Venture and Nour USA were newcomers to the arms field but were well placed in an intermediary position and had considerable liquid assets, which appeared decisive in the outcome of the tender.

These cases also shed light on the fierce competition that pitted former Warsaw Pact member countries against each other. Due to their common Warsaw Pact heritage, the ECE countries have a similar core arms industry base (in addition to which each has specialized in different, complementary product areas), making suppliers from the region somewhat interchangeable. Commenting on the loss of the second bid, Bumar's president Roman Baczyński noted that the Bumar Group was unable to guarantee the requested fast delivery. This was yet another, common problem among cash-stripped ECE companies, which were unable to increase their output rapidly or maintain large reserves. One possible solution was to use the stocks of military depots, a method that Bumar used in some later tenders.

Multilateral military missions: new allies, new opportunities

From the beginning of its political and economic transformation Poland made clear that it aspired to a new international profile, playing a prominent role in European politics and becoming a key US ally. Military deployments with EU, NATO and United Nations missions were a major part of Poland's new international position. At the same time, they were seen as a way of promoting and showcasing Polish military products. Unlike the other two ECE countries that joined NATO in 1999, the Czech Republic and Hungary, which engaged in auxiliary tasks, Poland expressed its willingness to assume autonomous tasks in international military missions. In Afghanistan, for example, the Czech Republic's 472-strong unit has taken part principally in the work of the Logar Provincial Reconstruction Unit, the 522-strong Hungarian unit was mostly active in the Baghlan provincial reconstruction team (PRT), while the 2488-strong Polish contingent was engaged in battle units alongside US troops.⁶⁷

In 2003, a year before it joined the EU, Poland joined the 'coalition of the willing' that invaded Iraq and constituted the Multinational Force in Iraq (MNF-I). Poland deployed 2500 soldiers in southern Iraq and led the

⁶⁶ 'Polish arms maker Bumar loses second bid to supply weapons to Iraqi Army', Interfax, 26 May 2004; American International Services, 'Iraqi armed forces battalion sets project', Project profile, W56HZV-04-D-0181, [n.d.], <<http://www.americaninternationalservices.com/projects/recentprojects/AISprojectprofile1.pdf>>; 'Kraz vehicles in Iraq', School of Life informative magazine, <<http://meta.pois.com/index.php?newsid=14723>>; Economist Intelligence Unit (EIU), 'Ukraine: automotive background', EIU ViewsWire, 9 Nov 2004, <http://www.eiu.com/index.asp?layout=ib3Article&article_id=277779027>.

⁶⁷ North Atlantic Treaty Organization, 'International Security Assistance Force: key facts and figures', 14 Dec. 2010, <http://www.isaf.nato.int/images/stories/File/Placemats/14DEC_2010_Place mat.pdf>.

Multinational Division Central-South. By 2006 a total of 10 500 Polish soldiers had served in Iraq.⁶⁸ From 2005 Poland started drawing down its troops in Iraq and by October 2008 had withdrawn its military presence, along with all other non-US contributors to the MNF-I. Polish forces that were withdrawn from Iraq were usually redeployed in the NATO-led International Security Assistance Force (ISAF) in Afghanistan. Polish troops have been present in Afghanistan since 2003. The number of Polish troops in Afghanistan was increased to around 1200 in 2007 and had reached 2488 by the end of 2010.⁶⁹ In addition to MNF-I and ISAF, Polish soldiers have been deployed in 11 multilateral peace operations. In Lebanon they participated in the UN Interim Force (UNIFIL) with 632 soldiers (PMC/UNIFIL); in the Golan Heights–Syria in the framework of the UN Disengagement Observer Force (UNDOF) with 355 soldiers (PMC/UNDOF); in the Balkans in the NATO-led Stabilization Force (SFOR) with 300 soldiers (PMU/SFOR) and in the Kosovo Force (KFOR) with 172 soldiers (PMU/KFOR); and in the UN Organization Mission in the Democratic Republic of the Congo (MONUC) with some observers. In 2008 Poland pledged to send 350 soldiers to an EU mission in Chad the EU Military Operation in Chad and the Central African Republic (EUFOR Tchad/RCA). At the end of 2010, 3233 Polish troops were deployed in operations abroad. In 2010 Poland spent 7.7 per cent of the MND budget, 1.96 billion zlotys (\$651 million), on foreign military missions.⁷⁰

Having confirmed its position as a committed and active US ally and as a participant in US-dominated NATO missions, from 2004 Poland focused greater attention on military missions within the EU framework. Poland became the lead nation in EU Battle Group 2010, composed of forces from Germany, Latvia, Lithuania and Slovakia.⁷¹

In addition to their political significance, Polish military missions are considered long-term investments in security and lead to tangible economic benefits. Talking about the Iraqi mission, former defence minister Radosław (Radek) Sikorski stated ‘We have seen this mission all along as an investment in the Polish–American security relationship.’⁷² Poland’s ambassador in Washington, Przemysław Grudziński echoed this view: ‘Poland consider[ed] participation in this operation as an investment in international security.’⁷³ This goal remained explicit during the Afghan deployment as well. Interviewed by Polish Radio, the Defence Minister, Bogdan Klich, declared: ‘Participation in military missions is only an instrument to

⁶⁸ Dempsey, J., ‘Poland will set own course, defense chief vows’, *New York Times*, 24 Jan. 2006.

⁶⁹ North Atlantic Treaty Organization (note 67).

⁷⁰ Polish Ministry of National Defence, ‘Basic information on the MoND budget for 2010’, <http://www.wp.mil.pl/en/strona/126/LG_89>.

⁷¹ Holdanowicz, G., ‘Poland names military appointments’, *Jane’s Defence Weekly*, 26 May 2010.

⁷² Dempsey (note 68).

⁷³ Seguin (note 42).

achieve a certain aim. . . . This country should benefit from such a mission in both long-term and short-term perspective.⁷⁴ In this view, Poland's withdrawal of troops from Iraq and their subsequent deployment to Afghanistan was a switch from one fully exploited 'business opportunity' to another, rather than a reaction to the Polish people's opposition to this kind of military role. (According to public opinion polls, the Polish military deployments in both Afghanistan and Iraq have been very unpopular.)

Poland has financed its military missions in part with its own resources and in part from external contributions, principally from the USA. In January 2004 President George W. Bush asked the US Congress for \$66 million for military modernization in Poland; in 2005 the figure jumped to \$100 million.⁷⁵ More Polish soldiers were trained by US military personnel than those of any other ECE country.⁷⁶ When Poland further increased its Afghan contingent with 1000 new troops in 2007, it applied for external US funds to accomplish the task. The US Navy's Military Sealift Command (MSC) transported nearly 8000 square metres of Polish Army cargo, including trucks, trailers and various combat equipment to Afghanistan, free of charge.⁷⁷ Poland's 2007 budget earmarked 300 million zlotys (\$96 million) for the Afghan mission. By late 2010 Poland was spending \$1.5 million on its military presence in Afghanistan and around \$5 million on the development projects that are part of its mission.⁷⁸

More important than the financial aid from the USA that helped it to maintain its foreign military missions was Poland's recognition as a proven ally, which meant that it was also able to benefit from special business deals. Several analysts associated Poland's participation in Iraq with the extraordinarily generous financial package and offset offers that accompanied the F-16 combat aircraft deal. Even if the benefits were not that direct, as a reliable political and military partner Poland was able to cooperate with the USA and jointly develop projects that other countries could not. US firms were officially encouraged to enter into cooperation with Polish companies, among others, through government commercial offices. Poland was the only ECE country whose possible participation in the F-35 (Joint Strike Fighter) project was discussed; and US-origin investments and joint R&D projects multiplied after 2003.⁷⁹ Polish firms have

⁷⁴ Kubicki, M., 'Polish troops plan to leave Iraq—but other destinations await', Radio Prague, 11 Jan. 2008, <<http://incentraleurope.radio.cz/ice/article/99537>>.

⁷⁵ Sanger, D. E., 'Bush to seek \$100 million in military aid for his Polish ally', *New York Times*, 10 Feb. 2005.

⁷⁶ Montgomery, N., 'Hohenfels training gets Polish troops ready for deployment to Afghanistan', *Stars and Stripes*, European edn, 18 Dec. 2006.

⁷⁷ Montgomery (note 76); and 'Poland to send over 900 more troops to Afghanistan', *International Herald Tribune*, 14 Sep. 2006.

⁷⁸ Rashid, H., 'Poland's Afghan conundrum', BBC News, 11 Oct. 2010, <<http://www.bbc.co.uk/news/world-south-asia-11470351>>.

⁷⁹ Holdanowicz, G., 'Poland steps up interest in JSF', *Jane's Defence Weekly*, 18 July 2001, p. 4.

been given tasks and received input that other partners would not automatically obtain, not even at the subcontractor level.⁸⁰ The presence of a considerable number of important US companies in Poland, the fact that barriers to entry were lowered and the particularly warm welcome that US companies received attracted even more US investors to the country, not least due to the herd mentality of foreign direct investment. Finally, Poland's participation in overseas military missions paved the way for its arms export offensive, both via direct sales and by using military deployments as an immense marketing exercise.

Once it entered the burgeoning military marketplaces that Afghanistan and Iraq became, Poland seized the opportunity to promote its arms exports.⁸¹ It offered the equipment used by its contingents in the field for sale, participated in bids announced by the Iraqi Ministry of Defence (MOD) and acted as a middleman for arms supplies. The connection between Poland's military presence and its arms sales to Iraq was undeniable. The acting CEO of the Bumar Group, Waldemar Skowron, declared in 2007: 'We feel we have more right to do business in Iraq than countries not in the coalition, but we realise we still have to win these contracts'.⁸² The connection between the military presence and business was also clear for Iraq. In January 2005, when Poland announced that it would reduce its troop presence in the country, the Iraqi Deputy Defence Minister, Ziad Cattan, implored them to stay and announced the signing of a \$20 million weapon contract with the Bumar Group.⁸³

Poland's increasing foreign military role and the needs generated by it had a catalysing effect on the domestic arms industry. For the first time in decades Polish weapons were manufactured for imminent battlefield use. Poland was equipping soldiers and providing support and services for actual combat. Foreign battlefields served as enormous testing grounds that revealed when equipment had to be updated or replaced. The effect on domestic arms demand was significant. Foreign military missions also strengthened ties with the world's key arms makers. Due to the large percentage of foreign components in Polish military products, upgrading and replacement of equipment necessitated additional purchases and military industrial cooperation with foreign producers. Poland reordered military

⁸⁰ Anselmo, J. C. and Wall, R., 'Eastern Europe fights for aerospace future', *Aviation Week*, 17 June 2007.

⁸¹ Holdanowicz, G., 'Iraq's shopping spree in Poland', *Jane's Defence Weekly*, 22 Dec 2004, p. 7.

⁸² Cienski (note 44).

⁸³ See Mroue, B., 'Iraq's top commander says his troops can take over cities from U.S. troops in six months', *San Francisco Chronicle*, 27 Jan. 2005. Cattan—a dual Polish and Iraqi citizen—is accused of a series of dubious deals and large-scale swindles. Moore, S. and Miller, T. C., 'Before rearming Iraq, he sold shoes and flowers', *Los Angeles Times*, 6 Nov. 2005; Doward, J. and McDevitt, J., 'British firm under scrutiny for export of Bosnian guns to Iraq', *The Observer*, 12 Aug. 2007; and 'Iraq: state of corruption', *60 Minutes*, CBS News, 11 Feb. 2009, <http://www.cbsnews.com/8301-18560_162-4009328.html>.

equipment from its partners and continuously upgraded equipment used abroad.⁸⁴ From the late 2000s Poland attempted to rely more on domestic producers. In late 2007 the MND announced its intention to replace the high-mobility multipurpose wheeled vehicles (HMMWVs or Humvees) that it had leased from the USA for the Polish deployment in Afghanistan. Jarosław Rybak, an MND spokesman, declared that: 'We need an equipment that really protects the soldiers and belongs to us, because we cannot rely only on the help of allies. Polish armed forces will never have its own strategic air force but we must have a well equipped battalion for the missions abroad.' As an alternative to the Humvee, the Polish Tur vehicle manufactured by the private company AMZ Kutno was presented at the Międzynarodowy Salon Przemysłu Obronnego (MSPO) International Defence Industry Exhibition Fair in Kielce in September 2007.⁸⁵

The issue of establishing a US military base and a ballistic missile-defence system in Poland has followed the same logic as that of participation in military missions.⁸⁶ Poland wished to express its political commitment to the USA in the hope of obtaining a security and economic package in return. Poland pressed for assistance to modernize its air force, including acquisition of the US Patriot Advanced Capability-3 (PAC-3) missile system or the Terminal High-Altitude Area Defense (THAAD) system, and for a bilateral security accord. In May 2007 the US Congress approved a \$20 million aid package that US negotiators said would rise to \$47 million, but the Prime Minister, Donald Tusk, called these sums insignificant. According to Polish news sources, the USA finally agreed to help upgrade Poland's armed forces in exchange for hosting a US missile base on its territory.⁸⁷ After the 2008 elections, the new US Government redesigned its foreign policy, including the missile defence plans. Poland was unhappy with the changes and in August 2012 President Komorowski declared that the agreement to deploy US ballistic missiles on Polish territory was 'a political mistake' that

⁸⁴ See e.g. 'Poland bolsters C-295M fleet', *Jane's Defence Weekly*, 7 Nov. 2007, p. 14; and 'Elbit multi-sensor monitoring and surveillance system for Poland', *Defense World*, 20 Dec. 2010, <<http://www.defenseworld.net/news/5327>>.

⁸⁵ Hołdanowicz, G., 'Czas kupić pojazdy na misje' [Time to buy vehicles for missions abroad], *Raport-wo*, Sep. 2007; and Górka, M., [Polish Tur vehicles might replace Hummers in Afghanistan], *Gazeta Wyborcza*, 10 Oct. 2007, English translation in International Military Forums, <<http://www.military-quotes.com/forum/polish-tur-vehicles-might-replace-t45885.html>>.

⁸⁶ The Bush administration planned to establish a military base in Poland (with up to 10 ballistic missiles) and an associated radar system in the Czech Republic. The bases would have been part of the satellite-based anti-missile National Missile Defense system to protect the USA and its allies from long-range nuclear missiles fired from the Middle East, particularly from Iran. See more on the Czech deployment plans in chapter 5 in this volume.

⁸⁷ 'Polish Government says U.S. agrees to its requests on missile shield', *Warsaw Voice*, 27 Feb. 2008. See also DeYoung, K., 'U.S., Poland closer to deal on missile defence', *Washington Post*, 2 Feb. 2008; 'Polish daily reports that U.S. is getting frustrated over missile shield negotiations', *Warsaw Voice*, 13 May 2008; and Glendinning, L., 'Poland and US sign missile defence deal', *The Guardian*, 20 Aug. 2008.

'held Poland hostage to the foreign-policy whims of US politics'.⁸⁸ The country announced a new plan to build its own missile defence system in cooperation with France and Germany.⁸⁹

III. The arms industry

The Polish arms industry reached a first peak in the 1930s when an array of state-owned enterprises were established in the industrial district in central Poland, some producing world class products. The next peak came in the early 1950s after Poland joined the Warsaw Pact and massive production capacities were created in order to manufacture Soviet-designed weapons. Most of Poland's output was produced under licence with some indigenous design and development niches in telecommunications, heavy weapons and aircraft production.

The post-cold war transformation brought important changes that did not fundamentally alter the structure of production. Resources were concentrated; facilities of a military nature were regrouped under selected producers and some production lines were terminated. At the bottom end of the industry the low-quality mass production of spare parts and certain finished products diminished but was not terminated. At the high end, particularly in communications and IT, new profiles were developed, principally thanks to private initiatives.

Core arms producers included (a) SOEs that were regrouped into the two capital groups; (b) companies controlled by the MND; (c) companies owned by the Treasury but whose future was unclear (some government documents scheduled these firms for privatization, while others indicated that they would join one of the capital groups); (d) firms that were fully or majority foreign-owned; and (e) domestic private military producers. Companies in the first two of these groups were fully or majority owned by the Treasury. The owner's rights were exercised by the two capital groups or the MND. These five groups are discussed in turn below.

State-owned companies regrouped in the two capital groups

The state-owned companies in the first three groups were joint stock companies or limited liability companies and were very heterogeneous economically and technologically. They included both firms with modern technologies and those with outdated technologies, and both high-performing and less successful unreformed firms. Many have been stream-

⁸⁸ Bridge, R., 'Warsaw blasts US missile defense deal', RT, 6 Aug. 2012, <<http://rt.com/politics/warsaw-us-missile-defense-russia-972/>>.

⁸⁹ Benitez, J., 'Poland wants to build missile defense system with France, Germany', Ria Novosti, 11 Aug. 2012, <<http://en.rian.ru/world/20120811/175146778.html>>.

lined, with significant cuts in assets, workforce and activity, and modernized. Some were thoroughly restructured while their main profile was preserved. This group still bore the marks of Warsaw Pact-era specialization and was centred on battle tanks, armoured vehicles, artillery systems, light helicopters and air defence radar (see the detailed profiles in appendix 3A, sections I and II).⁹⁰

The Warsaw-based CNPEP Radwar, a member of the Bumar Group, was one of the outstanding companies in this group. It was one of few firms able to stabilize its position, using both state funds and its own reserves and determination to develop cutting-edge technologies that helped it survive and ultimately enter into international cooperation projects. The restructuring of PZL-Świdnik was actively supported by ARP and by the mid-2000s the company had become a success story (on PZL-Świdnik see appendix 3A, section III). CNPEP Radwar remained a Polish state-owned company, while the majority of PZL-Świdnik's assets were eventually bought up by AgustaWestland, owned by Italy's Finmeccanica. The bulk of the companies in the first group, however, were not so successful and continued to struggle to carry out their restructuring projects, to receive state backing and to secure export deals.

Companies owned by the MND

The second group, companies controlled by the MND, including special production and repair plants, constituted a separate subgroup of military manufacturers. Andrzej Modrzejewski, an arms industry insider, listed 20 firms in this group: 12 repair and production facilities and 8 R&D centres and institutes.⁹¹ A 2011 list enumerated 11 firms grouped under the designation Wojskowe Przedsiębiorstwa Remontowo-Produkcyjne (WPRP, Military Repair and Production Companies) that employed 4700 people, with sales reaching 1.316 billion zloty (\$480.3 million) and profits of 107 million zloty (\$39.2 million).⁹² Occasional media references revealed that these large-scale enterprises had an uneven level of development with some reaching levels of excellence and others lagging far behind. The largest firm in this group was Wojskowe Zakłady Mechaniczne Siemianowice (WZMS), which employed 450 people and produced the KTO Rosomak multi-role armoured vehicles, one of the most successful Polish military

⁹⁰ Modrzejewski (note 17), pp. 10–13.

⁹¹ Modrzejewski (note 17), p. 15. Krzysztof Majewski listed 11 producers and 9 R&D centres. Majewski, K., 'Polish defence industry', Presentation, Ministry of Economy, Department of Defence Affairs [2009], <<http://www.stockholm.trade.gov.pl/pl/download/file/f,3148>>, pp. 23–25.

⁹² Adamowski, J., 'Polish group eyed by Patria, Bumar', *Defense News*, 7 Aug. 2011.

products.⁹³ The media mentioned Wojskowe Zakłady Uzbrojenia no. 2 (WZU-2, Military Armament Plant no. 2) in Grudziądz as a good performer; it cooperated with leading Polish R&D institutes and foreign partners, such as Raytheon and the German armed forces, in upgrading air defence systems. Another plant, WZU-5, was able to extend the life of Soviet-origin combat aircraft and also serviced the F-16s that Poland purchased from the USA. Some R&D institutes, such as the Instytut Techniczny Wojsk Lotniczych (ITWL, Air Force Institute of Technology), the WITU and the Wojskowy Instytut Łączności (WIŁ, Military Communication Institute) were also owned by the MND.⁹⁴ According to the government's defence industrial strategy, WPRP companies were to join the Bumar Group by the end of 2012, but the firms' management and employees resisted these plans so fiercely that the authorities kept postponing execution of the plans. The key arguments against merging were that the WPRP companies performed better, had genuine cooperation and far greater independence than those in the Bumar Group.⁹⁵

Other companies owned by the Treasury

The third group of state-owned Polish arms makers originally united a heterogeneous group, both as regards profile and performance. Good performers, such as Stomil-Poznań and ZR Radmor (radio electronics), were members as were some large, problematic companies, such as the heavy weapon producer HSW and ZM Bumar-Łabędy. According to the 2002 government strategy, 21 firms in this group were scheduled to be privatized. At certain companies plans envisaged divesting defence-related assets, which would enter into the portfolio of one of the capital groups, while the civil assets would be offered for sale; other firms were destined for immediate privatization; while the sale of those that still required restructuring was temporarily postponed. The repair shipyards were to be transferred to ARP's portfolio and privatized after consolidation. A 2005 MOE document confirmed that Stomil-Poznan, HSW, Zakładów Elektronicznych Warel (ZE Warel, Electronics Plant), Nitroerg (Chemical Works) and the three naval shipyards were going to be sold.⁹⁶ As of December 2012 seven of the Treasury-owned firms, including Stomil-Poznan, ZM Bumar-

⁹³ Holdanowicz (note 12); Johnson, R. F., 'Maintaining a base: trouble in Poland's defense industry', *Weekly Standard* blog, 16 Jan. 2008, <<http://www.weeklystandard.com/Content/Public/Articles/000/000/014/600iwxjfj.asp>>; and Adamowski (note 92).

⁹⁴ *Polish Defence Yearbook 2012: Industry, Armed Forces and Security Services* (Magnum X Publishing House: Warsaw, 2012).

⁹⁵ *Polish Defence Yearbook 2012* (note 94); Adamowski (note 92); and Lentowicz, Z., 'Wojskowe firmy w antybumarowej grupie' [Military companies in the group antybumarowej], *Rzeczpospolita*, 19 Sep. 2011.

⁹⁶ Polish Ministry of National Defence, 'Privatization update', Sep. 2005.

Łabędy and PHZ Cenzin Sp. z o.o., the oldest Polish foreign trade company dealing with export of arms and defence equipment produced by the Polish defence industry, had joined the Bumar Group.⁹⁷ Some of the firms were privatized; the Polish private company KGHM Polska Miedź S.A. bought Nitroerg and WB Electronics Sp. z o.o. (WBE) purchased ZR Radmor.

In February 2012 the civil machinery production unit of HSW was sold to LiuGong Machinery Company Ltd, a Chinese multinational company headquartered in Liuzhou, China. The military-related branch remained majority Treasury-owned and strongly resisted the attempts to merge it into the Bumar Group. HSW had been through a long period of struggling to become profitable and investing systematically in R&D and modernization; having just received a major MND order for 24 new Krab howitzers, it was unwilling to see these results become dissipated in the inefficient, bureaucratic system of the Bumar Group (see box 3.2 for a list of key state-owned producers).⁹⁸

Privatization

The bulk of Polish SOEs were privatized rapidly at the advent of systemic changes, but sectors that were considered strategic were an exception. Every arms industry restructuring project in Poland has had to address the question of privatization and reconcile two opposing imperatives of defence industrial policy: to maintain state control over core producers and to reap the benefits of privatization in terms of revenues, increased efficiency and, more important, attracting capital. Announcements of plans to privatize arms industry firms have usually been preceded by long debates held behind closed doors because of strong resistance to the sale of strategic assets. Those who opposed privatization on the grounds that it sacrificed state control over strategically important producers have been able to point to the fact that, because of their large size, the producers in question have needed injections of capital larger than local investors were likely to be able to provide and, thus, privatization was bound to put strategic assets into foreign hands.

In a wave of privatization attempts planned under the government's 1999 restructuring plan, the Treasury offered to sell ZM Kraśnik, PZL-Świdnik, Bydgoskie Zakłady Elektromechaniczne (BZE, Bydgoszcz Electromechanical Plant) Belma, PSO Maskpol and ZE Warel, but no bidders came forward. In 2001 a consortium of Spain's Avia System Group and EADS Con-

⁹⁷ '7 another [sic] companies in Bumar', *Polish Defence Industry*, vol. 26, no. 1 (2010), p. 4.

⁹⁸ 'HSW objects to entering Bumar Group', *Europe Intelligence Wire*, 9 Nov. 2012; '40 mln zł inwestycji w przyszłym roku w Hucie Stalowa Wola' (note 6); and Surowaniec, Z., 'Huta Stalowa Wola podpisała super kontrakt' [Stalowa Wola signed a great contract], *Echodnia.eu*, 14 Sep. 2012, <<http://www.echodnia.eu/apps/pbcs.dll/article?AID=/20120914/POWIAT0303/120919329>>.

Box 3.2. Major state-owned Polish arms companies, 2012**Bumar Group***Dywizja Bumar Żołnierz (Bumar Soldier Division)*

Leading entity: former Przemysłowe Centrum Optyki S.A. (PCO, Industrial Optical Centre), now called Bumar Żołnierz S.A.

- Fabryka Broni 'Łucznik'-Radom Sp. z o. o.
- Przedsiębiorstwo Sprzętu Ochronnego 'Maskpol' S.A.
- Ośrodek Badawczo-Rozwojowy Sprzętu Mechanicznego (OBRSM) Sp. z o. o., Tarnów
- Zakłady Mechaniczne 'Tarnów' S.A.

Dywizja Bumar Amunicja (Bumar Ammunition Division)

Leading entity: former Zakłady Metalowe Mesko S.A., now called Bumar Amunicja

- Zakład Produkcji Specjalnej Sp. z o. o. w Pionkach
- Zakład Produkcji Specjalnej 'Gamrat' Sp. z o. o.
- Bydgoskie Zakłady Elektromechaniczne 'Belma' S.A.
- Fabryka Produkcji Specjalnej Sp. z o. o. w Bolechowie
- Zakłady Metalowe 'Dezamet' S.A.
- Zakłady Chemiczne 'Nitro-Chem' S.A.
- Zakłady Metalowe Kraśnik Sp. z o. o.
- WSK PZL-Warszawa
- Centrum rozwojowo-wdrożeniowe
- Telesystem-Mesko Sp. z o. o.

Dywizja Bumar Elektronika (Bumar Electronics Division)

Leading entity: Przemysłowy Instytut Telekomunikacji S.A. (PIT, Telecommunications Research Institute)

- Centrum Naukowo-Produkcyjne Elektroniki Precyzyjnej 'Radwar' S.A.
- Przedsiębiorstwo Produkcyjne Podzespołów Elektronicznych 'Dolam' S.A.

Dywizja Bumar Ląd (Bumar Land Division)

- Zakłady Mechaniczne 'Bumar-Łabędy' S.A.
- Ośrodek Badawczo-Rozwojowy Urządzeń Mechanicznych (OBRUM) Sp. z o. o.

Other Bumar companies

- Cenrex Sp. z o. o.
- Cenzin Sp. z p. o.
- Stomil-Poznań S.A.
- Zakład Mechaniczny PZL Wola Sp. z o. o. w Siedlcach
- Fabryka Urządzeń Mechanicznych i Sprężyn
- FUMiS-Bumar Sp. z o. o.
- Zakład Usług Turystycznych TUR-Wola Sp. z o. o.

R&D institutes, mostly owned by the Ministry of National Defence (MND) and other ministries

- Instytut Techniczny Wojsk Lotniczych (ITWL, Air Force Institute of Technology)
- Wojskowy Instytut Techniczny Uzbrojenia (WITU, Military Institute of Armament Technology)
- Wojskowy Instytut Łączności (WiŁ, Military Communications Institute)

Wojskowe Przedsiębiorstwa Remontowo-Produkcyjne (WPRP, Military Repair and Manufacturing Companies), owned by the MND

- Wojskowe Zakłady Uzbrojenia S.A.
- Wojskowe Zakłady Mechaniczne S.A.
- Wojskowe Zakłady Motoryzacyjne S.A.
- Wojskowe Zakłady Inżynieryjne S.A.
- Wojskowe Zakłady Lotnicze number 1 S.A.
- Wojskowe Zakłady Lotnicze number 2 S.A.
- Wojskowe Zakłady Lotnicze number 4 S.A.
- Wojskowe Zakłady Elektroniczne S.A.
- Wojskowe Centralne Biuro Konstrukcyjno-Technologiczne S.A.
- Wojskowe Zakłady Łączności number 1 S.A.
- Wojskowe Zakłady Łączności number 2 S.A.

Source: Polish Defence Yearbook 2012: Industry, Armed Forces and Security Services (Magnum X Publishing House: Warsaw, 2012).

struccioni Aeronauticas (EADS CASA) bought 51 per cent of the PZL-Warszawa-Okęcie small aircraft producer for 28.6 million złoty (\$7.0 million). In March 2002 Pratt & Whitney, part of the US company UTC, bought 85 per cent of the shares of WSK PZL-Rzeszów for over 285 million złoty (\$70 million). This deal was fiercely criticized in Poland because WSK PZL-Rzeszów was one of the country's leading arms producers with good export results and one of few companies to have made a profit (of 15 per cent) in 2000. Under the terms of the deal the Treasury was required to spend revenues from the privatization on restructuring and modernizing the company (around 65 per cent) and on technical modernization of the armed forces (35 per cent). Critics of the sale alleged that the government budget gave a figure that was lower than the true value of the sale, a possible indication that funds had been siphoned off.⁹⁹

The 2002 arms industry strategy mandated the state to maintain control over the companies in the two capital groups and to search for investors for other less important companies. (In principle, ARP companies were supposed to be privatized eventually.) As mentioned above, 21 significant military producers were scheduled to be privatized. A 2006 government update on privatization reported that no significant progress had been made.¹⁰⁰ A 2007 privatization document reiterated that an elaboration of the government strategy was forthcoming, including further consolidation and privatization.¹⁰¹ According to the September 2007 government strategy document, most of the companies that had been selected to be sold in 2002 were

⁹⁹ Holdanowicz (note 12).

¹⁰⁰ Calski, P., 'Privatization in Poland 2002–2006: continuation and new challenges', Presentation, Polish Ministry of Treasury, Sep. 2006.

¹⁰¹ Polish Ministry of Treasury, 'Privatisation lines for Treasury assets in 2007', 29 Jan. 2007, <<http://www.msp.gov.pl/download.php?s=3&id=93>>.

Table 3.3. Major foreign acquisitions of Polish defence enterprises as of 2010
 Figures for price and revenue are in US\$ m.

Date	Buyer	Acquisition	Price	Revenue	Notes
Aug. 2010	AgustaWestland	PZL-Świdnik	..	32	Government sold 87% stake in state aircraft company
Jan. 2007	Sikorsky Aircraft	PZL-Mielec	83	..	Former government-owned helicopter manufacturer
Apr. 2002	Pratt & Whitney	WSK PZL-Rzeszów	70	99	Bought 80% stake in government-owned aero-engine company
Oct. 2001	EADS CASA	PZL-Warszawa Okecie	..	..	Bought 51% stake in government-owned aircraft company as part of deal to purchase 8 C-295 transport aircraft
Sep. 2000	Environmental Tectonics	PZL-Aerospace Industries	1.5	..	Bought 95% stake in government-owned aircraft simulator manufacturer
May 1996	Coltec Industries	WSK PZL-Krosno	..	..	Coltec Menasco bought 73% share in government-owned aircraft systems producer

.. = not announced.

Sources: Reproduced with minor changes from Bialos, J. P., Fisher, C. E. and Koehl, S. L., 'Assessing the Polish defense market', *Fortresses & Icebergs: The Evolution of the Transatlantic Defense Market and the Implications for U.S. National Security Policy*, vol. 2, *Country Studies* (Johns Hopkins University, Center for Transatlantic Relations and School of Advanced International Studies: Washington, DC, 2009), p. 483. For PZL-Świdnik: 'Helicopter deal lifting off', *Warsaw Business Journal*, 19 Aug. 2009; and 'AgustaWestland to buy PZL-Świdnik', *Warsaw Voice*, 2 Sep. 2009.

to join the enlarged Bumar Group.¹⁰² A non-dated MND document (probably from 2009) listed seven companies that the government planned to sell, including Nitroerg, HSW, Warel (electronics), Stomil-Poznań and the three military repair shipyards.¹⁰³

In 2010 the government announced a sweeping, large-scale privatization offensive. Privatizations slowed considerably under the Law and Justice Party government, so the new Tusk cabinet decided to offer for sale more than 800 state-owned firms from all economic sectors including finance, defence, energy and utilities. The purpose was to generate revenues to balance the state budget and complete the transformation of the ownership

¹⁰² 'Strategia Konsolidacji i Wspierania Rozwoju Polskiego Przemysłu Obronnego w Latach 2007–2012' (note 29).

¹⁰³ Majewski (note 91).

structure that started in the early 1990s.¹⁰⁴ Privatization plans for the defence sector specified that HSW and WSK PZL-Kalisz (aircraft engine producers) were to be offered for sale. The document also stated that by 2011, 27 more companies would be privatized, including electronic, electrical and mechanical engineering, precision equipment and telecommunications plants, power unit works and tool works, three repair shipyards, two R&D centres and design offices.¹⁰⁵

Besides the government's sometimes ambiguous attitude towards privatization and its inability to carry out privatization plans, another factor slowing privatization was the lack of interested buyers. Few Poles had the necessary capital, the insider knowledge and the connections to run an arms factory successfully. Those who wanted to venture into the field often preferred to start afresh instead of taking over an established large-scale enterprise with all its problems and constraints. Western companies were also slow to invest in the Polish arms industry and took even more time before they started buying Polish companies outright. The PZL-Warszawa-Okęcie and WSK PZL-Rzeszów privatizations were linked to the Polish Government's foreign acquisitions; the first as part of the agreement on the acquisition of eight C-295 transport aircraft from EADS CASA, the second in connection with the F-16 combat aircraft deal.¹⁰⁶ Privatization accelerated when the government more clearly articulated its willingness to sell companies and encouraged potential foreign buyers, mostly through offset deals, while the success of the first privatization projects led foreign investors to conclude that the potential benefits of investing in a Polish arms company outweighed the risks.

By the mid-2000s the interests of Poland and foreign buyers had neared each other (see table 3.3). If Poland were to increase the pace of its arms industry reconstruction, it badly needed an infusion of new capital and new technology. West European and US companies wanted to reduce their costs and gain footholds in the ECE arms market, often with the prospect of moving further eastward. US Government-sponsored market research documents strongly recommended that US firms seek domestic partners in order to enter the Polish market. Commenting on the WSK PZL-Rzeszów privatization deal, Leslie Wayne, a US-based analyst, stressed that the massive entry of US firms to Poland would allow the USA to penetrate the European economic space, preventing the re-emergence of 'fortress

¹⁰⁴ Dempsey, J., 'Renewed push for privatization in Poland', *New York Times*, 23 May 2010; and Hunter, R. J. and Ryan, L. V., 'The legacy and prospects of Polish privatization', *International Research Journal of Finance and Economics*, no. 21 (Nov. 2008).

¹⁰⁵ Polish Embassy in The Hague, 'Privatisation plan in Poland for the years 2008–2011', 31 Dec. 2010, <<http://haga.trade.gov.pl/en/aktualnosci/article/a,5552,.html>>; and Polish Ministry of Treasury, *Polish Privatisation Programme for the Years 2009–2011: Unique Investment Opportunities* (Ministry of Treasury: Warsaw, 1 Sep. 2009).

¹⁰⁶ Modrzejewski (note 17), p. 13.

Europe'. The EU, in turn, could count on Poland as an upmarket 'domestic supplier'.¹⁰⁷

The most common privatization scenario was when long-term industrial cooperation or a sale with offset obligations deepened cooperation between a foreign arms seller and a Polish company and, ultimately, the foreign partner bought its Polish counterpart. Initially, foreign takeovers took a long time. WSK PZL-Rzeszów was one of the first Polish military-related companies to be privatized via foreign direct investment. WSK PZL-Rzeszów and Pratt & Whitney had collaborated for over 25 years before the Polish firm was bought by UTC, the parent company of Pratt & Whitney Canada, in March 2002. PZL-Świdnik and Finmeccanica also cooperated for decades before a takeover occurred. The process of foreign takeovers accelerated after the mid-2000s. PZ Sp. z o.o.-Mielec (PZL-Mielec) was bought relatively rapidly by UTC (and became a subsidiary of the UTC company Sikorsky) in 2007. Modrzejewski has linked this move to an upcoming large-scale military helicopter tender.¹⁰⁸

PZL-Mielec was the largest Polish aircraft company (see appendix 3A, section IV). During the two decades of systemic transformation it experienced a slow and painful development process that led to in-depth internal restructuring, focusing of its production profile and widening of the scope of its international cooperation projects. By the late 2000s a streamlined, well-performing enterprise with a promising future had emerged. Two products along with variations of both were key to the company's success: the M28 Skytruck light cargo and passenger aircraft and the M-18 Dromader utility aircraft. PZL-Mielec also had a wide range of cooperation projects with leading international companies; in one of these it became a unique supplier. PZL-Mielec's success owed much to the active assistance of ARP and the creation of a special economic zone (SEZ) around its facilities that enabled it to concentrate on restructuring and offered a wide array of new development alternatives. In March 2007 the UTC company United Technologies Holdings bought 100 per cent of PZL-Mielec's shares from ARP. This step promised a long-term solution to one of the company's key problems: the shortage of capital.

PZL-Mielec realized the dream of most ECE companies: it was purchased by a large international player. However, once it achieved that goal and became part of a different system of production, the nature of its development began to change. Sikorsky selected the Polish firm as the European base for production of its S-70i Black Hawk helicopter. The entry of Sikorsky and the emphasis on production of the Black Hawk certainly reinforced the military nature of the company and the industrial cluster

¹⁰⁷ Wayne, L., 'Polish pride, American profits', *New York Times*, 12 Jan. 2003.

¹⁰⁸ Modrzejewski (note 17), p. 13. In fact, Sikorsky's PZL-Mielec was considered one of the potential competitors when the helicopter tender was announced in 2012.

related to it. It remains unclear what share of production the Black Hawk will take, how PZL-Mielec's profile and production will change and how the new production line will compete with the helicopters produced by the other Polish helicopter-maker, PZL-Świdnik.

Despite acceleration of foreign takeovers in the Polish arms industry and various arms industry policy documents announcing large-scale privatization of defence-related assets, experience to date shows that privatization has remained restricted to a selected number of companies and the core of the industry appears likely to remain in state hands. As observers have pointed out, some of the deals announced in the 2010 privatization campaign were in fact exchanges between state-owned entities or buyouts by entrepreneurs close to political parties.¹⁰⁹ In addition, in the turmoil of the general economic crisis foreign investors have become more cautious. A December 2010 list confirmed that both ARP and Bumar would remain key companies under the Treasury.¹¹⁰ Even though the 2007 restructuring strategy mentioned the merging of MND companies into the Bumar holding company, no such step was taken and the privatization of these companies was not mentioned in more recent government documents. In 2003 and 2005 through its successful bid for armoured vehicles, Patria had expressed its willingness to buy shares in the MND-owned company WZM, but no action was taken.

State owners alone, however, were not able to resolve such crucial problems as the lack of capital to invest in new technology, R&D and other essentials. In order to address this problem the government decided to float up to 25 per cent of the shares of several arms companies on the Warsaw stock exchange. In a speech at the 2007 International Defence Industry Exhibition in Kielce the Deputy Minister of Economy, Paweł Poncyłjusz, stressed that PZL-Świdnik and WZM, the armoured vehicle manufacturer, required immediate capital inflow. Bumar Sp. z o.o. was scheduled to be floated in 2010 once it had become thoroughly consolidated and had managed to integrate its new member companies.¹¹¹

Newcomers to the Polish arms industry

Companies in the fifth group of Polish arms makers, domestic private companies, were usually small- or medium-sized and often owned by a family or a small group of people. They first appeared in the early 1990s under the liberalized regulations that governed the arms industry in the post-cold

¹⁰⁹ Sobczyk, M., 'Poland's privatization drive partially fake, expert says', *Wall Street Journal*, 22 July 2010; and 'Poland's privatization plan to fall short?', *Warsaw Business Journal*, 16 Dec. 2010.

¹¹⁰ Polish Ministry of Treasury, 'Organisational units', Dec. 2011, <<http://www.msp.gov.pl/portal/en/5/403/?poz=2&update=1>>.

¹¹¹ Polish Ministry of Economy, 'Competitive defense sector', 14 Sep. 2007, <<http://www.mg.gov.pl/English/News/2007/Competitive+defense+sector.htm>>.

war period and have grown with impressive speed since. They generally started with a modest capital investment, often family savings, and emerged as niche suppliers, selling their military-related products principally to the Polish MND. While most SOEs struggled for survival, these private firms were up-to-date technologically, functioned at a much higher level of development than most of their state-owned counterparts, had a mobile and well-trained workforce, and were flexible and responsive to changes in demand or legislation, often shifting focus between military and civil production.

In 2007 about 30 private arms-producing companies existed, 10 with more than 50 per cent military production; 23 of these companies were new domestic start-ups.¹¹² The others, such as Prexer Sp. z o.o., had a longer history as civil producers or less important military sub-contractors. Private companies have dominated the military electronics, logistics and personal equipment branches in Poland and have also fared better than their state-owned counterparts. In 2004 private firms employed 1112 people and sold 209.4 million zlotys (\$57 million) worth of products, while state companies had 25 297 employees and realized 3873.4 million zlotys (\$1059 million) in sales. Between 2000 and 2003, when most state-owned firms accumulated losses, the 23 leading private companies realized in total approximately 40 million zlotys (\$10 million) net profits annually, a considerable achievement since these companies had serious disadvantages as compared with SOEs. They did not receive government subventions and tax reductions and were long excluded from offset offers and information about MND procurement plans, unlike the core state-owned military manufacturers.¹¹³

Simultaneously with their rapid growth the new private defence producers have increasingly interacted with the state-owned arms firms and have gradually moved from the margins to the traditional core of the domestic arms industry. Some of the most successful private companies that have entered the Polish arms industry in the past two decades have been included in the large arms deals that state agencies propose to foreign partners. The high-tech electronics products of WB Electronics Sp. z o.o. or the telecommunications devices of DGT Sp. z o.o., a Gdansk-based military telecommunications systems manufacturer, were key components of the Polish industry's upgrade offers and promoted worldwide. Bumar's Iraq contracts opened the way for several privately owned companies, among

¹¹² Modrzejewski (note 17); and Kułakowski, S., 'Equal partner', *Polish Defence Industry*, no. 3 (June 2005), pp. 11–15.

¹¹³ Kułakowski (note 112), pp. 11–12. In the state-owned sector, Kułakowski lists losses of 165.4 million zlotys (\$38 million) in 2000 and 304.8 million zlotys (\$78 million) in 2003. Kułakowski (note 57), p. 7.

them AMZ Kutno for armoured vehicles, Intrall Polska for off-road vans and Celtech for tanker trucks.

Domestic private arms producers could be divided into three major subgroups. The first subgroup contained predominantly companies that provide high-tech end-products originally for the Polish MND and, increasingly, also for export. The second subgroup comprised companies that supply high-tech parts and components to the Polish armed forces or were integrated into the lower tiers of the supply chains of large international companies. These two groups were primarily military producers, even though some of them also had a range of civil products. The third subgroup consisted of amphibian-like companies; they possessed the technology, know-how, certificates and flexibility that allowed them to switch rapidly between the military and civil sphere. Unlike the 'dual-use' enterprises of the past, which were solidly rooted in the defence-related segment of the economy and 'completed' their activities with civil production, they not only manufactured end products for both markets but were also able to adjust all of their activities to the requirements of their customers. They orbited around the defence industrial core, entering and exiting it, depending on changing demands.

WBE, based in Ożarów, near Warsaw, was representative of home-grown, private, high-tech military end-producers. Three friends established it in 1997, providing the necessary funding. In 2006 it employed 43 people (3 managers and 40 engineers, constructors and computer experts) and by 2007 the number of those employed had grown to 60. WBE specialized in battlefield automatization; its main products included the Topaz fire control system for self-propelled howitzers and the Fonet digital internal communications system. An electronic battle management system (originally developed by WBE for the Krab system produced by HSW, which was ultimately not ordered by the MND) has become one of the main selling points of the KTO Rosomak. Another highly successful WBE product was a reconnaissance system based on a miniature unmanned aerial vehicle (UAV), named Sofar, with transmission and data analysis subsystems. The company's electronic devices have become indispensable for upgrading Polish military equipment for domestic use and export. In 2006 WBE already exported 50 per cent of its output and hoped to increase foreign sales to 80 per cent.¹¹⁴

At the 2009 International Defence Industry Exhibition in Kielce, WBE presented a remotely controlled unmanned ground vehicle, the Lewiatan ZS, which had been developed together with the Bumar Group company OBRSM at Tarnów, Wojskowa Akademia Techniczna (WAT, Military Uni-

¹¹⁴ 'Reliable technology', *Polish Defence Industry*, vol. 20, no. 1 (2007), pp. 16–17; and 'A way to fame', *Polish Defence Industry*, vol. 17, no. 2 (Mar. 2006), p. 18.

versity of Technology) and the Hydromega hydraulics company. Another WBE product, the Jasmine command system, which was produced with ZM Bumar-Łabędy and the private military company Teldat, won the prestigious Defender award. These products were the fruit of cooperation among private and MND- and Bumar-controlled state companies. Important foreign arms companies were also becoming development and production partners. At the same 2009 show Boeing and WBE signed a memorandum of understanding to cooperate and jointly develop ground combat vehicle battle management and command, control and communications systems.¹¹⁵ In 2009 Harris Corporation, a US-based international communications and IT company, purchased the licence for the RF-7800I vehicular intercom system developed by WBE and integrated it into its offer.¹¹⁶

In 2009 WBE was one of Poland's largest arms exporters and earned 40 million złoty (\$13 million).¹¹⁷ In December 2010 WBE bought the ZR Radmor company from ARP.¹¹⁸ ZR Radmor, located in Gdynia, was the largest manufacturer of radio equipment in Poland and for several years has been one of few well-performing arms firms. It has received prestigious honours, including *Rzeczpospolita's* 'most innovative company' award in 2006 and *Forbes* magazine's Diamond of Forbes prize as the fastest growing company in 2009. This acquisition was a major event in the development of the Polish defence industry and the first time that a domestic private firm bought one of the core military companies. Announcing the sale, ZR Radmor stressed: 'Product range and experience in systems integration will be used to realize military projects in Poland and abroad, including the creation of new SDR radios, unmanned platforms and Titan project. The Polish capital of both corporations guarantees that an intellectual property of designed systems and military devices will remain in the country.'¹¹⁹

Another private company, AMZ-Kutno, a large contractor with over 400 workers, illustrated how, by making the best use of favourable conditions, even heavy equipment production could be developed quickly. AMZ-Kutno, established in 1999, specialized in designing and producing special purpose vehicles, including medical emergency and patrol cars. In 2004 the company won a tender for an armoured patrol-intervention vehicle for the police and received a subvention from the Ministry of Science to design and

¹¹⁵ 'WB Electronics, Boeing sign memorandum of understanding for future cooperation', *Defense World*, 1 Sep. 2009, <<http://www.defenseworld.net/news/3520>>.

¹¹⁶ Harris, 'Harris Corporation introduces digital vehicular intercom system', Press release, 23 Feb. 2009, <http://harris.com/view_pressrelease.asp?pr_id=2638>; and 'Arms industry innovation', *Warsaw Voice*, 26 Aug. 2010.

¹¹⁷ 'WB Electronics earns supply contract with Boeing', *Warsaw Business Journal*, 8 Oct. 2009.

¹¹⁸ 'WB Electronics acquires Radmor from ARP', *Polish News Bulletin*, 7 Dec. 2010.

¹¹⁹ Tytan is an MND 'future soldier' prioritized military programme, involving several Bumar Group companies, for which funds have already been allocated. Radmor, 'Together we can do more', 9 Dec. 2010, <<http://www.radmor.com.pl/eng/News/Together-we-can-do-more>>.

produce the vehicles. After the success of that version a military model, Dzik, was developed that, among other features, integrated the ZSMU-127 Kobuz remotely controlled armament module created by OBRSM and used on the KTO Rosomak and the WBE's Fonet internal communications system. In August 2005 the MND placed a contract with the company worth \$9.57 million for 43 Dzik-2 vehicles, which were delivered in 2010. A subsequent model, the Dzik-3, was designed for the Iraqi Army (marketed as Ain Jaria), and a first batch of 600 was supplied, starting in 2005, under a \$100 million contract. A follow-on order has been made for 975 Dzik-2 vehicles; 600 for the army and 375 for patrolling high-value targets, such as oil pipelines.¹²⁰

Other important private companies included Transbit Sp. z o.o. of Warsaw (radio lines), DGT Sp. z o.o., Air-Pol Sp. z o.o. of Legionowo (parachutes), Vigo System of Warsaw (infrared detectors) and Prexer Sp. z o.o. (small arms and other weapons).

Most of these companies were start-ups, but a few were built on the ruins of former state-owned enterprises. Prexer Sp. z o.o., for example, was established in August 1997, by private shareholders, who bought the ailing Wifama Mechanical Works, founded in 1926 and specialized in spinning machines, looms and military equipment. Under the new management the company has developed and produced over 80 military products, including small arms and optoelectronics equipment.¹²¹

A wide range of private SMEs in the Aviation Valley in south-eastern Poland specialized in supplying the large-scale aircraft producers that were located in the region (see appendix 3A, section V). One of them, Ultratech Sp. z o.o., represented the second group of private Polish arms companies: those producing high-tech parts and components principally for the armed forces. Founded in 2000, Ultratech Sp. z o.o. specialized in manufacturing high-precision aviation parts, assembling components and designing special production tools; it also provided consulting services in lean manufacturing. In 2009 it employed about 70 people, including 15 engineers and 52 technicians. Sixty-five per cent of the company's output was supplied to the US company Goodrich's landing-gear manufacturing facility in Krosno. Ultratech Sp. z o.o. participated in the EU's 6th Framework Research Programme, developing new magnesium forming technologies for the aeronautics industry. The company planned to set up a new factory in the Aero-

¹²⁰ Wróblewski, M., 'Peccaries (DZIKs) went out of the forest: new Polish armoured vehicles', *Polish Defence Industry*, vol. 17, no. 2 (Mar. 2006); and 'AMZ-Kutno Dzik armoured personnel carrier (Poland)', *Jane's Armour and Artillery*, 16 Dec. 2010.

¹²¹ Wifama-Prexer, 'History', <<http://www.wifama.com.pl/En/onas-historia.htm>>; and Prexer Sp. z o.o., 'Witamy' [Welcome], <<http://www.prexer.com.pl/index.html>>.

polis Podkarpacki Science and Technology Park, near Rzeszów, that would ultimately provide jobs for 250 people.¹²²

Andoria-Mot (Lublin) was a typical amphibian-like company, a principally civil car and van producer that was able to adjust its profile to a new demand and start to manufacture military vehicles. Andoria produced and marketed Lublin 3 and Honker vans and has experience in assembling British LDV vans. In 2003 Andoria was among the companies chosen to benefit from the F-16 offset package.¹²³ In the same year, in order to equip Poland's contingent in Iraq, the MND decided to buy 60 Honker all-terrain vehicles from the company, and in 2004 Andoria began to produce Honker vans for the newly formed Iraqi Army through the Nour USA consortium.¹²⁴ When the extraordinary business opportunities related to the Polish foreign military mission and armed forces modernization were over, Andoria returned to a fully civil production profile.

The most successful items produced by the Polish arms industry, both for export and for the national armed forces, were hybrid products that integrated elements of different systems. Increasingly, these were produced through the cooperation of domestic private and state-owned and international partners. One of them, the KTO Rosomak multi-role armoured vehicle, was based on the Finnish consortium Patria's model; in Poland it was produced by WZM, a company under MND control. In 2002 the KTO Rosomak was selected in an MND bid, and in April 2003 the MND signed an order for 690 vehicles.¹²⁵ Different versions of the vehicle included an armoured personnel carrier (APC) equipped with a remotely controlled weapon station (RCWS) manufactured by OBRSM at Tarnów; a medical evacuation vehicle developed in cooperation with the Polish private company AMZ-Kutno; and an infantry fighting vehicle equipped with a weapon turret designed by the Italian firm Oto Melara, a Finmeccanica subsidiary, and produced under licence in Poland by ZM Bumar-Łabędy. An armoured mortar vehicle was also designed to be equipped with a RAK-120 mortar turret that was developed by HSW's military production unit. Other KTO Rosomak components included machine guns manufactured by ZM Tarnów (ZMT, Tarnów Mechanical Works); a field artillery command and fire-control system produced by WBE; and a laser warning and protection system produced by Przemysłowe Centrum Optyki (PCO,

¹²² Anselmo and Wall (note 80); Bujny, M., Presentation of Ultratech Ltd, 2009, <[http://aero.net.pl/marzec_2009/ULTRATECH ang.- AERONET-02.03.09.pdf](http://aero.net.pl/marzec_2009/ULTRATECH_ang.-AERONET-02.03.09.pdf)>; and 'New Ultratech factory', *Warsaw Voice*, 20 Feb. 2008.

¹²³ Szymczak, R., 'Poland's contract of the century', *Warsaw Voice*, 3 July 2003.

¹²⁴ 'Money follows the army', *Warsaw Voice*, 5 Nov. 2003; 'Bidding for Iraq', *Warsaw Voice*, 11 Feb. 2004; 'The revival of Andoria', *Polish Business News*, 11 July 2006; and Andoria-Mot, 'New engine', 20 Dec. 2006, <http://www.andoria.pl/andoria-mot/nawosci_en.php>.

¹²⁵ WZM-Siemianowice Śląskie, 'Historical outline', <<http://wzms.pl/en/presentation/>>.

Industrial Optical Centre) in Warsaw.¹²⁶ (On ZMT see appendix 3A, section VIII.)

Most of the Polish companies that participated in the production of the KTO Rosomak were members of the Bumar Group, but not all of them; there were private and other state-owned partners as well, among them MND-owned WZM-Siemianowicze Śląskie. In 2006 WZM-Siemianowicze Śląskie signed a cooperation deal with Bumar Sp. z o.o. As of late 2010 more than 100 vehicles (including several variants) had been supplied to the MND, which used 24 in Afghanistan.¹²⁷ According to Holdanowicz, as of mid-2010 some 200 Rosomak vehicles had been delivered to the Polish Army and almost 90 of these have been deployed to Afghanistan and Chad.¹²⁸ Experience in the field revealed that the KTO Rosomak was not sturdy enough and a steel-composite shield was designed and manufactured by Rafael in 2007. The night-vision system was also updated.¹²⁹ Poland hoped to sell Rosomak vehicles to Malaysia and India, but these plans had not been realized as of December 2012.¹³⁰

IV. Military expenditure and procurement policy

Military expenditure

When Poland became a NATO member in 1999 it pledged to spend at least 2 per cent of its GDP on defence. During most of the 1990s Poland had spent at that level or even more; from 1999 military spending dropped to 1.9 per cent of Poland's GDP or slightly under.¹³¹ Major procurements, like the F-16 combat aircraft, were financed from sources outside the military budget. According to SIPRI figures, the MND budget for 2008 reached 22.1 billion złotys (\$9.2 billion) and 24.7 billion złotys (\$7.9 billion) in 2009.¹³² Due to the global economic crisis, in 2009 expenditure was reduced, but from 2010 it started to increase again, reaching 28.0 billion złotys (\$9.45 billion) in 2011 and 30.5 billion złotys (\$9.36 billion) in 2012. For 2013, 31.17 billion złotys (\$9.8 billion) were forecast.¹³³ Additional for-

¹²⁶ The RCWS-12.7 developed by Bumar and Rafael together was originally designed for the Rosomak, according to a 2005 agreement. Holdanowicz, G., 'Poland's WZM selects RCWS-12.7 for Rosomak-1 APCs', *Jane's Defence Weekly*, 16 Nov. 2005.

¹²⁷ By the end of 2010 the Polish MND planned to possess 153 Rosomaks. 'Rosomak AFVs with QinetiQ Nets', Altair, 21 May 2010, <<http://www.altair.com.pl/start-4555>>.

¹²⁸ Holdanowicz (note 71).

¹²⁹ Holdanowicz (note 126); and 'Successive "Rosomak" vehicles up-armored', Polska Agencja Prasowa, 5 Sep. 2007.

¹³⁰ 'Naza Bumar unveils Rosomak 8x8', *The Star* (Kuala Lumpur), 20 Apr. 2010; and 'Poland: Rosomak goes to conquer India', *Rzeczpospolita*, 20 Mar. 2012.

¹³¹ SIPRI Military Expenditure Database, <<http://www.sipri.org/databases/milex/>>.

¹³² SIPRI Military Expenditure Database (note 131).

¹³³ Polish Ministry of National Defence (MND), Budgetary Department, *Basic Information on the MoND Budget for 2012* (MND: Warsaw, Mar. 2012); and Polish Ministry of National Defence,

eign financial sources added another 358.5 million złotys (\$112 million): 84.5 million złotys (\$26.5 million) provided by the NATO Security Investment Programme (NSIP), 89.3 million złotys (\$28.0 million) from the US Foreign Military Financing (FMF) programme, and 5.9 million złotys (\$1.8 million) from the USA for International Military Education and Training (IMET) programmes.¹³⁴

Since 1995 Poland has received \$3.9 billion in US Government-sponsored loans, \$57 million in Coalition Solidarity Fund (CSF) grant assistance; and over \$289 million in FMF grants.¹³⁵ This financial assistance has been effectively used to support the continuing transformation and modernization of the Polish armed forces. Poland has received one-third of the NATO funds allocated for the development of defence infrastructure projects. By the end of 2009 the value of NATO-financed projects in Poland was expected to reach 2.5 billion złotys (about \$860 million). Poland had one of the largest IMET programmes in the US European Command (EUCOM) and was in the top 10 worldwide.¹³⁶

Poland has also benefited from its new military partners' generosity and has received second-hand military equipment free or for a token sum. The country was given Leopard-2 tanks from Germany's reserves in 2002. In 2004 it also acquired most of the East German MiG-29 combat aircraft that the reunited Germany had used until the delivery of its first Eurofighter Typhoon combat aircraft. The MiGs had been modernized by Germany to be completely NATO-compatible; they were sold to Poland for €1.¹³⁷ Poland also received used equipment from Norway and the USA, and these acquisitions required only modest financial contributions on the part of Poland.

The structure of the military budget was more crucial than its size for Poland's domestic arms industry. In 1987, 42 per cent of the military budget was spent on personnel costs and 31 per cent on procurement. In 1990 the percentage changed to 54 per cent versus 23 per cent, by 1993 to 68 per cent and 11 per cent.¹³⁸ The Military 2012 modernization project launched in 1997 prescribed a major increase in spending on military technology,

'Polish defence budget projected for 2013', 13 Sep. 2012, <<http://www.defenceiq.com/air-land-and-sea-defence-services/articles/polish-defence-budget-projected-for-2013/>>.

¹³⁴ Polish Ministry of National Defence (note 133). Foreign financial sources dropped from a total of 414.5 million złotys in 2010, particularly that of NSIP from 266.4 million złotys. See Polish Ministry of National Defence (note 70).

¹³⁵ US Embassy in Warsaw, 'Foreign Military Financing (FMF) program', <<http://poland.us.embassy.gov/poland/odc/foreign-military-financing-fmf-program.html>>.

¹³⁶ US Department of Commerce, US Commercial Service Poland, 'Defense in Poland', Global trade.net, 6 Apr. 2010, <<http://www.globaltrade.net/international-trade-import-exports/f/market-research/text/Poland/Administration-Defense-Security-Defense-Defense-in-Poland.html>>.

¹³⁷ Johnson, R., 'Maintaining a base: trouble in Poland's defense industry', *Weekly Standard*, 17 Jan. 2008.

¹³⁸ Perczynski et al. (note 51), p. 62.

from 15.7 to 36.8 per cent, but this goal was not achieved.¹³⁹ From the mid-2000s the MND intended to increase the share of procurement and reduce personnel costs.¹⁴⁰ In 2009 the ministry spent 20.9 per cent of its budget on capital investment, 24.4 per cent in 2012 and for 2013 it projected an expenditure of 8.17 billion złoty (\$2.6 billion, i.e. 26.2 per cent). Personnel costs represented slightly less than 50 per cent of the budget in 2012.¹⁴¹

The Polish procurement decision-making process has been complex and a source of conflicts of interest. The MND was in charge of drafting procurement policy and the financial management of acquisitions, but responsibility for purchases and business interactions with contractors was delegated to the Armed Forces Procurement Department (for arms and ammunition) and the Military Property Agency (for vehicles, fuel, uniforms and food).¹⁴² After a reform of the procurement system in 2005, eight government agencies that represented both the MND and the General Staff of the Polish Armed Forces took part in decision making.¹⁴³ On 1 January 2011, three MND departments were merged into a new arms procurement agency, the Armament Inspectorate. Defence industry actors hoped that the merger would help to make procurement procedures clearer and separate them from politics. Originally, the MND had planned to establish a fully independent armament agency to handle both research and procurement activities.¹⁴⁴

According to the parliamentary Defence Committee, large sums for military equipment have been poorly spent due to the low level of R&D related to military production and the weaknesses of the procurement system. Despite several rounds of reform with the assistance of Western experts to improve Polish procurement procedures, the 'MND prefers to use foreign military aid—primarily US Foreign Military Sales grants—rather than to conduct an open selection process'.¹⁴⁵ All major modernization tenders have been criticized for their lack of transparency and efficiency, if not open corruption. Barre R. Seguin's analysis of the 2003 F-16 combat aircraft deal highlighted the shortcomings of the system, and it appears that the situation has not radically improved since.¹⁴⁶ The 2001 tendering process that led to the purchase of the KTO Rosomak by the MND illustrated a

¹³⁹ Ratajczyk (note 11); and 'Strategia Konsolidacji i Wspierania Rozwoju Polskiego Przemysłu Obronnego w Latach 2007–2012' (note 29).

¹⁴⁰ Adamowski, J., 'Poland's defense budget rises, with emphasis on modernization', *Defense News*, 20 Sep. 2010.

¹⁴¹ Polish Ministry of National Defence, Budgetary Department (note 133); and Polish Ministry of National Defence, 'Polish defence budget projected for 2013' (note 133).

¹⁴² Sobiepanek-Kukuryka (note 13).

¹⁴³ Modrzejewski (note 17), p. 14.

¹⁴⁴ Adamowski, J., 'Sławomir Kułakowski, Chairman, Polish Chamber of National Defense Manufacturers', *Defense News*, 13 Dec. 2010.

¹⁴⁵ Holdanowicz (note 12), p. 25.

¹⁴⁶ Seguin (note 42).

combination of external pressure, internal weakness and power games—tainted with strong suspicion of corruption—which led to a decision that has been criticized as less than optimal.¹⁴⁷ Soon after taking office as Defence Minister in 2005, Radosław Sikorski held a meeting with representatives of Transparency International and expressed his intention to clean up the procurement process.¹⁴⁸

Procurement policy

One of the key structural problems of the ECE arms-producing industry—the discrepancy between the output of the domestic arms industry and the needs of the armed forces—has persisted after the cold war, manifesting itself in two ways. In some cases, domestic companies exported items of a higher quality than those that Poland's armed forces used or could afford to buy: for example, the 48 Bumar-Łabędy-produced PT-91M tanks that Poland exported to Malaysia in 2007–2009 were more developed than those used by the Polish Army. Bumar Łabędy also sold upgraded WZT-3M armoured recovery vehicles to India but not to the Polish MND, which was unable or unwilling to order it.¹⁴⁹ In other cases, the armed forces have required higher quality items than the domestic industry could produce, which created a range of problems. Most importantly, despite offset agreements, imported equipment meant additional investments were needed for training and integration into the national military system, as was the case with the F-16 purchase. Thus, the MND's procurement policy has sometimes conflicted with efforts to protect and promote the domestic arms industry, with key development projects being cancelled and domestic producers losing out in major contracts to foreign competitors.

A country's long-term strategic military vision should be embodied in its procurement policy. Polish arms industry actors have often criticized the MND and the armed forces for lacking a consistent long-term strategy. The relaxation of the predominantly domestic acquisition policy of the 1990s was a major change in Poland's procurement policy; since the early 2000s approximately one-third of the equipment bought by the armed forces has been purchased from foreign sources.¹⁵⁰ Due to the massive import of high-tech military equipment, the gap between the technological levels of

¹⁴⁷ 'Uncertain future for domestic arms exporters' (note 45); and 'Irregularities related to the protection of the tender for wheeled APC', WSI Report, 4 July 2007, <<http://darski.niezalezna.pl/node/2612>>.

¹⁴⁸ 'Big changes are expected', Interview with Radosław Sikorski, *Polish Defence Industry*, no. 3, vol. 18 (2006), pp. 6–7.

¹⁴⁹ 'Uncertain future for domestic arms exporters' (note 45).

¹⁵⁰ Cienski (note 44); and Białos, J. P., Fisher, C. E. and Koehl, S. L., 'Accessing the Polish defense market', *Fortresses & Icebergs: The Evolution of the Transatlantic Defense Market and the Implications for U.S. National Security Policy*, vol. 2, *Country Studies* (Johns Hopkins University, Center for Transatlantic Relations and School of Advanced International Studies: Washington, DC, 2009), p. 367.

domestic production and the equipment used by the armed forces has increased. Polish decision makers intended to narrow this gap via offset agreements that aimed at large-scale technology transfer and accelerated modernization of the domestic arms makers.

Procurement decisions are deeply political not only in the sense that they mirror the country's main policy directions but also in the choice of foreign suppliers. Large-scale procurement decisions can be perceived as political declarations and all concerned parties interpret them as such. Well-documented, rather disturbing descriptions of the political background of the F-16 procurement decision show that the supplier was chosen on primarily political grounds amid complex pressures and demands. The deal was concluded only a few months before Poland signed the EU treaty of accession and many European governments thus interpreted it as a slap in the face. They felt that it made a mockery of their efforts to usher Poland into the EU and saw it as a rejection of the Common Foreign and Security Policy (CFSP) and the consolidated European arms industry base that European politicians had begun to promote during that period. France, whose offer of the Mirage 2000 combat aircraft produced by Dassault Aviation had been rejected in favour of the F-16, was particularly upset. Yves Robins, Senior Vice-President of External Relations at Dassault, warned Poland before it took its decision: 'deciding to buy a European aircraft would give a clear signal that you want to participate in our joint defensive policy'.¹⁵¹ Jean Wessener, spokesman for the European Defence Industries Group, a Brussels-based group representing European arms makers, went further in commenting on the choice: 'The Americans are extremely good. They use any method they can to try to kill the European aircraft industry'.¹⁵² US officials reportedly did not deny these charges.¹⁵³

In 2003, when it took the decision about the F-16 aircraft, Poland found itself in an extraordinary position. It was able to play a key role in the tug of war between the European countries opposing the Iraqi intervention and nurturing a new European defence and security identity and the USA, which was at the high point of its 'global war on terrorism' and badly in need of loyal European allies. Poland seized the opportunity and tried to make the best of it. Once it had stabilized its position as a privileged US ally it could reconcile with its new European partners by, among other things, diversifying the sources of its subsequent large-scale procurements. (Its contributions to multilateral military missions were also diversified in a similar way.) From the mid-2000s Polish authorities increasingly empha-

¹⁵¹ Quoted in Seguin (note 42), p. 29.

¹⁵² 'Poland picks Lockheed F-16 in \$3.5B deal', F-16.net, 27 Dec. 2002, <http://www.f-16.net/news_article698.html>.

¹⁵³ Wayne (note 107).

sized diversifying procurement and attempted to balance various actors: European versus US, foreign versus domestic, and private versus SOEs.

Since the F-16 deal, among other items, Poland has ordered electronic jamming devices against bombs from Israel's Elisra Electronic Systems for Polish troops in Iraq at an estimated value of \$3 million; has bought RBS-15 Mk3 fire-and-forget anti-ship missiles from Sweden's Saab Bofors Dynamics at an estimated value of €110 million (\$140 million); has signed a major cooperation deal with the Italian corporation Avio, a provider of high-velocity turbines; and has concluded an agreement with the missile developer and manufacturer MBDA to enhance joint development in air defence, radars and command-and-control systems. The choices of potential offset partners has also reflected the intention to diversify the recipients of orders among members of the Bumar Group, MND-controlled firms and, occasionally, other state or private firms.

Most of the Polish Government's arms procurement decisions have been criticized by a variety of actors, including the tender losers, independent experts, NGOs, the mass media and representatives of the political establishment of the countries involved, all of whom have been convinced that the agreements did not serve their countries or specific constituencies' interests. The US offset offer and financial arrangements that accompanied the F-16 combat aircraft sale were characterized as 'economic bribes' by Duncan Hunter, the Republican chairman of the US House of Representatives Armed Services Committee.¹⁵⁴ In Poland, where ministry officials and the mass media often present offsets as manna from heaven, the contracts were criticized as too costly and unnecessary. As Krzysztof Krystowski, a former head of the MOE's Offset Committee, put it, 'offset proves a perfect alibi to procure defense hardware abroad.'¹⁵⁵

Polish industry representatives have often felt that the MND's expensive, large-scale foreign purchases have tended to crowd out their domestically developed products. After years of R&D and considerable investment in CNPEP Radwar's Loara anti-aircraft system and the AHS Krab howitzer manufactured by HSW neither system was selected by the MND. The Loara, however, had received several prizes at military exhibitions, while the Krab howitzer system had been developed with British partners. Representatives of ZM Bumar-Łabędy, the manufacturer of the PT-91M main battle tank, protested bitterly when the MND announced plans to purchase a batch of used Leopard-2 main battle tanks from Germany in

¹⁵⁴ Hunter, D., Opening statement, Full committee hearing on 'The impacts of defense trade offsets', US House of Representatives, Committee on Armed Services, Press release, 17 June 2004; and "Buy American" raises its head once again; this time in a battle over defense "offsets", *Manufacturing and Technology News*, vol. 11, no. 13 (7 July 2004).

¹⁵⁵ Krystowski, K., 'Offset in Poland—experiences and lessons for the future', *Polish Defence Yearbook 2007* (note 17), p. 25.

2007.¹⁵⁶ ZM Tarnów developed the GA-2000 grenade launcher that was identified as vital to the armed forces but was ultimately not ordered.¹⁵⁷

Arms industry actors expressed the view that ‘the Polish military’s penchant for state-of-the-art foreign military equipment has been starving the Polish defense industry of funding to modernize its plants and expand its technology base’, leading to the ‘gradual dissolution of an indigenous, broad-based Polish defense industry’.¹⁵⁸ However, even though the MND kept purchasing foreign technology, domestic producers were not totally excluded from procurement deals. One way that they could definitely benefit from costly foreign acquisitions was associated cooperation projects that could genuinely stimulate the development of domestic production. One such positive example was the offset arrangement built into the 2006 deal between the Norwegian ammunition producer Nammo and ZM Mesko, under which ZM Mesko started to produce and market Nammo’s medium-calibre ammunition under licence. The deal included technology transfer that helped the Polish company to accomplish a technological leap forward and create a production unit that was able to meet Poland’s own needs and ultimately export high-tech ammunition (see also appendix 3A, section VII).

One additional way in which imports have been used to benefit indigenous Polish development was reverse engineering, modification and subsequent local production. The steel used in the manufacture of the KTO Rosomak originally came from a Swedish supplier, but in 2006 the Częstochowa steel mill in southern Poland developed new armour-plated steel to replace the Swedish product.¹⁵⁹ The proposal to replace the US-supplied Humvees with Polish-produced armoured vehicles emerged from a similar intention.

Offsets

Buying the latest military equipment from the world’s leading producers is a costly undertaking that can burden not only the military but also the entire state budget for decades. In order to compensate for this, purchasers can negotiate offsets. Poland introduced offset legislation in 1999 in connection with its imminent NATO membership and the expected large-scale procurement contracts it expected to place.¹⁶⁰ Major amendments and additions have since been made to the legislation. In 2002 ‘offset multipliers’

¹⁵⁶ Holdanowicz (note 12); and ‘Uncertain future for domestic arms exporters’ (note 45).

¹⁵⁷ Holdanowicz (note 12).

¹⁵⁸ Białos et al. (note 150), p. 447.

¹⁵⁹ ‘Polish armour-plated steel’, *Polish Defence Industry*, vol. 17, no. 2 (2006), p. 5.

¹⁶⁰ Act of 10 September 1999 on certain compensation agreements concluded in connection with contracts for deliveries for the purposes of defense and security of the State, Unofficial text available at <http://www.londoncountertrade.org/rules/poland_law.pdf>.

Table 3.4. Main Polish offsets deals, as of December 2009

The table lists offset agreements signed by the Polish Treasury as of 1 Dec. 2009.

Company	Country	Date	Value (US \$ m.) ^a	Military items delivered
EADS CASA	Spain	28 Aug. 2001	385.1	C-295 transport aircraft
Eurotorp	France	13 Dec. 2001	24.2	Light torpedos for navy
Thales	Netherlands	21 Dec. 2001	68.3	Systems for Orkan-class ships
Lockheed Martin	United States	18 Apr. 2003	6 030	F-16 combat aircraft
Patria	Finland	1 July 2003	544.0	Armoured wheeled vehicles
Oto Melara	Italy	1 July 2003	387.2	Armoured wheeled vehicles
Rafael	Israel	17 Feb. 2004	440	Anti-tank guided missiles
Harris	United States	28 Sep. 2006	25.8	Digital manpack and vehicle radio stations, communications system components and spare parts
Nammo Raufoss	Norway	3 Oct. 2006	89.0	12.7- and 33-mm calibre ammunition
Saab Bofors Dynamics	Sweden	6 Oct. 2006	159.7	RBS-15 Mk3 anti-ship missiles
Avio	Italy	15 Feb. 2007	13.4	Gas turbine for Project 621 corvette
Satlynx	Luxembourg	22 Oct. 2008	25.3	Satellite terminals
Rockwell Collins	United States	10 Dec. 2008	31.1	Avionics systems for M28 (Bryza) aircraft
Pratt & Whitney Canada	Canada	10 Dec. 2008	25.5	Engines for M28 (Bryza) aircraft
Kongsberg	Norway	30 Dec. 2008	143.2	Armaments and equipment for navy's coastal missile division
Terma	Denmark	10 Dec. 2008	23.0	Passive defence systems for M-28 Bryza
Thales Communications	France	27 Oct. 2009	29.7	Components for RRC 9210 and 9310AP battlefield tactical radio stations

^a Amounts are calculated before approval by the Council of Ministers.

Source: Reproduced with minor changes from Polish Ministry of Economy, 'The list of offset agreements in Poland as of 1st December 2009', <<http://www.mg.gov.pl/NR/rdonlyres/B5E14DDE-7A82-499B-98F4-F78D554FF11B/58342/TheListofoffsetagreementsinPolandasof1stDecember20.doc>>; Majewski, K., 'Polish defence industry', Presentation, Ministry of Economy, Department of Defence Affairs [2009], <<http://www.stockholm.trade.gov.pl/pl/download/file/f,3148>>, p. 15; and Instytutu Technicznego Wojsk Lotniczych (ITWL, Air Force Institute of Technology), 'Offset for ITWL', [n.d.], <http://ftp.itwl.pl/en/offset_11_08.php>.

were introduced. This weighting system meant that offset obligations could be paid off more quickly with certain types of investment or assistance given to specific industries, thus encouraging foreign suppliers to make their contributions where they were most needed in Polish industries and making it easier to evaluate offset proposals. Also introduced at this time

were measures for the verification and approval of offset commitments. In 2004 additional measures were introduced to better target offsets, including a list of about 60 companies that were intended to benefit from offset deals.

All deals worth more than €5 million (\$6.2 million) over three years were made eligible for offset agreements (see table 3.4 for examples). The offset commitment had to be worth at least as much as the items procured and at least 50 per cent of the value of the offset had to go to arms-producing industries. Offset commitments had to be fulfilled within 10 years. Polish authorities hoped to direct offset-related investments to where they were considered most vital. Higher multipliers were used for projects for the transfer of modern technologies and for investment in the arms-producing industry, export-oriented sectors, R&D, job creation and underdeveloped regions.

Polish decision makers hoped that in the long run the benefits of offsets would compensate for the burden of expensive military purchases. Purchasing the F-16 combat aircraft was so valuable a deal that the authorities essentially reinvented the offset policy guidelines in order to make the best of it. Michał Kleiber, Minister of Science, head of the Scientific Research Committee and chairman of the parliamentary Offset Committee at the time, articulated the high hopes of Polish decision makers: 'Owing to the offset, a technological bridge between the United States and Poland may appear.'¹⁶¹ However, this bridge that decision makers hoped to build between the USA (and other developed economies) and Poland only connected protected and intensely promoted specific segments of the two economies: the defence-related industry. The industry's inward-oriented nature meant that most of the benefits of international cooperation remained tied to this favoured sector. Informed by the enthusiastic foreign and domestic media, politicians, economic decision makers and the public in Poland (and other ECE countries) hoped that offsets would act as genuine accelerators of economic growth. However, experience to date does not seem to have confirmed these expectations.

Offset performance is not easy to evaluate. During the run-up to tenders, competitors try to outdo each other with attractive offers, and when a contract is signed the winner pledges to fulfil the promises that have been made and more. However, years later it may be difficult to trace what has happened and to evaluate the results, particularly the less direct benefits. In Poland it is still too early to truly evaluate the overall performance of the offset programmes, but the results seem to be mixed.

As the case of the 2003 F-16 purchase demonstrates, promises made during procurement competition are not always kept. In the run-up to the

¹⁶¹ Quoted in Szymczak (note 123). For more on the F-16 deal see appendix 3A, section VI.

F-16 deal Lockheed Martin representatives visited Poland many times and promised cooperation with, among others, several aviation plants. Lockheed Martin's chairman, Norman R. Augustine, stated that even if his firm were to lose the tender it would continue to cooperate with the Polish aviation industry.¹⁶² A consortium including Boeing, Hughes, General Electric and Northrop Grumman, which also competed for the tender offering the F/A-18 Hornet aircraft, made similar promises.¹⁶³ After the tender was decided the losers left the scene and the winner, Lockheed Martin, underperformed. A few cases were exceptions to this rule.¹⁶⁴

In 2001 Poland bought 10 C-295 transport aircraft from EADS CASA of Spain for \$300 million. By 2007 no reports of completed offset projects related to the deal had been made to the government. EADS CASA did not fulfil its pledge to manufacture major Airbus components at PZL-Warszawa-Okęcie, which it had acquired as part of the offset programme. It also did not adequately equip a C-295 service plant in the country, forcing the Polish military to have its aircraft serviced in Spain. Ultimately, EADS CASA repaired the Okęcie plant, rebuilt a galvanizing shop, brought in a new system of management, repaired roofs and trained employees, but 'it lacked the will to do anything more'.¹⁶⁵ In October 2012 the Polish Supreme Audit Office revealed problems with the fulfilment of offset obligations related to the delivery of Rosomak transports, both on the part of the Polish recipients and the partner companies, Patria of Finland, Oto Melara of Italy and Honeywell of the USA.¹⁶⁶

Polish authorities used offset opportunities both to reward good performance and to subsidize companies in difficulty. The means were provided by the foreign partner and, ultimately, by the Polish taxpayer. According to Krystowski, the most successful offset deals were the Nammo-ZM Mesko agreement, the Bumar Group's contracts and the successful cooperation between the Thales Group and ZR Radmor.¹⁶⁷ Cooperation between Nammo and ZM Mesko became part of the F-16 combat aircraft offset package because of the failure of a previous project in which the Polish

¹⁶² Baumgardner, N., 'Lockheed Martin credits offset package, loan for F-16 win in Poland', *Defense Daily*, 3 Jan. 2003.

¹⁶³ Ratajczyk (note 11).

¹⁶⁴ The French company Snecma (now part of the Safran group) set up a facility in Poland's Aviation Valley in 2001 to improve the chances of the Mirage 2000-5 in the forthcoming combat aircraft tender. After the Dassault-led consortium lost the bid, Snecma's subsidiary Hispano-Suiza Polska remained in Poland and prospered as a supplier of low-cost transmission and aircraft engine components to Safran. See Anselmo and Wall (note 80).

¹⁶⁵ 'Poland: EADS CASA unreliable on C-295 deal', *CASA Crash*, 15 Jan. 2007, <<http://casacrash.blogspot.com/2007/01/poland-calls-eads-casa-unreliable.html>>.

¹⁶⁶ Polish Supreme Audit Office (NIK), 'NIK on offset obligations related to the delivery of Rosomak transporters', 3 Oct. 2012, <<http://www.nik.gov.pl/en/news/nik-on-the-discharge-of-off-set-obligations-related-to-the-delivery-of-rosomak-transporters.html>>.

¹⁶⁷ Krystowski (note 155), p. 27.

Government was to be involved (see appendix 3A, sections VI and VII).¹⁶⁸ The link between the two firms proved useful when, after the failure of various offset proposals, Lockheed Martin sought viable industrial projects and proposed increasing cooperation as part of its F-16 offset programme. In October 2005 the Polish authorities approved the proposal, and Lockheed Martin received substantial offset credits. Nammo and ZM Mesko also obtained financial support from Lockheed Martin for their cooperation in several ammunition projects for the Polish armed forces.¹⁶⁹

Representatives of the Department of Offset Programmes of the MOE interviewed in 2006 noted that problems with fulfilling direct offset obligations existed on both sides.¹⁷⁰ The Polish partners were not satisfied with the level of technology transfer and investments, but they acknowledged that the problems sometimes originated at their end. Despite the 50 per cent direct offset rule, the persistent difficulties of the Polish arms producers often made it difficult to find suitable offset partners. Kleiber has noted that during the F-16 combat aircraft offset negotiations the key barrier was ‘posed by the Polish industry’s limited capability of adopting investments and implementing new technology’.¹⁷¹ Krystowski added that this barrier was still significant when implementing offset agreements: ‘practice taught us that placing orders, and especially investments and transferring technologies to the state-owned defense industry is the most difficult part of the foreign offset’.¹⁷² He also noted that the technology gap between companies that manufactured products for military use has often been higher than that between civil manufacturers.

The 2004 legislation designated only SOEs as potential offset beneficiaries. However, these firms often had inefficient internal management, functioned at a low technological level and were sometimes unable to

¹⁶⁸ Links between Nammo and ZM Mesko date back to the early 2000s, when Norway donated 5 Koblenz submarines to Poland. Before entering Polish service the boats were modified in Gdansk and personnel were trained. A joint arms industry seminar was also held where arms industry enterprises, general staff and MND representatives from both countries became personally acquainted. Relations between ZM Mesko and Nammo became closer through military cooperation in the Nordic–Polish Brigade in Bosnia and Herzegovina. See Pawlik, K., ‘Band of brothers: Colonel Odd P. Pedersen, Defense Attaché at the Royal Norwegian Embassy in Warsaw talks to Krzysztof Pawlik’, *Warsaw Voice*, 11 Feb, 2003.

¹⁶⁹ Chojnacki, M., Export and import manager, and Ozog, M., Marketing sector manager, Zakłady Metalowe Mesko SA, Interview with author, Skarzynsko-Kamienna, 2 Oct. 2007; Pawlik (note 168); ‘Positive result for Nammo in Poland’, 28 Oct. 2005, <<http://www.nammo.com/News/Positive-Result-for-Nammo-in-Poland/>>; and ‘Nammo and Bumar strengthen their relationship’, 22 Oct. 2009, <<http://www.nammo.com/News/Nammo-and-Bumar-strengthen-their-relationship/>>.

¹⁷⁰ Surowiecka, E., Head of Division, Offset Office, and Kaniuka, L., Expert, Polish Ministry of Economy, Department of Offset Programmes, Offset Office, Interview with author, Warsaw, 11 May 2006; and Kaniuka, L., ‘Offset in Poland’, Presentation at 3rd International Seminar on Offset and Industrial Cooperation, Jerusalem, 7–9 May 2007, <<http://www.moit.gov.il/NR/rdonlyres/5747D30D-D8AC-4BFA-8EC3-72F9B6AE1610/0/OffsetinPoland3rdSemMay07.ppt>>.

¹⁷¹ Szymczak (note 123).

¹⁷² Krystowski (note 155), p. 26.

accommodate potential projects. The offset act amendment, which entered into force on 13 January 2007, addressed this problem by modifying the multiplier system and widening the scope of potential offset receivers to include private companies.¹⁷³

In late 2007, perhaps reacting to Polish complaints about the slow fulfilment of its offset obligations, Lockheed Martin arranged another deal with Nammo and ZM Dezamet, another member of the Bumar Group. Unlike ZM Mesko, which struggled with serious difficulties until it was included in the F-16 programme, ZM Dezamet was already a good performer. It was relatively solid financially, conducted considerable R&D work and was considered one of the most innovative Polish arms industry plants. In the framework of the new cooperation arrangement it received high-tech and financial benefits from Nammo in order to produce intelligent ammunition and to develop new detonators for the ammunition used by Lockheed Martin's F-35.¹⁷⁴ Neither ZM Mesko nor ZM Dezamet were on the original offset proposal list, although other Polish ammunition companies, such as ZTS Pronit, were named.

At the end of 2008 the terms of cooperation between Lockheed Martin and Poland were renegotiated. Under the new agreement, the MND-controlled Bydgoszcz aviation works, WZL no. 2, would undertake significant aspects of system servicing, engine and airframe overhauls.¹⁷⁵ This solution had been proposed by Polish partners, including the PCNDM, several years earlier, and finally, in 2007 the Minister of Defence, Aleksander Szczygło, had negotiated with the US partners about investing in a repair centre at the Bydgoszcz facility.¹⁷⁶

In the early 2000s Polish decision makers, experts and the public regarded offsets as a key instrument of Polish defence industrial revival that would turn the sector into an efficient, fully modernized, inter-

¹⁷³ Polish Council of Ministers, Regulations concerning detailed rules of approving completed offset commitments of foreign arms and military equipment suppliers to count towards the amount specified in offset agreements', 18 May 2007; Polish Council of Ministers, Regulations concerning the rules and regulations of the Offset Committee, 24 Aug. 2007; Polish Ministry of National Defence, Regulation concerning the list of arms and military equipment whose procurement necessitates the conclusion of an offset agreement, 13 Dec. 2007—all available at <<http://www.mg.gov.pl/English/ECONOMY/Offset+Programmes/Basic+information>>. See also Surowiecka and Kaniuka (note 170); and Kaniuka (note 170).

¹⁷⁴ 'Dezamet among the leaders', *Polish Defence Industry*, vol. 4, no. 19 (2006), p. 4; and Lentowicz, Z., 'Dezamet ładuje granatniki' [Dezamet loads grenades], *Rzeczpospolita*, 1 Feb. 2008.

¹⁷⁵ Glowacki, B., 'Poland agrees F-16 maintenance deal with Lockheed Martin', *Flight International*, 18 Aug. 2008.

¹⁷⁶ Sławomir Kułakowski commented 'It's high time to start joint orders with foreign companies and invest in repair centers. We have offered long ago to Lockheed Martin which delivers F-16 to implement such a project within the offset contract. Repairing would ensure Polish companies multi billion złoty contracts for many years'. Quoted in Stasiuk, T., 'Polish airplane repair companies face bright future thanks to the army', *Puls Biznesu*, 21 May 2007.

nationally integrated sector.¹⁷⁷ Offset fulfilment took off slowly but had accelerated by the late 2000s, thanks to the learning process that both foreign investors and Poland experienced and a ‘natural’ evolution, as projects fed on each other and stimulated further advances. However, despite some indisputable successes, the high expectations were not fulfilled. At the end of the 2000s, a team of US experts interviewed several Polish actors in the field and concluded that ‘the Offset Law . . . has not significantly bolstered Polish export potential, it has not fostered the transfer of new technologies or created many new jobs, or facilitated the creation of a knowledge-based economy’.¹⁷⁸

Offsets did not, in fact, lead to a miraculous breakthrough and certainly did not create genuine transformation of the Polish arms industry; neither did they turn the industry into a new source of growth, jobs and technological excellence. Offsets did, however, become a crucial factor in the recovery of the defence sector, contributing to the emergence of some islands of excellence, strengthening some existing ones and helping Polish arms makers to integrate into international production circuits. Procurement and offset arrangements increasingly led to further international cooperation that represented one possible future path for the sector.

V. Recent developments

The 2002 Polish arms industry strategy sought increased exports and in 2003–2004 an export boom seemed to be occurring. After the first successes, however, Polish arms traders lost major bids in India and Iraq. Some important new contracts were signed but on a smaller scale than expected. According to Sławomir Kułakowski, confusion and loss of dynamism in the arms industry was caused by the 2007 shake-up at the Bumar Group, major scandals in the military establishment, including some associated with key tenders, and the sale of PZL-Mielec.¹⁷⁹ The historical momentum had also changed. In the early 2000s the Polish arms-producing industry benefited from the unique constellation of EU and NATO expansion, a belligerent US foreign policy and the reopening of arms markets in developing countries. In order to take advantage of these opportunities Poland invested substantial resources in modernizing its domestic arms-production base and armed forces. Despite progress, most of the equipment exported by Poland and used domestically by its armed forces is still of Warsaw Pact origin, although upgraded and modernized several times. From the mid-2000s

¹⁷⁷ For typical arguments see Jeziorski (note 5). For a summary see Markowski, S. and Hall, P., ‘The defence industry in Poland: an offsets-based revival?’, eds J. Brauer and J. P. Dunne, *Arms Trade and Economic Development: Theory, Policy and Cases in Arms Trade Offsets* (Routledge: New York, 2004).

¹⁷⁸ Bialos et al. (note 150), p. 480.

¹⁷⁹ ‘Uncertain future for domestic arms exporters’ (note 45).

arms industry insiders warned that the window of opportunity for Poland's arms-producing industry was rapidly closing. They urged decision makers to promote innovation and R&D in order to diversify and upgrade the country's military output, deepen industrial cooperation with the major international players and give more state assistance to the arms industry.¹⁸⁰

The warning proved to be well founded. In 2007–2008 arms exports picked up again, but to a smaller extent than in the early 2000s, and the end of the decade witnessed a considerable drop in weapon sales. In 2009 Poland exported arms worth \$560 million; in 2010 foreign sales were expected to reach \$300 million. According to former Deputy Treasury Minister, Krzysztof Laskiewicz, part of the problem was the lack of new high-tech weapons.¹⁸¹ In a December 2010 interview, Kułakowski noted that the \$300 million figure for 2009 arms exports included approximately \$100 million for the last tanks and technical vehicles delivered to Malaysia; no significant new contracts were in view, apart from minor deals. The exports included heavy equipment, tanks, vehicles, significant quantities of armoured steel and some electronic equipment. He stated that 'Numerous Polish manufacturers are currently developing a range of products that could find buyers abroad, but it is vital that the government supports these efforts and promotes our production in foreign markets.'¹⁸² On his official visits to Peru and Colombia in May 2010 and South Africa in September 2010 Sikorski, now Minister of Foreign Affairs, was accompanied by arms industry representatives who hoped to identify new markets.

The Polish arms industry exported about 20 per cent of its production, with the remaining 80 per cent sold to the MND. Industry experts agreed that export growth was vital to the development of the sector but the industry's current offer was not sufficiently attractive: 'The industry is stuck in a "technological rut," ... the Polish industry is losing not only against Western European countries, but also against suppliers from China and Ukraine.'¹⁸³ Kułakowski noted that the state of the Polish defence industry is 'not as good as we might expect after so many years of changes and restructuring. In addition, it has been badly hit by the global recession.' Kułakowski called for further restructuring of the state-owned arms industry that still lagged behind the private one, whose companies were about three times more productive than those that were state-owned. How-

¹⁸⁰ Modrzejewski (note 17); Kinski (note 32); Jeziorski, M., 'The idea passed the test', Interview with Roman Baczyński, Chairman of the board of PHZ Bumar', *Warsaw Voice*, 26 May 2004; and Kułakowski, S. and Bartoszewicz, A., quoted in 'Uncertain future for domestic arms exporters' (note 45).

¹⁸¹ 'Polish arms industry expects weak year', *Warsaw Business Journal*, 6 Oct. 2010.

¹⁸² Adamowski (note 144).

¹⁸³ 'Stuck in a "technological rut"', *Warsaw Business Journal*, 8 Nov. 2010.

ever, he noted that the private sector was still relatively new and most of its firms manufactured niche products for the Polish market, not for export.¹⁸⁴

The drop in exports was partially due to the turbulence of the world economy but was also clearly related to the nature of Polish output. Despite more than 20 years of state-led and mostly state-financed restructuring efforts, the Polish arms industry was still not sufficiently modernized or efficient enough to preserve its positions on the world market. Several key structural problems, such as access to markets, cost efficiency, liquidity and technological development, had not been resolved.¹⁸⁵ The sector's success, at least that of the state-owned part, which was the overwhelming majority, still depended on government policy. The efficiency gap between private and state-owned companies persisted. Bumar Sp. z o.o. proved to be a far less efficient crisis manager and stimulator of restructuring than ARP, but ARP's role in arms industry restructuring became marginal.

The situation worsened with the global economic crisis that started in 2008. Poland's national budget for 2009 was revised with significant expenditure cuts, including several large-scale army modernization projects. The MND received 2.2 billion złotys (\$705 million) instead of the planned 4.7 billion złotys (\$1.5 billion); the budget of the Ministry of Interior and Administration was also significantly decreased. These reductions caused problems in the arms industry. In February 2009 the ZM Łucznik small arms company announced suspension of production due to the expected decline in state orders; the Bumar Group expected the value of its state contracts to drop from 2 billion złotys (\$830 million) in 2008 to 300 million złotys (\$96 million). In February and March 2009 arms industry employees organized a series of protests and demonstrations and threatened to strike. In reaction, in April 2009, the MND announced that numerous arms industry contracts had already been renegotiated and others were going to be reassessed.¹⁸⁶

After the 2009 cuts, in 2010 defence spending again increased. Thanks to the strength of the Polish economy, which endured the crisis with relatively less disorder than most of the other EU member countries, particularly its ECE neighbours, defence spending was set to increase by more than 7 per cent in 2011. Several suspended modernization deals were relaunched;

¹⁸⁴ 'Polish firms losing the export war', *Warsaw Business Journal*, 8 Nov. 2010.

¹⁸⁵ The sector's financial fragility was well illustrated by a Sep. 2009 case: when seeking to raise capital to finance the production of tanks for the Malaysian Army, Bumar had secured a loan of \$18 million from the French bank Calyon Crédit Agricole CIB using an 80% stake in Radwar. Due to late payment from the Malaysian contractor, Bumar could not meet the original deadline and negotiated an extension. There were fears in the Polish defence sector that Radwar's shares would be transferred to Calyon. Price, G., 'State-owned defense firm could lose subsidiary to French bank', *Warsaw Business Journal*, 24 May 2010.

¹⁸⁶ Czarzasty, J., 'Arms industry reacts to cuts in public spending', EIROonline, 15 June 2009. <<http://www.eurofound.europa.eu/eiro/2009/04/articles/pl0904019i.htm>>; and 'Defense industry could slash jobs', *Warsaw Business Journal*, 24 July 2009.

defence companies received overdue payments for various deals; and the MND was expected to continue with its 14 scheduled modernization programmes and make a number of procurements in 2011. However, firms that were unable to secure new contracts with the Polish Army had difficulties.¹⁸⁷ The improvement of the sector's performance was clearly tied to government orders, not to the increase of exports or efficiency.

Regarding implementation of the 2007 defence industrial strategy, by the end of 2010 it became clear that concentrating defence-related assets in one giant holding company would not achieve the expected results. Kułakowski declared at the end of 2010 that 'The government's strategy of consolidating and supporting the development of the Polish defense industry . . . needs to be amended. The economic downturn has proved that flexibility is of key importance, and that we can no longer afford to build a single national defense giant, the Bumar Group. This is why earlier plans of merging Bumar with Huta Stalowa Wola were scrapped.'¹⁸⁸ To a certain extent, the Bumar Group 'over-merged itself'; it had difficulties absorbing its acquisitions and improving its performance to achieve significant economies and efficiency gains. In 2007, when the government announced its new arms industry restructuring strategy that envisaged further additions to the holding company, the management of the group expressed some reluctance, arguing that the improvement of production was more important for it than the accumulation of assets.¹⁸⁹

In 2009 the Bumar Group launched a two-year internal restructuring project to reduce operational costs, increase efficiency and improve internal synergies among its members. In order to enhance specialization and stimulate cooperation between companies with similar profiles, four 'product divisions'—the ammunition, soldier, land and electronics unit—were created within the holding company. Responding to the drop in domestic demand for Bumar's products (the MND's orders were cut by 20 per cent, although a 60 per cent decrease had originally been announced), the company hoped to increase its exports. Bumar's president, Edward E. Nowak, stated: 'What matters the most are smaller and medium-sized contracts, as they give us the best margins. In the past, Bumar had too many successes in the media, and too few economic ones.'¹⁹⁰ The Bumar Group apparently abandoned its plan to build an ECE regional empire, concentrating instead on new large-scale military development projects, such as the 'Polish shield', an air defence system that had been developed

¹⁸⁷ Adamowski (note 144).

¹⁸⁸ Adamowski (note 144).

¹⁸⁹ 'Bumar against consolidation plan', *Warsaw Business Journal*, 9 June 2008.

¹⁹⁰ Bumar Group, 'Edward E. Nowak talks about Bumar's future', 23 July 2009, <<http://www.bumar.com/en/news/2009/07/edward-e-nowak-talks-about-bumar-s-future-2/>>.

jointly by Bumar, CNPEP Radwar, the PIT and MBDA.¹⁹¹ In mid-2011 the Bumar Group had 23 companies, employing 11 000 workers.¹⁹² Through internal mergers, new acquisitions and some sales the number of member companies kept changing. According to the Bumar Group's website, as of December 2012 it had 40 companies: 20 manufacturing firms specializing in munitions, radars, command-and-control systems, rockets and armour, and vehicles, 2 trade companies and 6 foreign entities.¹⁹³ Despite more than 10 years of consolidation and restructuring, significant state-provided financial infusions and state orders, Bumar kept struggling with low efficiency, weak internal cohesion and inflexibility.

In April 2012 Bumar Group's CEO was removed and Krzysztof Krystowski (the former head of the MOE's Offset Committee and the former vice-president of the private Avio Group, a major aircraft engine producer) was named to head the holding company. A thorough audit revealed that Bumar had suffered losses for several years—a net loss of 631 million złotys (\$213 million) in its revised 2011 financial results and at least 500 million złotys (\$165 million) for the previous year—and severe structural problems, including bad coordination, inefficiency and poorly negotiated contracts. Krystowski promised radical changes.¹⁹⁴ According to him, the holding company had to re-evaluate its priorities, improve its relationships with its key customer, the Polish armed forces, achieve synergy among its members and become a genuine commercial company, from a 'kind of state-run foster fund for defense industry restructuring and consolidation'. Instead of waiting for large-scale spectacular export deals, the group had to search for export niches and also grab 'every possible opportunity . . . to partake in cooperative projects, even as a sub-supplier of tiny pieces—but in a large, important, integrated project'.¹⁹⁵

ARP has continued to act as a key agent of economic restructuring, increasingly focusing on the stimulation of innovative processes, the development of industrial clusters and energy efficiency. It continued to carry out individual company restructuring projects—in the arms industry it has been in charge of restructuring HSW, PZL-Hydral and the Gdynia

¹⁹¹ See Tran, P., 'MBDA, Bumar to modernize Poland air defense system', *Defence News*, 17 July 2009.

¹⁹² Anderson, R., 'Defence industry: consolidation is best strategy for Bumar', *Financial Times*, 29 June 2011.

¹⁹³ Bumar Group, 'About us', <<http://www.bumar.com/en/about-us/>>.

¹⁹⁴ Adamowski, J., 'Poland's spending up as most of E. Europe cuts back', *Defence News*, 24 Oct. 2012; and 'Major changes coming to Bumar', *Warsaw Business Journal*, 30 Apr. 2012. Forsal quoted a loss of 110 million złotys (\$37 million) for 2011. See 'Wejście smoka w Bumarze: Krzysztof Krystowski robi porządki w firmie' [The entry of the dragon to Bumar: Krzysztof Krystowski cleans up the company], *Forsal.pl*, 13 Sep. 2012, <http://forsal.pl/artykuly/646997,wejście_smoka_w_bumarze_krzysztof_krystowski_robi_porządki_w_firmie.html>.

¹⁹⁵ Kiński, A. and Ulanowski, A., 'Interview with Krzysztof Krystowski, President of Bumar Sp. z o.o.', *Polish Defence Yearbook 2012* (note 94), pp. 62–64.

naval shipyard that went bankrupt in 2009. After the successful sale of PZL-Świdnik in 2009, in 2010 it managed to sell the ZR Radmor radio equipment company to Polish WBE and PZL-Wrocław Sp. z o.o., the successor of PZL-Hydral, which specializes in the production of fuel-regulatory systems for aircraft engines and hydraulic flight controls for aircraft and helicopters. PZL-Hydral was bought by the US-based Hamilton Sundstrand Corporation (which specializes in aviation and astronautics and is part of UTC, the owner of Mielec Sp. z o.o., WSK PZL-Rzeszów and Pratt & Whitney in Kalisz.)¹⁹⁶

One of the key goals of the 2007 government restructuring strategy, the promotion of R&D and the faster introduction of research results into production, was also not accomplished. Poland's gross expenditure on R&D has diminished considerably during the 20 years of transformation, from 0.9 per cent of GDP in 1990 to 0.6 per cent of GDP in 2008. In 2008 R&D per capita, at \$104, was the fourth lowest in the Organisation for Economic Co-operation and Development (OECD) area.¹⁹⁷ In 2005 less than 100 million złotys (\$31 million) was spent on military-related R&D, and that sum was scheduled to drop to 50 million złotys (\$15.5 million) for 2008–10.¹⁹⁸ Polish state authorities hoped to involve foreign capital in financing military-related R&D. In a June 2009 meeting with representatives of the American Chamber of Commerce in Poland, Dariusz Bogdan, Deputy Minister of Economy in charge of the arms industry section, stated that the Bumar Group had decided to include R&D as a strategic component of its new business plan: 'We are fully aware, however, that this strategy will not work without the involvement of the American business community and its determination to engage in partnerships with Polish companies.'¹⁹⁹ The 2013 budget forecast for R&D significantly increased the amount, 78.4 million złotys (\$24.6 million), over three times more than in 2012.²⁰⁰

Following the 2009 budget cuts several procurement projects were suspended, but later they were taken up again, sometimes on an even larger scale. In December 2008 the MND signed a contract for 12 naval strike missiles (NSM) plus additional equipment, including missile launchers and transport and communications vehicles with Norway's Kongsberg Defence & Aerospace (KDA). The contract was worth 430 million złotys (\$178 mil-

¹⁹⁶ ARP, 'Wsparcie Huty Stalowa Wola S.A.' [Support Huta Stalowa Wola S.A.], 1 Mar. 2012, <http://www.arp.com.pl/projekty/aktualnie_realizowane_projekty/Wsparcie_Huty_Stalowa_Wola_SA.aspx>; and ARP, 'Sprzedaż udziałów PZL Wrocław Sp. z o.o.' [Sale of shares, PZL Wrocław Sp. z o.o.], 22 Feb. 2011, <http://www.arp.com.pl/projekty/projekty_zrealizowane/Sprzedaz_udzialow_PZL_Wroclaw_Sp_z_oo.aspx>.

¹⁹⁷ Organisation for Economic Co-operation and Development (OECD), 'Science and innovation, country notes: Poland', *OECD Science, Technology and Industry Outlook 2010* (OECD: Paris, 2010).

¹⁹⁸ Kułakowski (note 57), p. 10.

¹⁹⁹ American Chamber of Commerce in Poland, 'Meeting with Dariusz Bogdan, Deputy Minister of Economy', 8 June 2009, <http://amcham.pl/index.php?mod=page&page=6_c_defense_20090608>.

²⁰⁰ Polish Ministry of National Defence, 'Polish defence budget projected for 2013' (note 133).

lion). After a first down payment the Polish Government introduced budget cuts and the MND stopped paying further instalments. In exchange for not paying in 2009 and 2010, Poland's armed forces agreed to order an additional 36 NSMs worth 300 million zlotys (\$99 million).²⁰¹ The deal was finally concluded in December 2010 for 712 million Norwegian kroner (\$118 million, 355 million zlotys).²⁰²

In September 2010 the Polish defence procurement agency launched its long-awaited tender for 16 advanced jet trainer/lead-in combat trainer aircraft, to be delivered by December 2013. The Polish Government allocated 1.45 billion zlotys (\$481 million) for the acquisition. There were three contenders—Alenia Aermacchi's M-346, BAE Systems' Hawk T2 (128) and Korea Aerospace Industries—Lockheed Martin's T-50 Golden Eagle FA-50—but none could meet all MND requirements in the first round.²⁰³ In October 2011 the MND cancelled the tender, hinting that new aircraft might not in fact be necessary since flight simulation machines could also be used for training purposes.²⁰⁴

In 2012, confident in its economic performance, the government further increased its defence expenditure, relaunched its acquisition programme and strengthened its policy of supporting domestic arms making. In August 2012 a new defence industry promotion strategy was put forward with two key axes: trade promotion 'to create new strong Polish brands that would be recognized in the world' and industry promotion to promote products, services and companies in the defence industry, on the one hand, and the defence industry as a whole on the other. The costs of implementing the strategy were to be covered by the MOE.²⁰⁵

The Prime Minister, Donald Tusk, declared that the 'government sees defense spending, particularly on arms, as a way to stimulate economic and jobs growth in the country's state-dominated defense industry'.²⁰⁶ He announced that Poland would spend about 10 billion zlotys (\$3.1 billion) on new weapons and military equipment in 2013 and 2014. Poland ordered five C-295 transport aircraft from Airbus Military and announced a tender for a new submarine. (The government finally decided to put an end to the

²⁰¹ 'Poland to renegotiate Norwegian missile contract?', Polskie Radio, 25 Oct. 2010, <<http://www2.polskieradio.pl/zagranica/il/news/artykul142216.html>>.

²⁰² 'Kongsberg's new NSM/JSM anti-ship & strike missile', Defense Industry Daily, 17 Nov. 2012, <<http://www.defenseindustrydaily.com/norwegian-contract-launches-nsm-missile-03417/>>.

²⁰³ Glowacki, B., 'Poland issues tender for new jet trainer fleet', *Flight International*, 10 Sep. 2010.

²⁰⁴ 'Defence Ministry cancels aircraft tender', Polskie Radio, 27 Oct. 2011, <<http://redaktorext.polskieradio.pl/1/12/Artykul/57530,Defence-Ministry-cancels-aircraft-tender>>; and Glowacki, B., 'LIFT off: Poland cancels armed trainer contest', *Flightglobal*, 28 Oct 2011, <<http://www.flightglobal.com/news/articles/lift-off-poland-cancels-armed-trainer-contest-364024/>>.

²⁰⁵ Polish Ministry of Economy, 'Branżowy program promocji dla branży przemysłu obronnego' [Industry promotion program for defence industry], 30 July 2012, <http://www.mg.gov.pl/files/upload/14819/BPP_przemysl_obronny_v3.2_24012013.pdf>.

²⁰⁶ Adamowski (note 194).

Gawron project, a more than 10-year effort to build the country's own submarine at the Gdynia naval shipyard that cost about 402 million złotys, \$126 million.²⁰⁷) The largest item on the MND's shopping list was an order for 24 new Krab howitzers from HSW for more than 500 million złotys (\$166 million).²⁰⁸ ARP had spent several years assisting HSW to stabilize its position; the large state order appeared as yet another measure to secure the company's future. The other outstanding order was the tender for 70 new helicopters for approximately \$3 billion, in which Sikorsky-owned PZL-Mielec and AgustaWestland-owned PZL-Świdnik were likely to compete.²⁰⁹

VI. Conclusions

Protection and promotion of the arms industry were constants of Polish economic policy throughout the 20-odd years of transformation. In times of crisis, as well as in periods of prosperity, the country dedicated significant resources to the sector. Although it was significantly reduced and streamlined, the arms industry weathered the period of intense changes relatively intact and secured certain positions in the international production circuits and on the world arms market. Poland can boast a number of excellent military products and a group of outstanding companies, but, particularly compared to the resources that have been dedicated to it, the sector's overall performance has been modest. If the country is to continue on the road of intense defence industrial promotion, its ambitions will have to be adjusted to more realistic levels that emphasize promoting its successful domestic arms producers, widening international cooperation, including with countries in East Central Europe, improving service and upgrading facilities.

Hungary, the topic of chapter 4, has followed a completely different path with different results.

²⁰⁷ Airbus Military, 'Poland orders five Airbus Military C295 aircraft', Press release, 2 July 2012, <<http://www.airbusmilitary.com/LatestNews/tabid/176/ArticleID/209/ArtMID/681/Poland-orders-five-Airbus-Military-C295-aircraft.aspx>>; and Adamowski, J., 'Polish Navy to acquire new submarine', *Defense News*, 22 Feb. 2012.

²⁰⁸ Adamowski (note 194); and Mielcarek, R., 'Face à la crise, la Pologne parie sur la Défense' [Facing the crisis, Poland bets on defence], *Alliance Géostratégique*, 29 Oct. 2012, <<http://alliance-geostrategie.org/2012/10/29/face-a-la-crise-la-pologne-parie-sur-la-defense/>>.

²⁰⁹ Agence France-Presse, 'Poland seeking 70 new military helicopters: P.M.', *Defense News*, 26 Sep. 2012; and Adekoya, R., 'Army to spend zł.3 bln on helicopters', *Warsaw Business Journal*, 3 Sep. 2012.

Appendix 3A. Polish company case studies

I. Bumar's rise from a domestic company to a potential regional giant

Bumar Sp. z o.o. was established in 1971 as PHZ Bumar, a foreign trade company that specialized in exporting and importing agricultural, building, transport and other civil and military equipment. From the mid-1990s the company extended its activities to managing different projects as a project leader—buying parts, organizing and subcontracting production and providing after-sale service in various fields of production. According to Andrzej Spis, a former deputy director of the group, Bumar's rise started in 1999 when PHZ Bumar mediated a financial transaction for the heavy weapon producer Bumar-Łabędy that generated extra revenues and enabled the company to apply for new credits for further restructuring projects.¹

When large-scale arms industry restructuring was launched in Poland in 2002, PHZ Bumar was chosen by the Council of Ministers to head the Bumar Group thanks to its economic clout and its experience in project management. At that time the Bumar companies, regrouped in the holding company, employed 12 000 people and included the Radwar electronics plant in Warsaw, one of the most successful Polish military enterprises, two research and development institutes and the Cenrex foreign trade company, which specialized in military deals. Thirty-six per cent of the Bumar Group's output was military-related and included rifles, armoured vehicles, missiles, ammunition, radars, optoelectronics and nuclear, biological and chemical (NBC) protection products; its remaining activities were divided among mining, railways, construction work and spare parts.² The Treasury owned 80 per cent of Bumar's shares, while nearly 20 per cent were held by the Agencja Rozwoju Przemysłu (ARP, Industrial Development Agency). In turn, the majority of the shares in the Bumar Group companies were owned by Bumar Sp. z o.o., in some cases up to 100 per cent (see box 3.1 for a list of Bumar companies in 2002).

Consolidation under the Bumar Group concentrated military-related activities that had been dispersed geographically. Bumar created vertically integrated production systems by reorganizing production cycles and improving logistics in and among the group's companies. The military-related assets of companies that had gone bankrupt or exited the arms-production sector in the 1990s were also integrated. Next, member companies and some selected enterprises owned by the Treasury that were scheduled to join the group later were restructured. Bumar Sp. z o.o. provided technical assistance and supervised restructuring, often involving itself in the selection of the managerial staff and in management-level decisions of the companies. Bumar pooled the group's

¹ Spis, A., Vice President of Bumar Sp. z o.o., Interview with author, Warsaw, 12 May 2006.

² Bumar Group and Radwar SA, 'Bumar Group, Radwar SA', <<http://www.kpk.gov.pl/pliki/5765/02 - Mirosław2.pdf>>.

production assets, achieved economies of scale and became an important player on both domestic and international markets. This, in turn, gave access to commercial credits and the freedom to rearrange the production assets. Major Polish banks were soon providing services for the Bumar Group and its largest contracts were financed by foreign banks. Bumar's economic strength and connections meant that it did not have a problem with lack of capital, a key difficulty for military-related enterprises in East Central Europe, and its member companies were able to obtain credits or receive direct financial assistance from Bumar Sp. z o.o. Military-related firms received government funding to finance restructuring, but less than expected. They were required to generate resources themselves through their own projects. Assistance from the mother company was precious; however, such financial infusions were not subsidies and had to be paid back.

Bumar Sp. z o.o. acted as a prime contractor in the projects it managed. It participated in bids, fairs and negotiations with state agencies on behalf of the companies in the capital group. Once a contract was awarded, Bumar and its members concluded specific agreements. Different company divisions participated in different projects, and their activities were coordinated and supervised by project managers, who were usually situated at the group's headquarters. Bumar's members were the end-producers for some projects. In others Bumar acted as prime contractor, concentrating on system integration and quality control. In aviation projects, for example, more than 50 per cent of the work was subcontracted to firms outside the group.³

Most Polish arms sales abroad were carried out by Bumar Sp. z o.o. In 2003 India and Poland signed a \$500 million contract to deliver armoured vehicles, tanks and weapon guidance systems for T-72 tanks. Later, additional complementary deals were made and the Bumar Group sold its Indian partners a variety of equipment and technology, including railway wheels, military vehicles and components for them, forging equipment, nitro-cellulose propellants, radars, 12.7-mm machine guns, components for tanks and WZT-3 armoured recovery vehicles. In April 2003 Bumar signed a \$400 million contract to supply 48 PT-91 tanks to Malaysia and it accepted 30 per cent of the payment in commodities, including nearly 300 000 tonnes of palm oil.⁴ In 2006 Bumar signed two contracts in Indonesia, each worth \$40 million, to deliver anti-aircraft systems to the Indonesian Army.

The war in Iraq provided an unexpected opportunity for Bumar. Most contracts related to Iraq were signed in 2003 when the US-led invasion started. In February 2004 Bumar participated in several tenders but failed to win the two most important ones. Despite these setbacks, the group continued to lobby for further Iraq contracts and won several more. By late 2006 the holding company had negotiated \$400 million worth of contracts in Iraq, supplying equipment as diverse as helicopters, machine guns, toilets and water canteens. The arms it supplied under the contracts included 250 Soviet-designed NSV heavy machine

³ Spis (note 1).

⁴ L. Ż., 'Contracts with Malaysia and India', *Warsaw Voice*, 20 Feb. 2003; 'Malaysia orders Polish tanks in \$368 million deal', Reuters, 12 Apr. 2003; and 'Tanks for Malaysia', *Warsaw Voice*, 2003.

guns, \$100 million worth of Ain Jaria vehicles (marketed as Dzik in Poland) and Mi-17 Russian transport helicopters.⁵ In addition, Bumar trained Iraqi personnel to use the equipment that it sold. Altogether, it signed at least three large contracts worth a total of 1.8 billion zlotys (\$560 million) in Iraq. The value of the Bumar Group's contract portfolio reached 3.9 billion zlotys (\$1.2 billion) in 2005.⁶ Nevertheless, in a 2011 interview Bumar's CEO, Edward Nowak, stated that Iraq had been a particular disappointment, because 'Polish involvement in Iraq has not translated into any concrete benefits'.⁷ As it later turned out, many of these spectacular export deals were plagued with problems and tainted with corruption.⁸

After its initial export breakthrough and ensuing period of stabilization in the early 2000s the group intensified lobbying for further domestic and export contracts, building on its foreign trade experience and contacts. It sought to expand its exports to Bangladesh and Latin America.⁹ According to Roman Baczyński, Bumar's CEO in 2004, the most successful export items were the modernized Soviet-origin PT-91 tanks and the Grom ('thunder' in Polish) man-portable air-defence system (MANPADS), an entirely Polish design.¹⁰ Most of the military equipment sold abroad by Bumar contained components supplied by leading international companies. The group created solid cooperation links with major Western companies, such as EADS and Sagem. In 2006 it reported sales of 2.5 billion zlotys (\$806 million) and earned a profit of 8 million zlotys (\$2.6 million).¹¹ In 2006 the Bumar Group was named Exporter of the Year by the Exporter's Club, a professional association of Polish exporters.¹² However, no major new export deals were reached and the sudden dismissal of the holding company's top management in 2007 created turbulence for both it and the entire Polish arms industry.

In 2008 sales reached 3.21 billion zlotys (\$1.33 billion) with 6.3 million zlotys (\$2.6 million) profit. However, by 2009 the economy started to show signs of slowdown that brought a reduction in defence spending. In 2009 the Bumar Group expected to realize 2.6 billion zlotys (\$833 million) in revenues, but no profits. To compensate for the loss of domestic orders, management began negotiations with India, Indonesia, Malaysia, Peru and Viet Nam in the hope of increasing exports to more than \$400 million. Management also planned to

⁵ 'Poland to sell military hardware to Iraq', Agence France-Presse, 15 Dec. 2004; Cienski, J., 'Bumar wins Iraq training contracts', *Financial Times*, 29 May 2007; 'Polish arms maker Bumar signs USD 20 mln Iraqi contract to push total to USD 320 mln', *Poland Business Report Daily*, 21 Jan. 2005; and Kennedy, K., 'Stability quest drives Polish company', *Defense News*, 29 Mar. 2006.

⁶ Jach, K., 'Plan of attack', *Warsaw Business Journal*, 20 Mar. 2006; and Havelka, M., Bumar Sp. z o.o., Marketing officer, Interview with author, Warsaw, 3 Oct. 2007.

⁷ Anderson, R., 'Defence industry: consolidation is best strategy for Bumar', *Financial Times*, 29 June 2011.

⁸ 'Iraqi Government not happy with Bumar', Polish News Bulletin, 30 Sep. 2005; and 'Iraq investigates widespread corruption', Iraq Business News, 2 Aug. 2005, <<http://www.iraqdirectory.com/files/articles/article637.htm>>.

⁹ 'Bumar expands', Polish News Bulletin, 19 Sep. 2007.

¹⁰ Jeziorski, M., 'The idea passed the test', Interview with Roman Baczyński, Chairman of the board of PHZ Bumar, *Warsaw Voice*, 26 May 2004.

¹¹ Cienski, J., 'Bumar wins Iraq training contracts', *Financial Times*, 29 May 2007.

¹² 'Bumar-exporter of the year', *Polish Defence Industry*, vol. 17, no.2 (Mar. 2006), p. 5.

increase the share of cooperation with foreign defence companies, including eventual 'equity involvement in companies from the group (e.g. Mesko and Dezamet ammunition manufacturers) or establishing of a joint venture'.¹³ In 2009 Bumar signed a long-term strategic cooperation agreement for research, production, delivery and marketing of anti-aircraft missile systems with the trans-European company MBDA. The planned units would integrate radar systems supplied by the Bumar Group's Radwar plant, anti-aircraft defence command systems from Przemysłowy Instytut Telekomunikacji (PIT, Telecommunications Research Institute, Warsaw), Grom missiles manufactured by ZM Mesko in Skarżysko-Kamienna, and short-range MICA VL missiles and medium-range Aster 30 missiles produced by MBDA.¹⁴

Given the size of Bumar's foreign military sales, the group also had substantial offset obligations. Contracts often required setting up both military and civil spin-off activities, such as building hospitals or other infrastructure. The Bumar Group created a new division to deal with such projects. Its civil products ranged from machinery to heating technology, and various other projects and products could be offered to buyers. In the Philippines, for example, Bumar built railways, making use of the experience of its member companies in Poland. For a number of civil projects the group requested co-funding from the EU.¹⁵

Initially, the Bumar Group's activities focused on modernizing and overhauling equipment to be sold to the Polish armed forces and export markets. Due to new offset opportunities and experience acquired on international markets, the scope of activities widened and the group intended to shift to more sophisticated projects and place more emphasis on R&D. In 2006 the Bumar Group planned to construct its own R&D centre, merging the R&D departments of its members with three military R&D centres: Ośrodek Badawczo-Rozwojowy Urządzeń Mechanicznych (OBRUM, Research and Development Centre for Mechanical Equipment) at Gliwice; Ośrodek Badawczo-Rozwojowy Sprzętu Mechanicznego (OBRSM Mechanical Equipment Research and Developing Centre) at Tarnów; and PIT.¹⁶ In 2011 the Bumar Group took control of PIT, which had previously merged with Radwar, one of the most successful Polish military firms, and Dolam, a producer of reed switches and relays. These deals created a unified high-tech military electronics R&D and production division inside the Bumar Group.¹⁷ In 2012 the new firm was renamed Bumar Elektronika.

The profile, size and performance of the Bumar Group's companies were heterogeneous. Despite more than 10 years of consolidation and restructuring efforts, the differences among the member companies remained significant and had negative repercussions for the holding company's overall performance. Good performers included Przemysłowe Centrum Optyki (PCO, Industrial

¹³ Bumar Group, 'Edward E. Nowak talks about Bumar's future', 23 July 2009, <<http://www.bumar.com/en/news/2009/07/edward-e-nowak-talks-about-bumar-s-future-2/>>.

¹⁴ Jeziorski, M., 'Innovation in arms industry', *Warsaw Voice*, 29 July 2009.

¹⁵ Spis (note 1).

¹⁶ 'Bumar dreaming of following Nokia's path', *Polish News Bulletin*, 19 Dec. 2006.

¹⁷ 'Polish military technology group in the offing', *Warsaw Business Journal*, 24 Feb. 2011.

Optical Centre), an outstanding Warsaw company that manufactured night-vision devices and fire monitoring systems in cooperation with the Italian company Galileo and the Warsaw Military University of Technology. Radwar produced radar, electronic command support systems and anti-aircraft units, while Radmor, located in Gdynia, supplied innovative radio communications systems.¹⁸ Other companies, including Bumar Łabędy, ZPS Pionki and PZL-Wola, were less successful and had difficulties due to lack of orders, significant cash problems, obsolete technology and inefficient management. After Bumar Łabędy completed production of PT-91 tanks for the Malaysian Army, it failed to receive new orders, and the company underwent a large-scale restructuring programme to diversify its profile and streamline production.¹⁹

From the time that the holding company was set up it received various types of aid from the government, including major contributions for R&D. Even in late 2011, when resources became scarce and doubts about the performance of the Bumar Group had developed, it received 300 million zlotys (\$101 million) for R&D. The bulk of these funds went to Radwar for development of new radar technologies, while the rest was distributed between Bumar Łabędy and Lucznik, a small-arms producer in Radom.²⁰

In 2010 Bumar delivered 85 per cent of its manufactured products to the Polish armed forces and exported products worth \$200 million. According to CEO Edward E. Nowak the situation was 'good enough' in 2011: 15 member companies had good or very good financial standing and only three were still in poor shape, including Bumar-Łabędy. The best performers were PCO, Nitrochem, Mesko, the Cenzin trade company and Bumar Ltd, which was responsible for all of the holding company's civil activities.²¹ In 2011 Bumar employed 11 000 people in its member companies.²² In 2002 the Bumar Group was established with an initial capital of 312 million zlotys (\$76 million) that, through mergers and state capital infusions, grew to 1644 million zlotys (\$505 million) by 2012.²³

The Bumar Group had some outstanding products and companies that performed well but, despite continuing restructuring and government backing, it remained inefficient and relatively unprofitable. Its management increasingly saw foreign cooperation as a tool to improve performance. In 2011 Nowak stated that 'offsets have been a failure for the defence industry' in terms of contracts, but the links created with major foreign suppliers had led to deeper cooperation on key projects. Bumar cooperated with Rafael on the Spike anti-tank missile, with Finland's Patria on APCs, with Nammo on ammunition, with MBDA on the Polish Shield project, and with Finmeccanica on turrets.²⁴

¹⁸ Jeziorski (note 14).

¹⁹ Bumar Group (note 13); and Bumar Group, 'Restructuring plans for the Bumar Group', 27 Oct. 2009, <<http://www.bumar.com/en/news/2009/10/restructuring-plans-for-the-bumar-group/>>.

²⁰ 'Bumar gets zł.300 mln for research and development', *Warsaw Business Journal*, 12 Sep. 2011.

²¹ Erenfeicht, L., 'Bumar Group: Poland's defense industry champion', *Small Arms Defense Journal*, 31 Jan. 2012.

²² Anderson (note 7).

²³ Holdanowicz, G., 'Living on the edge', *Jane's Defence Weekly*, 16 Apr. 2003, pp. 22–25; and Bumar Group, 'About us', <<http://www.bumar.com/en/about-us/>>.

²⁴ Anderson (note 7).

In early 2012 the Bumar Group won important new export deals. In January it signed a contract with the Indian company BEML Ltd to deliver 204 WZT-3 armoured recovery vehicles to India. In March, together with Northrop Grumman and Israel's Rafael, the group was part of a winning consortium to supply anti-aircraft systems worth \$140 million to the Peruvian Air Force. Bumar was to provide 150 mobile Grom anti-aircraft sets manufactured by Bumar Ammunition in Skarżysko Kamienna (formerly Mesko) and 6 Poprad anti-aircraft systems, manufactured by the Warsaw plants of Bumar Elektronika.²⁵

Following a change of management in April 2012, the new CEO, Krzysztof Krystowski, stressed the importance of cooperating better with the Polish MND, promoting foreign cooperation and changing export strategy by shifting towards the development of niche products. He noted:

Recent years were not overly successful for Bumar abroad. I mean, the effort was in no proportion to the achievements. . . . We have to find . . . product niches . . . or services where we can offer advantageous product[s] . . . We can't beat them all in everything, but we have to find areas, where we can be effective and earn our keep. These don't have to be the large final products that make the media headlines. . . . one can as well become a successful manufacturer of that tiny, small component, that all these big-time sellers, key players, would scramble to buy from you.²⁶

Despite revelations of the Bumar Group's fragile status, serious management problems and significant resistance from would-be new members, the government persisted with its plan to turn the Bumar Group into a single domestic mega-holding company that would unite Poland's key weapon producers.

II. ARP: an indigenous engine of development

ARP—the Industrial Development Agency—was created in December 1990 on the recommendation of IMF experts. Its broad and multifaceted mandate included restructuring state-owned enterprises, principally those crucial to economic growth and the labour market; supervising state-owned firms; granting state aid and assisting companies; and promoting regional development and foreign cooperation. ARP, a state-owned joint stock company that was established with \$30 million starting capital provided by the state, has skilfully balanced its dual nature as both a government agency and a commercial company, not a budgetary institution, and has played a key role in restructuring the state-owned Polish economy.²⁷ The government's goal was to save as many SOEs as possible and to liquidate the rest. In 1990, 11 000 SOEs existed in Poland; in 2005 the number was 1000. The process took place in two

²⁵ Bumar Group, 'Bumar conquers more foreign markets', 14 Mar. 2012, <<http://www.bumar.com/en/news/2012/03/bumar-conquers-more-foreign-markets/>>; and Bumar Group, 'Military equipment from Bumar to India', 20 Jan. 2012, <<http://www.bumar.com/en/news/2012/01/military-equipment-from-bumar-to-india/>>.

²⁶ Kiński, A. and Ulanowski, A., 'Bumar has to grow more modest: an interview with Krzysztof Krystowski, President of Bumar Sp. z o.o.', *Polish Defence Yearbook 2012: Industry, Armed Forces and Security Services* (Magnum X Publishing House: Warsaw, 2012), pp. 62–64.

²⁷ Nowak, S., 'Developing nicely, thank you', *Warsaw Voice*, 24 May 1998; and L. Ż., 'A Polish EBRD', *Warsaw Voice*, 6 June 1999.

stages: the recently privatized banking system functioned as a first filter for SOEs, which had to meet strict conditions before funding that made possible their restructuring was made available to them. A large number of companies that proved themselves creditworthy were offered for sale through the stock exchange or private investors. Another large group of firms was doomed to fail. ARP acted as a second filter, and companies that were considered worthy to be saved were transferred to it for restructuring and future privatization. In 2003 ARP managed the equity portfolios of 160 SOEs.²⁸ ARP's president until 2006, Arkadiusz Krężel, described its mission as 'to play the role of a Polish EBRD [European Bank for Reconstruction and Development] . . . assisting the financial, technical and organizational restructuring of SOEs and implement[ing] transformation programs in selected sectors of the economy'.²⁹

ARP became one of the crucial instruments of state aid and policy, accomplishing the difficult task of combining the protection of jobs with the commercial principles of management. It demonstrated that a state agency was able to act as an efficient entrepreneur and that economic transformation could be a well-designed, efficient process that could be structured and channelled without being over-administered. Although not a profit-oriented enterprise, ARP strictly followed commercial rules of operation, attempting to generate profits, assuming high risks, and investing in and assisting companies unable to become profitable without help. The agency's restructuring strategy was to select, guide, restructure and recapitalize SOEs or, as Krężel put it, 'make a good product and exit'. Once a company became competitive, ARP tried to sell it under the most favourable conditions. The agency supervised and assisted the strategic sectors of the Polish economy: steel, shipbuilding, defence, coal mining and the machinery industry. ARP was also in charge of the creation of special economic zones, with both greenfield and brownfield investments.³⁰

The Polish Government's 2002 defence industry strategy made ARP the head of the military Aviation and Radio Electronics Industries Group; according to the original plans, after restructuring four shipyards were expected to join the group later.³¹ As their new owner, ARP pushed military-related companies to evaluate their activities and assets, to define their main profiles and development priorities, to introduce strict efficiency criteria and accountability, and to explore new markets. Companies were expected to adapt to a new management culture and learn to adjust to constantly changing internal and external conditions.

In its capacity as head of the Aviation and Radio Electronics Industries Group, ARP analysed global trends in the aviation sector and concluded that

²⁸ ARP, *Industrial Development Agency Joint Stock Company: Annual Report 2003* (ARP: Warsaw, 2004).

²⁹ L. Z. , 'A Polish EBRD' (note 27).

³⁰ Krężel, A., President of ARP, Interview with author, Warsaw, 8 May 2006.

³¹ Polish Ministry of Economy, *Strategia Przekształceń Strukturalnych Przemysłowego Potencjału Obronnego w Latach 2002–2005* [Strategy for structural transformation of the industrial defence potential in 2002–2005], Document adopted by the Council of Ministers, 14 May 2002, <http://bip.msp.gov.pl/portal/bip/22/346/Strategia_przekształcen_strukturalnych_przemyslowego_potencjalu_obronnego_w_lata.html>.

Polish aircraft companies were unable to offer world-class products and lacked the economic and financial background to compete with major global players. The solution was to enter the supply chains of the global players, on the one hand, and to find market niches for the end products developed by Polish producers, on the other. As a subcontractor the Polish aviation sector offered multiple advantages: relatively low costs, 70 years of experience, a solid industrial culture, and good teams of workers, designers and engineers. One of ARP's main projects was restructuring the aviation company PZL-Świdnik by creating a state-of-the-art component-production facility that cooperated with Agusta-Westland, Airbus, Eurocopter, Boeing and Pratt & Whitney. Świdnik's success served as a model for other Polish companies, particularly those in the aviation industry. ARP planned to restructure another aviation company, PZL-Mielec, along similar lines.³² The plans were carried out and the firm was successfully restructured and sold by ARP. According to PZL-Mielec's president, Janusz Zakręcki, the company's 'privatization . . . has proved to be a model of successful foreign investment in Poland'.³³

In the spring of 2006 Krężel was removed from his post. The 2007 defence industry policy directives practically dissolved the Aviation and Radio Electronics Industries Group, whose companies were to be privatized or transferred to the Bumar Group.³⁴ After a period of insecurity it became clear that ARP had succeeded to keep its mandate for company restructuring, including a section of the arms industry and stimulate regional development. In fact, ARP's role as a crisis manager became even stronger.³⁵ As of 31 December 2011, ARP had 106 companies in its portfolio with a value of more than 2 billion złotys (\$675 million).³⁶

One of ARP's key projects was the restructuring of Huta Stalowa Wola, a leading producer of Polish heavy weapons. The company's civil branches were separated from the rest of the firm and sold to a major Chinese investor.³⁷ The income from the sale was used to restructure the military part of the company and for other investments aimed at promoting R&D and strengthening the rest of the Polish arms industry.³⁸ Restructuring was successful and the company became able to receive new orders and generate profits. Aware of the management problems of the Bumar Group, Huta Stalowa Wola's management and staff vehemently opposed the government's plans to merge it into the holding company.³⁹

³² Krężel (note 30).

³³ 'Black Hawks made in Poland', *Warsaw Voice*, 26 Apr. 2012.

³⁴ 'Strategia konsolidacji i wspierania rozwoju polskiego prze mysłu obronnego w latach 2007–2012' [Strategy for the consolidation and support for development of the Polish defence sector in 2007–2012], Adopted by the Council of Ministers, 31 Aug. 2007, <<http://www.mg.gov.pl/NR/rdonlyres/5DFEEDCC-DBBF-490A-B112-662B59CC586D/37327/Strategia2013.pdf>>.

³⁵ Bączyk, N., 'Polish defence industry in search of identity', *Polish Defence Yearbook 2012* (note 26), pp. 18–22.

³⁶ ARP, *Annual Report of the Industrial Development Agency 2011* (ARP: Warsaw, 2011), pp. 32–33.

³⁷ ARP, 'Wsparcie Huty Stalowa Wola S.A.' [Support Huta Stalowa Wola SA], 1 Mar. 2012, <http://www.arp.com.pl/projekty/aktualnie_realizowane_projekty/Wsparcie_Huty_Stalowa_Wola_SA.aspx>.

³⁸ ARP (note 36), pp. 32–33.

³⁹ 'HSW objects to entering Bumar Group', *Europe Intelligence Wire*, 9 Nov. 2012; and '40 mln zł inwestycji w przyszłym roku w Hucie Stalowa Wola: ten rok zakończy na plusie' [40 million złoty

ARP financed and supervised the construction of a new small-arms-producing factory for Lucznik. ARP also continued its activities of developing special economic zones and industrial parks. It shared its experiences, particularly those concerning industrial clusters and regional development, with other countries in East Central Europe. ARP has provided consulting services in Ukraine since August 2008 and was involved in construction of a technology park by Lviv Airlines and in assisting foreign companies to invest in Ukraine.⁴⁰ ARP also participated in an EU-funded initiative, the Central and Eastern European Cluster and Network Area, that ran from 2006 to 2009 and linked countries and regions implementing cluster and network policies for innovation.

III. PZL-Świdnik: success via international cooperation

In 1951 PZL-Świdnik was established to manufacture helicopters. By the end of the decade it had become a major helicopter producer, selling its models to the Warsaw Pact and its allies. The end of the cold war marked the beginning of a painful process of adjustment for the company. PZL-Świdnik's output fell by 70 per cent; the number of personnel was reduced from 8500 in 1989 to 5000 by 1993; and bad debts burdened the company.⁴¹ Management first explored alternative civil production but focus soon shifted to industrial cooperation with Western partners. Marginal production lines for gliders, trailers, agricultural helicopters and machine production were terminated or taken over by independent companies.

PZL-Świdnik's first foreign cooperation project was set up with the assistance of the Ministry of Economy. In 1994 PZL-Świdnik started to produce parts for aircraft wings for the twin turboprop passenger and freighter aircraft ATR, a joint project by the Italian company Alenia and EADS; the direct cooperation partner was France's Aérospatiale. This cooperation led to changes at PZL-Świdnik: an ISO 9004 certificate was acquired; investments were made; and new technological processes were introduced, including one for surface treatment—the only such production line in East Central Europe at the time. Revenues from the contract with Aérospatiale improved PZL-Świdnik's financial situation and its debts could begin to be renegotiated.

In 1994 the company's output was only 65–70 per cent of the 1988 level and only half of its production assets were in use.⁴² In the mid-1990s PZL-Świdnik suffered serious losses due to the MND's vacillation about the W-3 Huzar helicopter programme. The MND originally planned to purchase 100 W-3 Huzar helicopters (a combat version of the W-3 Sokół), but budgetary difficulties, political changes and conflict among Polish decision makers about

investment next year in Stalowa Wola Steelworks: this year will end in the black], *Newseria*, 23 Nov. 2012, <http://www.newseria.pl/news/40 mln_zl_inwestycji_w_p2022981663>.

⁴⁰ Polish Information and Foreign Investment Agency (PALIZ), 'The Industrial Development Agency to offer consulting services in Ukraine', *Invest in Poland Newsletter*, no. 83 (7 Aug. 2008).

⁴¹ Majewski, M., General Director, and Waryszak, M., Financial Director, PZL-Świdnik, Interview with author, Świdnik, 24 Mar. 1994.

⁴² Majewski (note 41).

upgrading delayed decisions. Ultimately, the helicopters were not purchased and the whole Huzar programme was cancelled. The MND later purchased a different version of the W-3 Huzar. The failure of the Huzar programme was a serious setback for PZL-Świdnik, but even in the most difficult periods during the 1990s the company received government promises, government funds and small-scale orders from the MND.

Nonetheless, cooperation contracts with major foreign companies increased PZL-Świdnik's visibility and attracted additional new partners. In 1997 the company started to manufacture fuselages for AgustaWestland's AW109 Power helicopter. By 2007 AgustaWestland was PZL-Świdnik's principal cooperation partner, and after significant investment and joint development efforts PZL-Świdnik was able to produce fuselages for five types of AgustaWestland helicopter. The fuselage-production project initially employed 60 workers, but ultimately 1000 skilled employees worked directly or indirectly on the project, which represented more than 30 per cent of PZL-Świdnik's annual revenues.⁴³ By December 2006 the company had delivered more than 650 fuselages, with production running at the rate of 12 fuselages per month.⁴⁴

PZL-Świdnik produced parts for civil aircraft for Eurocopter, France's Dassault Aviation and GKN Aerospace Services, a British-US company. The company also negotiated a cooperation deal with the US manufacturer Textron to build tail sections of Bell helicopters and parts for Cessna aircraft. PZL-Świdnik's management emphasized improving the quality of its products. PZL-Świdnik was the sole supplier in the AgustaWestland helicopter fuselage deal, thereby acquiring a first-rank position in the supply chain. Demand was so high that the company had to make special efforts to meet it. PZL-Świdnik was also in the first tier of suppliers in some projects with Boeing, while in other projects it ranked lower. Bolstered by Poland's NATO membership, in 2006 the company was able to establish a working relationship with the US Navy. PZL-Świdnik successfully produced panels for the F-14 combat aircraft, making it the only ECE company to provide products for the US Navy.⁴⁵ Although the contract was not large, the influence on marketing was positive and PZL-Świdnik's management had high hopes that cooperation would continue and lead to more contracts. Small-scale cooperation agreements were also made with other companies. In rare cases PZL-Świdnik terminated projects that had no future.

Thanks to its cooperation deals during the 2000s important technological advances took place at the company. The first ISO 9000 certification, a precondition for foreign cooperation, was financed by PZL-Świdnik itself, and various supplier certificates were received from its foreign partners. Important

⁴³ Dyzma, A., Head of Marketing, PZL-Świdnik, Interview with author, Świdnik, 12 May 2006.

⁴⁴ AgustaWestland, 'AgustaWestland and PZL-Swidnik announce a partnering agreement for the Polish Ministry of Health helicopter tender', Press release, 7 Dec. 2006, <<http://www.agusta-westland.com/node/3369>>.

⁴⁵ Wagner, C., 'F-14 program builds business bridge to Poland', News release, US Naval Air Systems Command (NAVAIR), 30 Nov. 2005, <<http://www.navair.navy.mil/index.cfm?fuseaction=home.PrintNewsStory&id=3384>>; and 'Swidnik among US Navy partners', Europe Intelligence Wire, 7 June 2005.

new investments were made to update facilities and improve quality. Special dedicated production facilities, known as clean rooms, were created and steps were taken to achieve lean manufacturing. PZL-Świdnik had no offset projects, and all cooperation deals were on a commercial basis. The company had 12 lines of production, and 50 per cent of its activity was industrial cooperation. The remaining activities were dedicated to its final products: four types of helicopter and related services.⁴⁶ Most PZL-Świdnik models could be equipped for civil or military purposes and were produced for domestic use and for niche export markets, with modifications made to suit local conditions. Its patrol helicopters have been bought by, among others, Chile, Indonesia, Nepal, Peru and Venezuela. The PZL W-3A Sokół helicopter, one of the company's most successful models, is certified by the European Aviation Safety Agency and also meets US standards.

Building on domestic sales, exports restarted in the late 1990s and early 2000s. In 2005 the SW-4 received a certificate from the Interstate Aviation Committee of the Commonwealth of Independent States, creating an opening for potential new customers on former Warsaw Pact territory. PZL-Świdnik helicopters have been used in a wide range of countries from Central Europe to Indonesia, South Korea and the United Arab Emirates (UAE). By 2007 most PZL-Świdnik products had international certificates that made sales possible worldwide. In early 2008 China agreed to buy 150 helicopters of three different types from the company over 10 years. Final assembly of the PZL-Sokół was to be carried out at the Jiujiang aeronautics plant in China.⁴⁷

The company had two separate plants at Świdnik, which were organized according to production profiles. In June 1999 PZL-Świdnik, Świdnik municipality, Świdnik district, the Treasury and a local tool factory created the 40-hectare Świdnik Regional Industrial Park next to PZL-Świdnik's industrial estate on premises that became redundant after the company's restructuring. In 2004 further plans were made to develop this park into a regional industrial and R&D hub, using EU and other financial sources.⁴⁸

In the early 2000s PZL-Świdnik still had excess production capacity, which meant that it had to accept conditions dictated by buyers. Thanks to rapidly expanding production, the company's workforce increased from 2300 in 2001 to 3500 by 2006. The employees worked in two or three shifts, which was unusual in the ECE arms industry: most firms struggled to obtain enough contracts to occupy their production lines for one shift. In 2003 PZL-Świdnik sold products and services valued at 150 million zlotys (\$39 million). In 2005 both turnover and output increased by 40 per cent, reaching 300 million zlotys (\$93 million).⁴⁹ In December 2005 the Warsaw Stock Exchange awarded PZL-Świdnik a prize as the most innovative Polish enterprise. In June 2005 the

⁴⁶ Dyzma (note 43).

⁴⁷ 'China to buy 150 helicopters from PZL Swidnik', Agence France-Press, 27 Feb. 2008; and 'AgustaWestland acquires Polish helicopter manufacturer PZL Swidnik', Defpro.com, 21 Aug. 2009, <<http://www.defpro.com/daily/details/383/>>.

⁴⁸ Regionalny Park Przemysłowy Świdnik Sp. z o.o., 'Swidnik regional industrial park', <<http://www.park.swidnik.pl/index.php?id=p7>>.

⁴⁹ Dyzma (note 43).

President of Poland granted the company the Poland Economic Prize in the category of 'best Polish enterprise'.⁵⁰

Unlike most similar companies, by mid-2006 PZL-Świdnik's principal problem was not finding new orders but finding ways to increase production in order to fill the orders it had. The company had a great need for working capital for its sophisticated production lines and that sometimes proved difficult to acquire. At this stage of development the company needed to invest in new technologies and expand production. Management intended to further rationalize some production lines in order to create a genuine lean manufacturing system. Internal reorganizations took place in cooperation with foreign partners that had more experience in that area. By 2008 PZL-Świdnik's workforce had increased further to 3600 employees and sales were 400 million zlotys (\$166 million). Its technological capacities were almost fully exploited, the financial situation was stable and the company was able to choose its partners and negotiate contracts from a position of strength.⁵¹

PZL-Świdnik was a state-owned shareholder company, although several efforts were made to privatize it. In 2001 a tender was announced but offers were considered inadequate. In 2002 PZL-Świdnik became part of the ARP-led Aviation and Radio Electronic Industry capital group. PZL-Świdnik and ARP had a stable long-term relationship and the reorganization did not bring significant changes; rather it facilitated further cooperation. The company enjoyed complete freedom of action at the managerial level and had access to credits on its own or through ARP, its principal owner (87 per cent). ARP backed the company's restructuring and marketing efforts; state ownership did not pose problems in internal management or external relationships.

In 2007, in line with its revised defence industrial strategy, the government announced plans to privatize PZL-Świdnik by 2009. If the company did not succeed in finding a strategic partner, it would be incorporated into the Bumar Group.⁵² Soon after the announcement, AgustaWestland, owned by Italy's Finmeccanica, declared its readiness to form a strategic partnership with PZL-Świdnik.⁵³ After two years of dramatic negotiations, during which the Czech company Aero Vodochody also expressed an interest, AgustaWestland won out and 87 per cent of the company's shares were sold to it in August 2009 for 340 million zlotys (\$109 million), with the takeover completed in January 2010. According to Wojciech Dąbrowski, head of ARP, the talks were 'extremely difficult, but . . . we managed to ensure excellent conditions and a safe future for the company and the work force'. AgustaWestland promised to use state-of-the-art technology at PZL-Świdnik to invest in the plant and to institute a job

⁵⁰ Business Valley BUG, 'PZL-Świdnik S.A.', 2007, <<http://www.business-valley.org/en/success-stories/pzl-swidnik-sa-poland.html>>.

⁵¹ AgustaWestland (note 44); 'The only producer of Polish helicopters', *Warsaw Voice*, 31 May 2012; and Dyzma (note 43).

⁵² Polish Ministry of Economy, 'Competitive defense sector', 14 Sep. 2007, <<http://www.mg.gov.pl/English/News/2007/Competitive+defense+sector.htm>>.

⁵³ Anderson, G., 'AgustaWestland states possible plans for PZLS', *Jane's Defence Industry*, 1 Oct. 2007.

security package for the workforce.⁵⁴ The agreement opened new markets for AgustaWestland and created some counterweight to the advancement of US companies in East Central Europe. AgustaWestland's CEO, Giuseppe Orsi, noted: 'With the acquisition of PZL-Świdnik, it will be possible to rationalise and optimise the work processes and organisation of all activities undertaken up to now outside Italy, improving the manufacturing processes with targeted investment. This deal will therefore provide a platform for further growth in important international markets.'⁵⁵

PZL-Świdnik continued to prosper after the takeover, and the two companies seemed to achieve a healthy synergy, cooperating in production and key development projects. AgustaWestland provided sufficient resources and expanding markets for the Polish company's products. At the September 2012 MSPO exhibition in Kielce, PZL-Świdnik presented a new Solo rotorcraft, an unmanned, optionally piloted version of the SW-4 helicopter.⁵⁶ The company's other new products included a new generation AgustaWestland AW149 twin-engine multi-role military helicopter and an Italian coastguard AW139 for which PZL-Świdnik provided the airframe. The company was heavily involved in the design of the AW149, proclaimed the 'only new generation military aircraft in its class in decades'.⁵⁷ The development of a W-3PL/N naval helicopter was among its new products.⁵⁸ PZL- Świdnik was also among the beneficiaries of the Polish Government's most recent round of acquisitions, receiving an order for five new W-3WA Sokół helicopters and the upgrade of 14 helicopters, worth 380 million złotych (\$117 million).⁵⁹

IV. PZL-Mielec: a regional company that became an international player

WSK PZL-Mielec, the largest Polish aircraft company, was established in 1938. Under the Warsaw Pact system it produced large volumes of Soviet-licensed military and civil aircraft and a wide range of purely civil goods, such as diesel engines, fuel-injection pumps and golf carts. After the end of the cold war the company's sales dropped by approximately 80 per cent, production by over 30 per cent and employment shrank from 22 000 in 1989 to 9500 by 1994. Restructuring efforts aimed to find new markets, increase the share of civil pro-

⁵⁴ 'Helicopter deal lifting off', *Warsaw Business Journal*, 19 Aug. 2009; and 'AgustaWestland to buy PZL-Świdnik', *Warsaw Voice*, 2 Sep. 2009.

⁵⁵ 'AgustaWestland acquires Polish helicopter manufacturer PZL Swidnik' (note 47).

⁵⁶ Glowacki, B., 'PZL-Swidnik reveals optionally-piloted "Solo" rotorcraft', *Flightglobal*, 6 Sep 2012, <<http://www.flightglobal.com/news/articles/pzl-swidnik-reveals-optionally-piloted-solo-rotorcraft-376154/>>.

⁵⁷ 'PZL-Swidnik highlights new products', UPI, 6 Sep. 2012.

⁵⁸ AgustaWestland, PZL-Świdnik, 'PZL-Świdnik SA starts development of the W-3PL/N naval helicopter', 4 Sep. 2012, <<http://www.pzl.swidnik.pl/pzl-swidnik-sa-starts-development-of-the-w-3pln-naval-helicopter/0,-fy,1>>.

⁵⁹ AgustaWestland, 'PZL-Swidnik signs contracts for five new helicopters and 14 helicopter upgrades with the Polish Ministry of National Defence', 16 Jan. 2012, <<http://www.agustawestland.com/news/pzl-swidnik-signs-contracts-five-new-helicopters-and-14-helicopter-upgrades-polish-ministry-nat>>.

duction and foreign cooperation, and redress the financial situation.⁶⁰ Important steps were taken in each area, but the company was unable to stabilize its position. A major blow to its ambitious restructuring project was the MND's refusal in 1997 to purchase its I-22 Iryda aircraft, which had been developed specially for the Polish Air Force.

In 1999 PZL-Mielec Aviation went bankrupt and PZL Sp. z o.o.-Mielec (PZL-Mielec) was established and took over some of its predecessor's buildings, equipment and staff. The new management made radical changes, terminating unprofitable or marginally profitable production lines and actively searching for international cooperation deals. Significant improvements occurred but, despite being taken into the ARP-led capital group in 2002, the company's development was slow until October 2005 when three top managers from PZL-Rzeszów, who participated in the successful restructuring of that company, arrived to accelerate the process at PZL-Mielec.⁶¹

The new management decided to focus solely on the M28 Skytruck light cargo and passenger aircraft and the M-18 Dromader utility aircraft, along with variations of both, and to increase the number of cooperation deals. MND orders represented only 20 per cent of the firm's production, while the rest was for export. The value of PZL-Mielec's international cooperation activity tripled in one year; the scale of existing production deals—with GKN Westland, BAE Systems and Pratt & Whitney—was increased and new partners were attracted. After 2004 PZL-Mielec signed new contracts with the US company Lockheed Martin and the Swedish company Saab, producing parts for both military and civil aircraft. Most of PZL-Mielec's cooperation deals were for components, but the company sought to become a first-tier supplier in the most important cooperation lines. Offers with the promise of high-tech production were also prioritized. All products in the new deals were destined for export. In May 2006 approximately 30 per cent of the company's working hours and revenue were dedicated to cooperation projects and 70 per cent to the company's own final production. The aim was to achieve a 50 : 50 balance depending on the market. PZL-Mielec had the potential to increase its output by adjusting to the needs of the market.⁶²

While these changes were being solidified, PZL-Mielec's internal structure and production process were restructured. An evaluation of the company's assets and production processes identified considerable internal reserves. The workplace and the production process were reorganized, and staff were retrained to acquire new skills and better organize their work. They became acquainted with new Japanese-developed principles of lean manufacturing, '5S' (an organizational methodology based on five stages: sort, set in order, shine, standardize and sustain), 'just-in-time' inventory management and total production maintenance. The knowledge gained during employee training was intended to be directly applicable to their jobs. These steps led to a 50 per cent increase in productivity utilizing existing assets. In 2006 PZL-Mielec employed

⁶⁰ Pastula, W., Managing Director, PZL-Mielec, Interview with author, Mielec, 22 Mar.1994

⁶¹ Wojtas, A., Commercial Director, PZL-Mielec, Interview with author, Mielec, 5 June 2006.

⁶² Wojtas (note 61).

1500 staff, a decrease from 1800 in 1999 but management hoped that further international cooperation projects would justify expanding the workforce.⁶³

PZL-Mielec actively participated in R&D projects with various European partners. The company participated in some initiatives in the EU's Sixth Framework Programme for Research and Technological Development (2002–2006), including the project on adaptive landing gears for improved impact absorption (ADLAND). Flight tests were performed on the M28 Skytruck. PZL-Mielec also participated in the European Personal Air Transportation System (EPATS) project and in the Cost Effective Small Aircraft (CESAR, 2006–2009) project and strengthened R&D collaboration under the EU's Seventh Framework Programme, particularly in the Joint Technology Initiative of the Green Regional Aircraft module.⁶⁴ In the NATO context, PZL-Mielec was the principal Polish participant in negotiations on the Alliance Ground Surveillance (AGS) system, NATO's largest R&D programme.⁶⁵

PZL-Mielec underwent a long and painful transformation in the early 2000s, but by the middle of the decade it appeared to be succeeding by its own efforts and ARP's backing, bolstered by a special economic zone that was created around it (see below). In March 2007 PZL-Mielec was bought outright by United Technologies Holdings, a subsidiary of UTC. In 2006 Sikorsky announced plans to develop the International Black Hawk helicopter variant for global customers, to be manufactured using a global supply chain. The acquisition of the Polish company was a crucial and important step in realizing this goal. Sikorsky's president, Jeffrey Pino, declared that PZL-Mielec had become 'a key component of Sikorsky's long-range global strategy to meet worldwide demand for its products and services'.⁶⁶ According to Artur Wojtas, Director of Military Programmes at PZL-Mielec, Sikorsky was interested in opening a gateway to the EU market, in expanding its production capacities in order to meet its orders, and also in concentrating on other projects, such as 'modernisation of the CH-53K, and the development of the S-76D and X-2 Technology demonstrator'.⁶⁷

Sikorsky modernized and equipped PZL-Mielec to support International Black Hawk production while continuing its previous activities of aircraft design, manufacturing and flight testing. Modernization projects included cleaning, reorganizing, modernizing and securing the industrial premises, staff training and introducing environmentally sound elements into the production process. Sikorsky's purchase of PZL-Mielec resolved two principal problems:

⁶³ Wojtas (note 61).

⁶⁴ European Personal Air Transportation System, <<http://www.epats.eu/>>; and European Commission, Community Research and Development Information Service, 'The 6th Framework Programme funded European research and technological development from 2002 until 2006', <<http://cordis.europa.eu/fp6/>>.

⁶⁵ L. Ż., 'Eyes on the prize', *Warsaw Voice*, 18 Aug. 2005.

⁶⁶ Sikorsky, 'Sikorsky Aircraft finalizes acquisition of PZL Mielec', Press release, 16 Mar. 2007, <<http://www.sikorsky.com/About+Sikorsky/News/Press+Details?pressvcmid=c70fa96c2e289110VgnVCM1000001382000aRCRD>>; and Anderson, G., 'Sikorsky completes acquisition of PZL Mielec', *Jane's Defense Industry*, 16 Mar. 2007.

⁶⁷ Stanecki, M., 'American Black Hawk from Poland: five years of Polish–American Cooperation in Mielec', *RUSI Defence Systems*, autumn/winter 2012.

shortage of capital and access to markets. The company increased its output and efficiency and was catapulted into the arena of major players in the global aviation industry. As of December 2012 the company employed 2100 people.⁶⁸ In March 2009 PZL-Mielec rolled out the first Black Hawk UH60M cabin produced outside the USA.⁶⁹ In addition to the ever-increasing production of the Black Hawk, the company continued to manufacture its M28 Skytruck and M28B Bryza aircraft. The latter was ‘perceived as the most Polish of aircraft, despite the fact that it is based on the Antonov-28’, and was in service with the Polish MND and US special forces, and also sold to civil markets.⁷⁰

V. The Euro-Park Mielec special economic zone and the Aviation Valley

In its struggle for survival PZL-Mielec benefited largely from the opportunities provided by regional development. In the mid-1990s, when many established Polish arms producers went bankrupt, PZL-Mielec had a special economic zone created in and around its enormous industrial estate. ARP, regional and local authorities saw to the establishment of the first such zone in Poland in 1996 under a pilot project modelled on an SEZ in Shannon, Ireland.

The Euro-Park Mielec SEZ originally aimed to create 7000 new jobs and assist 17 companies that were created through decentralization of PZL-Mielec or set up on its premises. The SEZ included large unused industrial areas with established production infrastructure, utilities and highly skilled workers who were desperate to find jobs in a city where the unemployment rate was more than 22 per cent. Various forms of tax break or alleviation, grants and direct and indirect support were offered to attract investors, particularly foreign ones, to the depressed area.

In the late 1980s PZL-Mielec had employed 22 000 out of a total population of 60 000 in the town of Mielec. By mid-2006 PZL-Mielec’s staff numbered only 1500 and its spin-off companies employed only another 900, but the SEZ as a whole employed approximately 10 000 people. More than 100 companies had been established in the zone—30 started from scratch and the rest using former PZL-Mielec premises and utilities. All of the new investors were private. More than \$730 billion had been invested in the SEZ, around 80 per cent from foreign sources. The largest investors were based in Germany and the USA. The domestic market accounted for 20–30 per cent of sales; the rest, mostly produced by foreign-owned companies, was exported principally to the EU. A small amount was sold in the former Soviet Union and other non-EU former Eastern bloc countries.⁷¹

⁶⁸ Stanecki (note 67).

⁶⁹ Polish Embassy in Washington, DC, ‘Sikorsky delivers first UH-60M BLACK HAWK with Polish-built cabin to U.S. Army’, 11 Feb. 2009, <<http://washington.trade.gov.pl/en/aktualnosci/article/y,2009,a,5862,.html>>.

⁷⁰ Stanecki (note 67).

⁷¹ Wyczalek, I., Marketing and Development Deputy Director, Euro-Park Mielec, Special Economic Zone, ARP, Mielec Branch Office, Interview with author, Mielec, 5 June 2006.

The main achievements of the SEZ were the creation of jobs and diversification of the economy of the region, ending extreme dependence on the defence industry. Approximately 65 of the companies operating in the zone in 2006 were involved in diverse forms of manufacturing including wood, electrical, electronic, automotive, rubber and plastic products and the production of furniture. The remaining companies worked in the commercial, transport, construction, logistics and business support fields. Significant multiplier effects were realized through industrial linkages and job and income generation and were expected to dynamically affect the entire region in the long term.⁷²

However, as of the mid-2000s the SEZ had failed to attract high-tech investments. Euro-Park Mielec, company representatives and external analysts interpreted this as the result of prioritizing job creation and hoped that Sikorsky's planned investments would change this situation. The most important hindrances to the success of the SEZ were its location and the poor transport system: reaching the area by road or train was slow and cumbersome. SEZ representatives hoped that the rapid construction of an east-west highway would integrate the zone into Poland's transport system.⁷³ Government and EU-backed infrastructure improvements and the arrival of some significant foreign companies, including Sikorsky, greatly improved conditions at the SEZ.⁷⁴

The SEZ that was created around PZL-Mielec in 1996 eased the company's difficulties, enabled it to concentrate on restructuring and carried the promise of new development alternatives. Later, when the company's situation stabilized, it became able to stimulate activities in the zone and the further development of the region, contributing to a healthy interaction between these entities. As PZL-Mielec President Janusz Zakręcki put it, 'Somebody once described our work with the local and province local authorities as model cooperation, or full symbiosis.'⁷⁵

The development potential of both PZL-Mielec and the SEZ was significantly enhanced by their location in the 'Aviation Valley' in south-eastern Poland, one of Poland's fastest growing regions. Over 90 per cent of Polish aerospace industry products are manufactured in this area, in which a loose association of the country's aviation industries is concentrated. In 2012 the largest companies operating in the Aviation Valley were PZL-Świdnik, PZL-Mielec, PZL-Rzeszów (engines), Pratt & Whitney Kalisz (engine parts), Goodrich Krosno (landing gear) and WZK-Mielec (subcontractor for doors for Boeing aircraft). A network of minor firms, mostly private SMEs, produced components and provided training and logistics for the sector. Both PZL-Świdnik and PZL-Mielec had subcontractors and service bases in the region,

⁷² Wyczalek (note 71).

⁷³ Jeziorski, M., 'Luring business to SEZs', *Warsaw Voice*, 29 Aug. 2007. See also the English summary of Domański, B. and Gwosdz, K. (eds), *Dziesięć lat doświadczeń pierwszej polskiej specjalnej strefy ekonomicznej: Mielec 1995–2005* [Ten years of the first Polish special economic zone: Mielec 1995–2005] (Krakow University, IGiGP, and ARP/Mielec: Mielec, 2005).

⁷⁴ Euro-park Mielec, 'Special economic zone', <<http://www.europark.com.pl/en/>>.

⁷⁵ 'We can do it: Janusz Zakręcki, chairman of the board and CEO of PZL Mielec, talks to Magdalena Łasak', *Warsaw Voice*, 26 Aug. 2010.

and PZL-Mielec offered to train its potential suppliers in the Aviation Valley. According to Zakręcki, thanks to Sikorsky's investments, PZL-Mielec could contribute better to the development of the whole region. It 'allows us to build a supply chain here in the Polish market. It also gives PZL-Mielec the possibility of becoming the leading company in the Podkarpackie region, where the Aviation Valley is located.'⁷⁶

The Aviation Valley Association was created in 2003 with significant funding from Pratt & Whitney. As of late 2012 it represented 90 companies within the region that employed over 22 000 people.⁷⁷ A science branch, the Aeronet Aviation Valley Center for Advanced Technologies, brought together the enterprises operating in the Aviation Valley and six institutions of higher education dedicated to high-tech advanced research.⁷⁸ To stimulate investment in the region, the local government, together with the Rzeszów city administration, the county authorities, the University of Rzeszów and the Rzeszów University of Technology, established the Podkarpackie Science and Technology Park.

VI. The F-16 deal

In April 2003 Poland and the USA signed a deal under which Poland would purchase 48 F-16 combat aircraft from the US manufacturer Lockheed Martin, the suppliers would make offset investments in Poland over the next 10 years and Poland would receive a low-interest US Government loan with payments on the principal not due until after 2010. The aircraft were worth \$3.5 billion, representing a cost of \$120 for each Polish citizen over 10 years.⁷⁹ Other calculations claim that, even with the low interest on the loan, Poland would pay about \$4.5–4.7 billion for the aircraft and high service costs would push the price further up. The principal on the loan had to be repaid in five years.⁸⁰ In Poland the F-16 deal came to be referred to as the 'deal of the century' or 'contract of the century'.⁸¹

Poland's Minister of National Defence, Jerzy Szmajdzinski, said that the agreement would 'bring an economic and technological stimulus for Poland, and strengthen our links with the United States'.⁸² Between 1989 and 2002 Poland attracted more than \$65 billion in foreign direct investment, far more than any former Eastern bloc state. More than 13 per cent (\$8.7 billion) of this

⁷⁶ Morrison, M., 'Sikorsky breathes new life into PZL Mielec', *Flightglobal*, 8 June 2010, <<http://www.flightglobal.com/news/articles/sikorsky-breathes-new-life-into-pzl-mielec-342785/>>.

⁷⁷ Aviation Valley, <<http://www.dolinalotnicza.pl/>>; and Morrison, M., 'Into the valley: Polish aerospace', *Flightglobal*, 9 May 2006, <<http://www.flightglobal.com/news/articles/into-the-valley-polish-aerospace-206519/>>.

⁷⁸ 'Aviation Valley', *Warsaw Voice*, 15 Oct. 2009; "AERONET Aviation Valley", un exemple de coopération entre scientifiques, universitaires et industriels' [Aeronet aviation valley, an example of scientific, university and industrial cooperation], *Bulletins Electroniques*, French Ministry of Foreign and European Affairs, 28 Sep. 2012, <<http://www.bulletins-electroniques.com/actualites/71092.htm>>.

⁷⁹ Szymczak, R., 'Poland's contract of the century', *Warsaw Voice*, 3 July 2003.

⁸⁰ L. Ż., 'Plane dealing', *Warsaw Voice*, 24 Apr. 2003.

⁸¹ US Ambassador to Poland Christopher R. Hill coined the phrase. Tagliabue, J., 'Lockheed wins huge sale to Poland with complex deal', *New York Times*, 19 Apr. 2003.

⁸² Tagliabue (note 81).

came from the USA, making US companies the largest investors in post-Communist Poland after France, which invested 20 per cent. Polish officials noted that the F-16 deal would virtually double the US share.⁸³

Although high-level Polish-US negotiations on the F-16 deal and Poland's participation in the Iraq invasion took place simultaneously, analyst Barre R. Seguin finds 'no convincing evidence of Polish support for Iraq as a quid pro quo for US investment in Poland via the F-16 deal'.⁸⁴ Nevertheless, Seguin is one of several observers, including high-ranking Polish officials, who have asserted that political and strategic considerations prevailed over economic and technical ones in the deal. According to Gregory Filipowicz, a Polish defence industry consultant who was involved in negotiating at least two of Lockheed Martin's offset projects related to the F-16 deal, 'Lockheed Martin didn't win the contract, the US government did, with pressure and support coming from the very highest levels. They created a programme that, politically and economically, it was very hard to say no to'.⁸⁵ Independent observers and representatives of countries that also bid for the tender have emphatically underlined the uneven nature of the competition to obtain the F-16 contract.⁸⁶

Analysts have pointed out the extraordinary economic, financial and political backing that Lockheed Martin received in the competition. For example, Pompiliu Verzariu noted that:

U.S. manufacturers have been claiming that the lack of competitive financing was one factor behind Hungary's 2001 decision to lease 14 Gripen fighters from the Swedish Air Force, the Czech Republic's 2001 decision, since cancelled, to buy 24 new JAS-39 Gripens, and Austria's 2002 decision to buy 24 Typhoon fighters from the Eurofighter consortium. To overcome this financing limitation and conscious of Poland's political significance to U.S. interests, the U.S. Government made a special loan offer to Poland in October 2002 in support of the sale of 48 Lockheed Martin F-16 Fighter jets, Pratt & Whitney engines and Raytheon and Textron Systems missiles.⁸⁷

Another analyst, Andrew Curry, has pointed out that:

American trade policy generally opposes the horse-trading involved in such offset deals. But Poland has been an ardent supporter of U.S. military policy. According to Edgar Fulton, the U.S. commercial attaché in Poland, 'we're bending our own rules, and it's more than just symbolism. . . . It's a very deliberate message to Europe'. Poles see the offset deal as a badly needed opportunity. Salaries average just over \$7000 a year; unemployment is almost 18 per cent. In addition to its well-educated and relatively low-

⁸³ 'Poland buys US fighter jets', BBC News, 18 Apr. 2003, <<http://news.bbc.co.uk/2/hi/europe/2958381.stm>>.

⁸⁴ On the original Lockheed Martin proposal see Seguin, B. R., *Why Did Poland Choose the F-16?*, Occasional Paper no. 11 (George Marshall Center: Garmisch-Partenkirchen, June 2007), p. 31.

⁸⁵ Quoted in Little, R., 'U.S. dollars wooed ally in Iraq coalition', *Baltimore Sun*, 17 Oct. 2004.

⁸⁶ See e.g. Barnett, N., 'US accused of fighting dirty in Polish plane deal: BAE claims Gripen jets lost out to F-16 because of political pressure', *Independent on Sunday*, 5 Jan. 2003; and 'The F-16 comes to Poland', *Foreign Policy Association Newsletter*, 19 Jan. 2003.

⁸⁷ Verzariu, P., 'The global landscape of offsets in the new millennium', part 2, BarterNews, <http://www.barternews.com/global_landscape_part2.htm>.

cost workers, Poland will enter the European Union in May 2004, making it an attractive European base.⁸⁸

The F-16 contract included 43 offset proposals worth \$7.5 billion to be implemented over 10 years. Among others, the envisaged offset projects were to benefit PZL-Mielec (the company's M28 Skytruck aircraft would be promoted on Western markets by Lockheed Martin); PZL-Rzeszów (Pratt & Whitney engines used by the F-16 would be built by the company); PZL-Świdnik, PZL-Krosno and PZL-Gorzyce (Sokół helicopters and helicopter components produced by PZL-Krosno and PZL-Gorzyce would be promoted and sold); and a dozen other companies, including Huta Stalowa Wola, PZL-Hydral and Bumar Sp. Z.o.o. Civil offset projects included an order for six ships to be built by the Stocznia Szczecińska shipyard; the modernization and privatization of Rafineria Gdańska, including an installation for the production of sulphur-free petrol; the production of new models of Opel cars at Gliwice; the creation of a computerized health-care system, the Medical Service Register; and launching production of the Tetra emergency communications system at Gdynia's Radmor. Professor Michał Kleiber, Minister of Science, head of the Scientific Research Committee and chairman of the parliamentary Offsets Committee, stressed that the USA would invest in Polish inventions and achievements.⁸⁹

Offset figures and expectations were artificially inflated on both sides. Instead of the \$7.5 billion figure that circulated in the media at the time the Lockheed Martin contract was signed, Polish Government documents quoted a figure of \$6.028 billion for offsets that began in 2005.⁹⁰ Long negotiations were also conducted about what could be considered as part of offset obligations and what part of US-run business already established in Poland had nothing to do with the F-16 deal. Most of the high-tech innovative projects promised did not materialize, while others in machinery, defence and extracting industries were realized. As early as September 2003 the US Secretary of Energy, Spencer Abraham, and the Polish Deputy Minister of Economy, Labor and Social Policy, Jacek Piechota, signed project documents for a \$690 million programme to upgrade the oil refinery in Gdańsk.⁹¹

The F-16 aircraft were delivered from the autumn of 2006 but their landing was not as smooth as expected. According to an August 2008 news report, since the first aircraft were delivered in November 2006 Poland had 'recorded 1700 malfunctions, defects and faults during acceptance inspections, routine maintenance and flight. . . . A shortage of trained maintenance personnel has been linked to most of these incidents. US estimates call for 1,110 ground crew

⁸⁸ Curry, A., 'The rewards of friendship', *US News and World Report*, 17 Nov. 2003.

⁸⁹ L. Ż. (note 80).

⁹⁰ Polish Ministry of Economic Affairs, 'The list of offset agreements in Poland as of 1st December 2009', 1 Dec. 2009, <<http://www.mg.gov.pl/NR/rdonlyres/B5E14DDE-7A82-499B-98F4-F78D554FF11B/58342/TheListofoffsetagreementsinPolandasof1stDecember20.doc>>; and Kaniuka, L., 'Offset in Poland', Presentation at 3rd International Seminar on Offset and Industrial Cooperation, Jerusalem, 7-9 May 2007, <<http://www.moit.gov.il/NR/rdonlyres/5747D30D-D8AC-4BFA-8EC3-72F9B6AE1610/0/OffsetinPoland3rdSemMay07.ppt>>.

⁹¹ US Embassy in Warsaw, 'Agreement signed for \$690 million Gdańsk refinery project as part of F-16 offset program', 18 Sep. 2003, <<http://poland.usembassy.gov/poland/refinery.html>>.

to handle a 48-aircraft F-16 fleet. Until the end of this year Poland will have just 780 technicians. Training each ground crew member costs Poland \$300 000—a sum that was expected to be reduced through online training at the Polish Air Force academy in Dęblin.⁹² A budget of \$18 million was reportedly set aside to prepare engineering facilities to maintain various aspects of the F-16s at the MND-controlled aviation works WZL no. 2 at Bydgoszcz by 2011–12.⁹³

Polish news sources further reported around a dozen problems with the F-16, including the lack of a comprehensive IT system. Jacek Kotas, the Deputy Minister of National Defence, who was responsible for implementation of the F-16 programme, stated that: ‘Without [the IT system], effective F-16 program management is impossible. We have two choices: either a team of air force experts will develop it by themselves or we’ll organise a bid’.⁹⁴ In October 2007 two new F-16 aircraft that were to fly to Poland had to make emergency landings due to avionics failures. All repair costs were borne by Poland because the government had not negotiated clauses guaranteeing repairs and services in the purchase agreement. By late 2007 the MND had ordered spare parts for F-16 jets at a cost of \$123 million that were meant to satisfy demands until 2010.⁹⁵

In 2007 a Lockheed Martin representative claimed that ‘within only four years of a 10-year offset program, two-thirds of the obligation has been satisfied, more than \$4 billion of projects have been approved, and many of these projects involve substantial technology transfer’.⁹⁶ The Polish side, however, seemed to be less satisfied and made several critical remarks concerning offset fulfilment. According to Grzegorz Holdanowicz, an expert on the Polish defence sector, ‘the offset deal promised back at the end of 2002 has hardly been executed since then. . . . There is not much for the industry, several deals for electronics producers, several others for some companies, but all of these are minor in comparison to what has been signed and promised’.⁹⁷ In October 2004 Poland announced that it would start to withdraw its troops from Iraq in early 2005. Robert Little noticed that the news arrived ‘after Polish officials complained that the F-16 deal is not producing as much US investment as they anticipated, though they had long denied any relationship between the deal and the troops’.⁹⁸ According to military analyst Andrzej Kinski, Lockheed Martin did little to promote PZL-Mielec’s M28 Skytruck except to spoil markets by

⁹² Glowacki, B., ‘Poland agrees F-16 maintenance deal with Lockheed Martin’, *Flight International*, 18 Aug. 2008.

⁹³ Glowacki (note 92).

⁹⁴ Dewitte, L., ‘Polish F-16s make emergency landing due to avionics malfunction’, 2 Oct. 2007, F-16.net, <http://www.f-16.net/news_article2540.html>.

⁹⁵ Dewitte (note 94).

⁹⁶ Harris, S. A., ‘Poland’s F-16 program’, *International Herald Tribune*, 8 Nov. 2007. This letter to the editor from Scott A. Harris, Brussels President, Continental Europe Lockheed Martin Global, Inc., was a response to critical remarks by William Pfaff. Pfaff, W., ‘Poland votes to rebury the past’, *International Herald Tribune*, 24 Oct. 2007.

⁹⁷ Jach (note 6).

⁹⁸ Little (note 85).

offering the aircraft too cheaply.⁹⁹ The M28 Skytruck is used in South America and South East Asia and with US certification will be able to enter Western markets.¹⁰⁰

Other segments of the offset agreement, like the building of the F-16 Pratt & Whitney engines by PZL-Rzeszów, were more profitable for Poland. Pratt & Whitney Canada had been present in Poland since the late 1970s. In March 2002 Polish authorities consented to sell the majority shares of PZL-Rzeszów to Pratt & Whitney Canada; a year later, when the F-16 deal was signed, the new entity's development plans were listed among the most important offset projects. By 2005 PZL-Rzeszów had become the largest and most modern engine plant in East Central Europe, with a full order book for jobs that included assembling and testing the Pratt & Whitney F100 engines. Pratt & Whitney's owner, UTC, made major investments and became the largest foreign investor in Polish aviation. Pratt & Whitney was behind the Aviation Valley initiative, and in 2005 it created a new R&D institute together with the Institute of Aviation of Warsaw.¹⁰¹

In late 2008 the terms of cooperation between Lockheed Martin and Poland were renegotiated and several improvements were made, including the launch of new offset projects in the field of ammunition. By late 2009 most technical problems with the F-16s had been sorted out. At the end of 2009 the Polish Government also signed an annex to its offset agreement with Pratt & Whitney Canada (related to the sale of PZL-Rzeszów) that raised the value of the contract and included new items and partners in the deal.¹⁰² In a 2012 interview Dariusz Bogdan, the Deputy Minister of the Economy, declared that the 17 concluded offset agreements, worth over \$8 billion, had helped the economic and financial condition of many arms industry plants.¹⁰³

The F-16 deal enabled both Poland and the USA to realize their most important goals. At a crucial time the USA secured a staunch European political and military ally and an open door to the EU market through the Polish economy. A solid base in Poland has been not only an opening towards markets and cooperation opportunities further east, but has also offered access to the EU's slowly homogenizing defence market.

As a privileged partner of the USA, Poland improved its standing in the EU and NATO. It became the owner of world-class military technology and

⁹⁹ Kinski, A., 'Malaysia, Iraq—and more . . . would Poland increase her share in the international defence trade?', *Polish Defence Yearbook 2007: Industry, Armed Forces and Security Services* (Technika Wojskowa and Polish Chamber of National Defence Manufacturers: Warsaw, 2007).

¹⁰⁰ Polish Information and Foreign Investment Agency (PALiIZ), 'Skytruck from Mielec to USA', *Economic Bulletin*, vol. 617, no. 19 (10 May 2004).

¹⁰¹ Heath, A., 'F-16 jet fighters stationed in a military base in Krzesiny (western Poland) have twice had to make emergency landings due to avionics failures', Polish Business News blog, 2 Oct. 2007, <<http://polandusa2007.blogspot.com/2007/10/f-16-jet-fighters-stationed-in-military.html>>; Baumgardner, N., 'Lockheed Martin credits offset package, loan for F-16 win in Poland', *Defense Daily International*, 10 Jan. 2003; and Jastra Co. Ltd, 'WSK PZL Rzeszów: marine and industrial turbochargers', <<http://www.wsk-rzeszow.com>>.

¹⁰² Polish Consulate General in Montreal, 'Annex to the offset agreement with Pratt & Whitney Canada', 12 Sep. 2009, <<http://montreal.trade.gov.pl/en/aktualnosci/article/y,2009,a,6411,.html>>.

¹⁰³ 'Polish defence industry: quo vadis?' Interview by Krzysztof Zalewski with Dariusz Bogdan, Deputy Minister of the Economy, *Polish Defence Yearbook 2012* (note 26), pp. 12–15.

attracted significant US investment. However, the acquisition burden has significantly affected Poland's already unbalanced state budget, particularly with principal payments on the US loan starting in 2010. Acquisition has proved to be more expensive for Poland than planned due to the need for a series of unexpected additional investments in order to enable Polish armed forces to use the aircraft, including training personnel, servicing, and revamping infrastructure and facilities. These costs are difficult to assess and have not been compensated for by offsets, at least not to the degree expected at the time the contract was signed.

VII. ZM Mesko: profitable use of offset deals

Zakłady Metalowe Mesko was established as the National Ammunition Company in 1924 in Skarżysko-Kamienna, central Poland. After World War II the company became a typical state-owned enterprise with a wide range of military and civil products, fulfilling and overfulfilling government plans. It also managed a large-scale social and welfare system, including housing, schools and health-care institutions, partially inherited from pre-war times. Civil production lines were introduced from the mid-1950s.

After the collapse of the old system, following the instructions of a Warsaw-based consulting firm, ZM Mesko's management tried to restructure the plant by cutting assets and workforce, reducing production costs and introducing new, principally civil products—industrial machines and household appliances. New military items were also developed, among them the Grom anti-aircraft system, which was awarded a Defender prize at the 1999 International Defence Industry Exhibition in Kielce. In 1999–2000 the main civil branches were separated from the mother company and an independent enterprise was created to handle the Mesko industrial estate. From the late 1990s ZM Mesko also sought foreign partnerships. Cooperation deals were negotiated with Israel's Rafael (in 1996), the Nammo (in 1999), Denmark's high-tech company Terma (in 2001) and the West European transnational missile producer MBDA.¹⁰⁴

Despite these efforts, ZM Mesko had difficulty in adjusting to the changed conditions after the end of the cold war. Between 1994 and 1999, 20 per cent of state subsidies provided to the defence sector went to ZM Mesko, and this share increased to 40 per cent in 2001. In September 2001 the company signed a major contract with the MND for Polish-developed Grom MANPADS worth 1.30 million złotys (\$317 000), but the company lacked the funds to fill the delivery, and the government funds provided by the contract were not paid out in time.¹⁰⁵ ZM Mesko approached the edge of bankruptcy several times. In 1998 and 2001 it was forced to stop production and send workers home for several weeks. In 2001 ARP earmarked a total of 1.12 million złotys (\$274 000) for the company's restructuring and invested 1.10 million złotys (\$269 000), hoping to

¹⁰⁴ Chojnacki, M., Export and import manager, and Ozog, M., Marketing sector manager, Zakłady Metalowe Mesko SA, Interview with author, Skarżysko-Kamienna, 2 Oct. 2007.

¹⁰⁵ Holdanowicz (note 23).

stabilize it.¹⁰⁶ In 2002 Bumar PHZ had to assist ZM Mesko to meet its MND order.¹⁰⁷

According to Mirosław Chojnacki, a ZM Mesko senior manager, the 2001 strategic partnership with Nammo was a turning point for the company. ZM Mesko used Nammo's technology to produce medium-calibre ammunition for domestic defence customers and potential export markets. The contact became more important when ZM Mesko became part of the F-16 aircraft offset arrangements. In 2005 Bumar Sp. z o.o., Nammo and ZM Mesko signed an agreement for Nammo to provide ZM Mesko with free equipment and technology to manufacture non-guided missiles and medium-gauge gun ammunition for the F-16 aircraft, helicopters and KTO Rosomak armoured modular vehicles.¹⁰⁸ This was the largest direct offset project—worth almost \$876 million (after multipliers)—accompanying the purchase of 48 F-16s from Lockheed Martin. During offset negotiations with the Polish authorities Lockheed Martin suggested Nammo as a potential business partner.¹⁰⁹ Through the cooperation agreement, which was expected to last until 2013, ZM Mesko hoped to generate considerable revenue and create new jobs. Professor Kleiber, chairman of the parliamentary Offset Committee, declared: 'Thanks to this project . . . Poland will produce its own ammunition instead of buying it abroad, especially since Polish armed forces will need \$400 million worth of ammunition in the near future.'¹¹⁰ ZM Mesko's management planned to export some of the ammunition to markets that would include the USA. The company's president, Piotr Mazurek, stated that: 'The Americans will buy ammunition for the Polish F-16 aircraft from us.'¹¹¹ In the framework of the same offset project, plans were made to set up a plant to recycle 50 000 tonnes of obsolete ammunition from the Polish Army's arsenals and from abroad, including from US companies.¹¹²

The other large-scale project that fundamentally changed ZM Mesko's situation was the 1.49 billion złoty (\$397 million) contract signed in December 2003 by the Polish MND, Bumar Sp. z o.o., ZM Mesko and Israel's Rafael for the delivery of 2700 Spike anti-tank guided missiles during the period 2004–13. According to the licence and offset contract, initially, components for the construction of the missiles were to be supplied by Rafael, but from 2006 ZM Mesko would manufacture and assemble elements of the missile. Deliveries began in November 2004 and continued until 2013.¹¹³ In May 2009 the Bumar

¹⁰⁶ L. Ż. 'ZM Mesko faces stoppage', *Warsaw Voice*, 14. Jan. 2001.

¹⁰⁷ 'Bumar takes "Grom" missile contract from ZM Mesko', *Warsaw Business Journal*, 18 Nov. 2002.

¹⁰⁸ Chojnacki (note 104).

¹⁰⁹ L. Ż., 'Hi-tech for Mesko', *Warsaw Voice*, 19 Jan. 2005; and 'Further development of MESKO', *Polish Defence Industry*, vol. 17, no. 2 (2006), p. 5.

¹¹⁰ L. Ż. (note 109).

¹¹¹ L. Ż., 'Norwegians will modernize Mesko', *Warsaw Voice*, 11 Oct. 2006.

¹¹² L. Ż. (note 109).

¹¹³ L. Ż., 'New missiles for the Army', *Warsaw Voice*, 14 Jan. 2004; L. Ż., 'Spike on target', *Warsaw Voice*, 9 Mar. 2005; and 'Polish live-firing debut for Rafael's Spike-LR', *International Defense Review*, 1 Apr. 2005.

Group (of which ZM Mesko was a member) announced that ZM Mesko had produced 1000 Spike-LR missiles.¹¹⁴

In 2007 ZM Mesko had produced only military products and the Polish MND bought 90 per cent of the company's output.¹¹⁵ Thanks to the two large offset projects and the attached technology transfer, ZM Mesko succeeded in radically improving its position and become one of the most successful Polish arms producers. In addition to sales to the Polish MND, its exports also increased.¹¹⁶ By 2010 ZM Mesko had become one of the biggest Polish offset beneficiaries thanks to agreements with Lockheed Martin, Rafael, Oto Melara, Nammo and Saab.¹¹⁷ In September 2011 ZM Mesko was renamed Bumar Amunicja S.A and became the leading company of the Bumar Ammunition Group.

VIII. ZM Tarnów: a typical Polish company

The Tarnów Mechanical Works was established in 1917 to meet the needs of the railway industry. The current production profile, which includes machinery production, arms making and industrial services, took shape in the 1950s. Until the late 1990s the same assets, workshops and technology were used for both civil and military production; only the assembly lines were separated. The company's civil production consisted principally of metal-cutting machines, some based on German and French licences, others developed by ZM Tarnów; 80 per cent of these products were exported, principally to Germany. Military production was introduced in the early 1950s. Initially, the company produced a wide range of military products, but by the late 2000s it had narrowed its focus to machine guns, cannon, anti-aircraft guns and grenade launchers, with different products meeting either NATO or Russian standards. In the 1990s, during the first concentration of the Polish defence industry, when profiles, technology and machinery were regrouped at the core producers, ZMT took over the military-related production assets of the H. Cegielski company in Poznań, which exited the arms industry.¹¹⁸

After the end of the cold war ZM Tarnów had an enormous overcapacity and serious financial problems, but by the time the two capital groups were formed in 2002 the company was in a stable economic situation, although not prosperous. This was the result of a restructuring process that was launched in 1997. Management analysed the firm, sold assets that were not profitable, restructured employment and reorganized production. Lacking resources, they could not invest in new technology so changes were introduced to the company's structure and economic management that increased efficiency. During

¹¹⁴ Bumar Group, 'The thousandth SPIKE', 8 May 2009, <<http://www.bumar.com/en/news/2009/05/the-thousandth-spike/>>.

¹¹⁵ Chojnacki (note 104).

¹¹⁶ Jeziorski (note 14); and Erenfeicht (note 21).

¹¹⁷ Bumar Group, 'ZM Mesko SA one of the biggest Polish offset contractor', 6 Oct. 2010, <<http://www.bumar.com/en/news/2010/10/zm-mesko-sa-one-of-the-biggest-polish-offset-contractor/>>.

¹¹⁸ Hirsch, L., Commercial Director, Zakłady Mechaniczne Tarnów, Interview with author, Tarnów, 5 July 2006.

the late 1990s ZMT also obtained international quality certification (ISO 9001 quality-management system and AQAP 1001), which contributed to important changes in management and organization of production. Thanks to its status as a strategic company, ZMT could apply for government assistance. Direct government subsidies to preserve military production assets were cut in the early 2000s, but state subvention could still be sought for specific purposes, such as obtaining quality certificates or development activities. State aid helped the company to survive, but it was insufficient to push it to accomplish genuine restructuring.

During its most successful years in the 1970s ZM Tarnów employed 7000 workers. At the end of the 1990s it still employed 2500, but by late 2006 the number had dropped to 860 and remained at that level until 2010.¹¹⁹ Employment problems in Tarnów were aggravated by the fact that the other two large employers in the city, a chemical and a heavy machinery company, were in a similar situation and thousands of dismissed workers could not find jobs. ZMT raised some badly needed revenues by selling assets and part of its industrial estate. Revenues were principally used to pay tax arrears.¹²⁰

During the Warsaw Pact period the company's military products had been produced under Soviet licences and further developed by the company's designers and engineers. ZMT had its own R&D unit with approximately 80 employees, but also benefited from the presence of OBRSM, an independent R&D institute that was opened on ZMT's industrial estate in 1971. ZMT started to prepare for production of NATO-compatible weapons in the mid-1990s and was technologically ready by the time Poland joined the alliance. The company's principal military products were rifle-calibre and light artillery machine guns.

In the cold war era ZM Tarnów's civil products had been destined for export and its military products for domestic use. After the end of the cold war, to compensate for a drop in MND orders, approximately 50 per cent of the company's military-related output was exported. Several of ZMT's products were used by the Polish Army and, even if it was unable to buy them, the MND was first to try the weapons and army representatives were always present at demonstrations for foreign partners. By the summer of 2006 the share of civil and military production was equal, but since 2007, when the company became a member of the Bumar Group, arms production has been dominant. Since arms making was more lucrative than civil production, company management was keen to increase its share, and the company used 80–90 per cent of its capacity for military production. The civil machinery profile had large unused capacities; output could be easily doubled because the company owned large unused assets and could easily find workers. Although the company produced weapons for both NATO and Russian standards, the Russian-type equipment sold better and in 2007 it represented about 80 per cent of sales. Each new product developed by the company was equipped for both standards; the Polish

¹¹⁹ Hirsch (note 118); and *Polish Defence Yearbook 2010: Industry, Armed Forces, Security Services* (Magnum X Publishing House: Warsaw, 2010).

¹²⁰ Hirsch (note 118).

armed forces still needed Russian-type equipment but slowly a shift towards NATO-compatible equipment was occurring. By 2007 ZM Tarnów only produced spare parts for Russian-standard weapons. However, because of the large quantity of such weapons on the market, this remained an important market segment.¹²¹

Membership in the Bumar Group solved two key problems: financing and markets. ZM Tarnów was able to diversify its weapon export markets from East Central Europe to East Asia, India, Indonesia, Malaysia and Western Europe, albeit on a small scale. Bumar also helped the company to obtain credits and provided some financial assistance so that it could fulfil its foreign contracts. Cooperation with other member companies also improved; for example, weapons produced by ZMT used ammunition manufactured at ZM Mesko rather than having to import it.¹²² After the reorganization of the Bumar Group in 2009, ZMT became part of the Bumar Żołnierz (Bumar Soldier) division.¹²³ In November 2010 the civil machine tool-producing branch of ZMT, which employed nearly 200 people, was sold to a British investor: 600 Group plc.¹²⁴ In July 2012 ZMT and OBRSM merged.¹²⁵ In late 2012 ZM Tarnów was developing a new product, the 'Pilica' anti-aircraft artillery-missile system.¹²⁶

¹²¹ Hirsch, L., Commercial Director, Interview with author, Tarnów, 1 Oct. 2007; and Hirsch (note 118).

¹²² Hirsch (note 121).

¹²³ Bączyk, N., 'Polish defence industry', *Polish Defence Yearbook 2010* (note 119).

¹²⁴ Bumar Group, 'Civil production at ZM Tarnów has a new owner', 4 Nov. 2010, <<http://www.bumar.com/en/news/2010/11/civil-production-at-zm-tarnow-has-a-new-owner/>>.

¹²⁵ Bumar Group, 'Tarnow fusion', 14 July 2012, <<http://www.bumar.com/en/news/2012/07/tarnow-fusion/>>.

¹²⁶ Bumar Group, 'Under-Secretary Waldemar Skrzypczak visits Zakłady Mechaniczne Tarnów', 16 July 2012, <<http://www.bumar.com/en/news/2012/07/under-secretary-waldemar-skrzypczak-visits-zaklady-mechaniczne-tarnow/>>.

4. Hungary: the twists and turns of transformation

During the cold war Hungary was among the most liberal of the Eastern bloc countries. After the trauma of the 1956 uprising and its severe repression, from the mid-1960s the Communist leadership under János Kádár started to introduce slow, cautious economic and political reforms. By the late 1980s the economy and society had become relatively liberalized and open, at least compared to other countries in the bloc.¹ The share of exports to Western markets was relatively large and various forms of economic cooperation, including licensed production and subcontracting, were in wide use. In addition to the dominant state-owned enterprises, Hungary's economy had a broad range of private, semi-private and cooperative forms of production and trade. At the margins of and underneath the visible economy an important second economy functioned that contributed significantly to the GDP and to a relatively comfortable quality of life for most of the population. All of these factors ought to have facilitated a smooth transition to a multiparty democracy and market economy.

Instead, in the early 1990s the economy plunged into a major recession with a drastic drop in GDP that was accompanied by hectic institutional changes and often chaotic economic management. The centre-right Magyar Demokrata Fórum (MDF, Hungarian Democratic Forum) led the first freely elected government after the collapse of Communism in Hungary, forming a coalition with two smaller parties—the Független Kisgazda, Földmunkás és Polgári Párt (FKGP, Independent Smallholders, Agrarian Workers and Civic Party), and the Kereszténydemokrata Néppárt (KDNP, Christian Democratic People's Party)—after the 1990 elections. In 1994 another coalition came to power, led by the Magyar Szocialista Párt (MSZP, Hungarian Socialist Party), a reformed successor of the Communist Party, and the Szabad Demokraták Szövetsége (SZDSZ, Alliance of Free Democrats), a party created by the former political opposition. In 1998 this government was defeated by a new right-wing coalition of the Fiatal Demokraták Szövetsége–Magyar Polgári Párt (Fidesz–MPP, Alliance of Young Democrats–Hungarian Civic Party), the FKGP and other minor right-wing parties. In 2002 the MSZP–SZDSZ coalition regained power, and in the 2006 elections it again achieved a relatively comfortable victory. However, the coalition's position was significantly weakened due to

¹ On this transition see Kiss, Y., SIPRI, *The Defence Industry in East-Central Europe: Restructuring and Conversion* (Oxford University Press: Oxford, 1997), pp. 77–104.

massive popular protests that were prompted by its radical economic adjustment package, a series of political scandals and the opposition's refusal to cooperate with the government. In April 2010 Fidesz–MPP won the elections with a large majority and formed a coalition government with the KDNP. The new coalition radically changed the political institutional system and economic structures, which became characterized by a strong centralization of assets and decision making and a return to authoritarian politics.

The socialist–liberal coalitions have generally tended to introduce a mixture of measures aimed at economic liberalism and social justice, combined with a relatively open foreign policy. The conservative–right-wing coalition governments have typically followed a more populist and increasingly protectionist policy with a strong nationalistic ideology that has occasionally caused tensions with neighbouring countries. This tendency became particularly strong after Fidesz–MPP won back power in 2010 and introduced an increasingly nationalistic policy.

Following the political change in 1990 Hungary's economy experienced a major recession, which became so severe that in 1995 the governing socialist–liberal coalition was obliged to introduce a radical readjustment package to redress the heavy deficits in the state budget and the balance of payments. The stabilization effort was successful, but the coalition paid for its social costs by losing the next election. After a cycle of Fidesz rule and the return of a socialist–liberal coalition government, by the mid-2000s the economy was again in such poor shape that in 2006 the socialists introduced a far more radical economic adjustment package that aimed to redress overspending and the alarmingly large state deficit. Despite promising signs of consolidation, the coalition lost power and the 'unorthodox' economic policy followed by the Fidesz–MPP-led governing coalition aggravated the blows the economic crisis dealt to the country's economy.

In the 1990s Hungary's economy became dominated by the giant transnational corporations that were established after the regime change. Foreign-owned companies gained a dominant position in the economy, controlling most of the banking and manufacturing sectors and producing the bulk of the country's exports. Major inflows of foreign capital provided indispensable assets for the structural changes in the economy. Meanwhile, domestic firms struggled for survival, often resorting to political means to save themselves or to consolidate their positions. Private ownership became dominant in the economy, and major shifts also occurred in the economic structure. The traditional, large state-owned enterprises disintegrated and SMEs multiplied. The importance of industry dramatically diminished and the tertiary (service) sector of the economy emerged as a major revenue generator and employer. The traditional production sectors—heavy industry, metallurgy, mining and textiles—went bankrupt,

and machinery-manufacturing, car-making and IT-related businesses emerged. Even when economic growth resumed, Hungary had a jobless growth pattern and a large share of the population remained unemployed and economically inactive. Although the state largely retreated from direct economic management and ownership, its inefficient institutional structures and its control over of the redistribution of resources significantly affected the economy.

Hungary's foreign policy has changed radically since the early 1990s. Earlier the country had played an active international role, serving both as a buffer and as a mediator between the cold war opponents. The political leadership made special efforts to maintain the country's positive external image as the 'happiest barrack' of the Eastern bloc. However, after the fall of the old system, Hungary became an imperfect new democracy, whose foreign policy was prey to internal power struggles. The country was eager to join the European Union and NATO, yet failed to participate as expected when it became a member.

Thanks to its geographical location in the centre of Europe and bordering the former Yugoslavia, Hungary has played a special role, providing infrastructure for NATO operations during the conflicts in the Balkans in the 1990s. Hungary's first genuine contact with the alliance came when the airbase at Taszár in south-western Hungary was used by NATO-led forces. Hungary joined NATO in 1999. A few years later, however, it received tough criticism from the highest NATO representatives. In June 2002 the NATO Secretary General, George Robertson, greeted the Hungarian Defence Minister, Ferenc Juhász, on his first visit to NATO's Brussels headquarters, with the words 'You don't meet the requirements. You don't do what you are supposed to.' Juhász was shocked: 'I was expecting more cooperative language. All the other countries were unfriendly. They questioned our seriousness in the fight against terrorism. They questioned our trustworthiness as an ally.' Hungary was criticized for the poor state of its troops and equipment, the lack of transparency in its military contracts and its small contribution to the 'global war on terrorism' in Afghanistan, which consisted of a team of medical specialists without any equipment or means to get them to Afghanistan.²

Hungary took steps to strengthen its links with NATO and to demonstrate its willingness to participate in joint projects. Nevertheless, in January 2007 Liam Fox, the British shadow defence minister, stated that Hungary had 'pocketed the [NATO] security guarantee' while failing to adequately fund the necessary military reforms and proposed 'to suspend Nato members who do not spend the levels of funding that we agreed'.³

² Geary, J., 'Lacks discipline, must try harder', *Time*, 17 Nov. 2002.

³ 'Tory calls for army strength to be increased', *Yorkshire Post*, 10 Jan. 2007.

Although British officials rejected Fox's comments and proposals, the attack made the round of world news desks and heightened Hungarian sensitivities. Fox's view seemed to be widely shared. Analysts argued that competing projects, particularly expensive preparations for EU accession, had been prioritized over NATO commitments. 'Of the three new [NATO] members, Hungary has done the least. It continues to spend very little, has not lived up to its commitments, and is not taken all that seriously', noted Thomas S. Szayna, a security analyst at the RAND Corporation.⁴

After repeated criticism, Hungary sought to demonstrate a changed attitude towards NATO. The government promised to increase its participation in the NATO-led International Security Assistance Force in Afghanistan, and in December 2007 the Minister of Defence, Imre Szekeres, announced that Pápa airbase in north-western Hungary would become a key base in NATO's Strategic Airlift Capability (SAC) initiative: 'The C-17 programme is an evident success story for our homeland. For the first time, Hungary was given the opportunity to establish the center of a significant NATO initiative. This is a reply to those who doubt, to those politicians, who question Hungary's Euro-Atlantic commitment.'⁵ This US-led and mainly US-financed initiative involves 10 NATO members—Bulgaria, Estonia, Hungary, Lithuania, the Netherlands, Norway, Poland, Romania, Slovenia and the United States—and two members of the Partnership for Peace—Finland and Sweden—and became operational in July 2009. The SAC Heavy Airlift Wing flies C-17 transport aircraft based at Pápa in support of NATO operations in Afghanistan as well as EU and United Nations operations.⁶ Since 2009 Hungary's Military Medical Center of Excellence in Budapest has filled another special niche function in NATO.⁷ Various training centres exist in Hungary, including those that provide NATO-accredited, advanced counter-improvised explosive device (IED) 'train the trainer' courses.⁸

⁴ Quoted in Geary (note 2). See also Szayna, T. S., *NATO Enlargement, 2000–2015: Determinants and Implications for Defense Planning and Shaping* (RAND: Santa Monica, CA, 2001).

⁵ 'Pápa: hamarosan landol az első C-17-es' [Pápa: the first C-17 will soon land], 10 July 2009, <http://www.jetfly.hu/rovatok/jetfly/hirek/hamarosan_landol_az_első_c17es_papan/>; Hungarian Ministry of Defence, 'Megnövelt afganisztáni magyar szerepvállalás: Nato csucs' [More intense participation in Afghanistan: NATO summit], 3 Apr. 2008, <http://www.hm.gov.hu/hirek/kulfoldi_hirek/megnovevt_afganisztani_magyar_szerepvallalas>; and 'Több pénz a működésre és a fejlesztésekre' [More money for maintenance and development], *Honvédelem*, 29 Sep. 2008, <<http://www.honvedelem.hu/cikk/12652>>.

⁶ Vandiver, J., 'NATO air support ready to launch from Hungary', *Stars and Stripes*, Mideast edn, 24 July 2009.

⁷ North Atlantic Treaty Organization, 'Centres of excellence', 30 July 2012, <http://www.nato.int/cps/en/natolive/topics_68372.htm>.

⁸ Hungarian Embassy in Washington, DC, 'Contributions of the Hungarian armed forces to international efforts', 12 Sep. 2012, <<http://washington.kormany.hu/contributions-of-the-hungarian-armed-forces-to-international-efforts>>; and Hungarian Ministry of Defence, *International Training Activities of the Hungarian Defence Forces* (Zrínyi Média MoD Communication Ltd: Budapest, 2011).

At the NATO Summit in Prague in November 2002 Hungary and Poland pledged to provide improved NBC weapon identification and defence to the NATO Response Force (NRF), NATO's 'highly ready and technologically advanced multinational force'.⁹ Hungary offered a high-tech mobile biological weapon detection laboratory designed by a special section of the Ministry of Defence-owned HM Elektronikai, Logisztikai és Vagyonkezelő Rt (HM EI Rt, MOD Electronics, Logistics and Property Management Company). This laboratory, which can be transported on the back of a truck, was used during the 2004 Athens Olympics to counter possible attacks using biological weapons.¹⁰ The other contribution to the NRF was a water purification unit that is set up by a specialized army platoon. The unit was developed and produced by a medium-sized civil private company, Zenon Systems. In 2006 two such units were successfully used in the NRF joint forces exercise Steadfast Jaguar in Cape Verde, which simulated a demonstration of force and a humanitarian disaster relief operation.¹¹

In recent years Hungary has contributed around 1000 troops, approximately 12 per cent of its armed forces, to foreign missions worldwide. Participation in NATO missions in Afghanistan since 2003 has included deploying special forces to operations led by the USA, participating in operational mentoring and liaison teams (OMLTs), and providing security at the international hospital in Kabul and at Kabul International Airport.¹² Hungary also had eight police officers and four civil experts participating in the EU Police Mission in Afghanistan (EUPOL Afghanistan), training the Afghan police at the end of 2010.¹³ At the end of 2012 about 500 Hungarian troops were taking part in ISAF in Afghanistan, most of them at the provincial reconstruction team based at Pul-e Khumri, Baghlan province, which Hungary has led since 2006.¹⁴ This mission ended in March 2013, but the Hungarian contingent remained in Afghanistan, having taken over (in October 2012) the 'lead nation' role in force protection at Kabul International Airport for six months and other tasks, such as participation in helicopter air mentor teams and in a Special Operations Task Group to help

⁹ North Atlantic Treaty Organization, 'The NATO Response Force', 15 Oct. 2013, <http://www.nato.int/cps/en/natolive/topics_49755.htm>.

¹⁰ 'Olympics bio-weapons lab unveiled', *BreakingNews.ie*, 23 July 2004, <<http://www.breakingnews.ie/world/olympics-bio-weapons-lab-unveiled-158351.html>>.

¹¹ North Atlantic Treaty Organization, 'NATO Response Force passes its last test', NATO Update, 28 June 2006, <<http://www.nato.int/docu/update/2006/06-june/e0628a.htm>>; and North Atlantic Treaty Organization, Supreme Headquarters Allied Powers Europe (SHAPE), 'Water purification plant already operational', 7 June 2006, <<http://www.nato.int/shape/news/2006/06/060607a.htm>>.

¹² North Atlantic Treaty Organization, 'International Security Assistance Force: key facts and figures', 14 Dec. 2010, <http://www.isaf.nato.int/images/stories/File/Placemats/14DEC_2010_Place_mat.pdf>.

¹³ EU Police Mission in Afghanistan (EUPOL Afghanistan), 'Hungary takes over the presidency of the Council of the EU', Press release, 1 Jan. 2011, <<http://www.eupol-afg.eu/?q=press-release>>; and SIPRI Multilateral Peace Operations Database, <<http://www.sipri.org/databases/pko/>>.

¹⁴ North Atlantic Treaty Organization (note 12).

with the training and capability-building of the Afghan National Security Forces.¹⁵

In August 2003 Hungary deployed a battalion of 300 troops to Iraq as part of a multinational force. The Hungarian National Assembly did not extend the contingent's mandate and its members returned home by mid-2005. Approximately 15 Hungarian military personnel remained in the country until late 2008, assigned to the Military Advisory and Liaison Team (MALT).¹⁶ After NATO's KFOR Guard and Security Battalion withdrew from Priština, Kosovo, in August 2008, the Hungarian Defence Force took command of a multinational battalion within the Multinational Task Force–West (MNTF-W) in Peč until March 2009.¹⁷ As of November 2012, 195 Hungarian soldiers were serving in KFOR, with 50 civil police and civil staff in the EU Rule of Law Mission in Kosovo (EULEX Kosovo).¹⁸ In Bosnia and Herzegovina, Hungary played an essential role in setting up and carrying out the activities of the NATO-led Implementation Force (IFOR) and its successors, the NATO-led SFOR and the EU Military Operation in Bosnia and Herzegovina (EUFOR ALTHEA), to which it contributed 163 military personnel in 2012.¹⁹

I. Arms industry policy: liberalism with elements of protectionism

The post-cold war evolution of defence industrial policy

Inspired by an idealized image of pre-World War II Hungary, the centre-right government that came into power in 1990 attempted to recreate a 'golden age' of the Hungarian arms industry. A Military Industrial Office was set up under the Ministry of Economy and Transport (MET) and substantial funds were pledged to save endangered companies and rebuild the domestic base of the arms industry.²⁰ However, the country's economic difficulties mounted and after a few years these plans were abandoned.

¹⁵ Hungarian Embassy in Washington, DC (note 8).

¹⁶ Hungarian Ministry of Foreign Affairs, 'Hungary's role in the stabilisation of Iraq', 1 Sep. 2008, <http://www.mfa.gov.hu/kum/en/bal/foreign_policy/security_policy/hungary_in_nato/hungary_role_in_iraq/>.

¹⁷ North Atlantic Treaty Organization, 'Commitment to operations and missions', 31 Mar. 2009, <http://www.nato.int/cps/en/natolive/topics_52081.htm>.

¹⁸ North Atlantic Treaty Organization, 'Kosovo Force (KFOR): key facts and figures', 30 Nov. 2012, <http://www.nato.int/kfor/structur/nations/placemap/kfor_placemat.pdf>.

¹⁹ SIPRI Multilateral Peace Operations Database (note 13); and Hungarian Ministry of Defence, 'Hungary maintains its presence in Operation EUFOR ALTHEA in Bosnia', 23 Mar. 2012, <<http://www.kormany.hu/en/ministry-of-defence/news/hungary-maintains-its-presence-in-operation-eufor-althea-in-bosnia>>.

²⁰ Hamar, I., Managing director, and Medgyesy, J., Chief advisor, Hungarian Ministry of Economy and Transport (MET), Military Industrial Office, Interview with author, Budapest, 1 Dec. 1993; and Medgyesy, J., Chief advisor, Hungarian MET, Military Industrial Office, Interview with author, Budapest, 10 Feb. 1994.

Hungarian defence industrial policy has since remained largely neutral with no comprehensive guidelines to protect or promote defence-related projects or companies. Arms making occupied a marginal place in the economy and thus had to follow general trends. During the waves of economic restrictions and budget cuts, military expenditure was automatically reduced and commissions cancelled, regardless of the impact that these measures had on the arms industry. During more prosperous periods, slightly more funds were allocated to the sector. Policy guidelines, procurement decisions and measures to downgrade or upgrade weapons and weapon systems have usually been the result of interaction between various, often contradictory, political forces and have frequently been chaotic and short-lived.

The influence of the arms industry's lobby weakened in the first half of the 1990s. This became manifest in various ways, including by the fact that in the large-scale privatization rounds of this period the bulk of arms industry firms were offered for sale on the open market. A small group of companies, however, was not allowed to be privatized. Instead they were supervised by a state holding company, Állami Privatizációs és Vagyonkezelő ZRt (ÁPV ZRt, State Privatization and Holding Company), which fulfilled principally administrative functions and did not undertake company restructuring.²¹ Initially, delayed privatization appeared to be a protective measure that the affected companies hoped would ensure their survival. In some cases companies whose privatization proved to be counterproductive had to be 'rescued': state-owned ÁPV Rt bought back the MFS 2000 Magyar Lőszergyártó SA (Hungarian Ammunition Producing Company, later MFS 2000 Rt) ammunition company, whose private owners had repeatedly changed, in order to save it from bankruptcy. By the end of the 1990s the MET, the MOD and the ÁPV still held the majority of shares in a handful of companies that were considered strategically important or whose privatization had been unsuccessful. However, state agencies had fewer resources to fund these enterprises and the uncertainty surrounding their status and future was seriously destabilizing. In a final round of privatization in the mid-2000s all the remaining arms producers, except those owned by the MOD, were offered for sale.

Defence industrial guidelines advocated a totally hands-off policy, but state agencies were often slow in executing these measures. In addition to preserving or buying back companies to save them from bankruptcy, in the early 1990s the authorities occasionally provided indirect and partial assistance to firms that had managed to survive thanks to their own efforts.

²¹ In Jan. 2008 the holding company was reorganized and united with 2 other state property-managing holding companies to create a new holding company, Magyar Nemzeti Vagyonkezelő ZRt (MNV ZRt, Hungarian State Holding Company). Hungarian State Holding Company, 'The establishment of MNV Zrt', 16 July 2010, <<http://www.mnvzrt.hu/en/archives/establishment.html>>.

Such aid was a far cry from the former systematic channelling of assets, bail outs and hands-on management and support; assistance took the form of facilitated access to credits, partial forgiveness of debt and aid to obtain quality certificates or introduce NATO standards. Limited funding for research and development was also available for projects presented to the MET. State organizations were instrumental in organizing the biyearly C+D: Central European Defence and Aviation exhibition in Budapest, a showcase for Hungarian arms companies.²² State organizations also actively brokered and assisted with offset deals on behalf of companies.

Before the possibility of NATO admission appeared on the horizon the Hungarian arms industry went through a period of natural selection that forced companies to cut assets, streamline activities, reorient external strategies and restructure the way they functioned. Without the supervision and protection of state agencies, many companies were unable to adjust to the rollercoaster of economic transition and left the sector or went bankrupt. Parallel capacities were dismantled; by the end of the 1990s only one or a few companies survived in each branch of the arms industry. Things started to change in the mid- to late 1990s when the prospect of NATO membership and its concomitant demands created high expectations and additional resources for the arms industry. Military expenditure increased, major modernization projects were launched and the new international perspective mobilized both state and company actors. Strong popular support for NATO membership and increased defence budgets made state agencies somewhat more comfortable about assisting companies, at least indirectly. In 1997 the government announced that in order to accelerate modernization of the armed forces 15–20 per cent of the military budget would be earmarked for development. Military experts calculated that 20–30 per cent of this sum, approximately 35–40 billion forint (\$187–214 million) annually, would be spent on domestically produced equipment. In 1992–97, 13 billion forint (\$69 million) was spent on military development. The 2001 budget allocated 35 billion forint (\$122 million) for military technological acquisitions, some of which was expected to be spent on domestically developed products.²³

In hope of obtaining NATO contracts, most Hungarian arms companies began internal restructuring, introduced NATO standards and took steps to acquire ISO and AQAP quality certificates. Some companies, however, postponed restructuring and used the prospect of NATO membership and

²² The exhibition was originally titled Conversion and Defence but the name was changed, which reflected the passing of the period of conversion and the extended geographical coverage of the show.

²³ 'Indulnak a nagy katonai vásárlások' [The large military purchases are about to start], *Világgazdaság*, 7 June 2001.

renewed state involvement as an excuse to put off painful internal reforms, hoping that these changes would automatically resolve their problems.

In the early 2000s government plans still envisaged increasing Hungary's military-related output to 60–70 billion forint (\$210–\$245 million), and state agencies declared their willingness to actively promote the arms industry.²⁴ According to a government proposal for a Hungarian strategic security concept 'to preserve the indispensable defence industrial production capacities is a government-level task, to be accomplished through orders and, if necessary, directly providing resources'.²⁵ In 2001, Béla Takács, the MET official responsible for the arms industry, expressed the hope that the sector would receive 60–70 billion forint (\$210–245 million) worth of orders annually. His calculations were based on the trend of increasing defence budgets, with a greater share spent on technological development, 20–25 per cent of which would be purchased from domestic sources.²⁶

However, structural economic difficulties reappeared again and the enthusiasm generated by NATO membership diminished. Tough budgetary restrictions that were intended to balance the state budget led to substantial cutbacks in military expenditure.²⁷ The MOD had to reduce its commitments and modify or even cancel orders that had been placed. Thus, the arms industry received only a portion of what it had been promised and expected to obtain in assistance and orders, and its attrition continued.

The history of Fegyver- és Gázkészülékgyár (FÉG, Arms and Gas Boilermaking Factory), a Budapest-based handheld-weapon producer with a long industrial tradition, highlights one of the general lessons of this study: a sufficient level of both state assistance and radical company-level restructuring are indispensable for the survival of former state-owned arms industries (see the case study in appendix 4A, section I). State agencies attempted to save FÉG by keeping it state-owned as long as possible, by allocating orders to the company and by providing financial assistance. However, the scope of these interventions was modest and efficient measures to radically restructure were also lacking. The company went bankrupt and closed in 2005.

²⁴ See the interview with Béla Takács in Vigh, G. Z., 'Hetvenmilliárdos hadipari kapacitás 2006 után' [Arms industry capacities worth 70 billion forint after 2006], *Napi Gazdaság*, 19 Oct. 2001.

²⁵ For a summary of the 2000 proposal, 'Kivonat a Magyar Köztársaság honvédelmének egészét érintő stratégiai felülvizsgálat koncepciójáról szóló kormányelőterjesztésből' [Summary of a government proposal for strategic revision of the defence of the Hungarian Republic], see Hungarian State Audit Office (ASZ), *Jelentés a Honvédelmi Minisztérium fejezet működésének ellenőrzéséről* [Report on the functioning of the Ministry of Defence], 0017 (ASZ: Budapest, 2000).

²⁶ Vigh, G. Z., 'Még létezik a magyar védelmi ipar' [The Hungarian defence industry still exists], *Napi Gazdaság*, 8 Oct. 2001.

²⁷ 'HM: Védelmi fejlesztésekre 769,5 milliárd forint' [769.5 billion forint for defence development], Magyar Televízió, 2 Dec. 2004, <<http://www.tvarchivum.hu/?id=10660>>.

Hungary and the EU's Code of Conduct on Defence Procurement

The creation of the European Defence Agency in 2004, particularly the 2005 launch of the Code of Conduct (COC) on Defence Procurement, was a wake-up call for the Hungarian authorities because of its effect on defence procurement policies.²⁸ Its impact was strengthened by the criticisms of Hungary's performance as a NATO member. Policymakers were forced to decide between continuing the hands-off policy that had predominated since the end of the cold war, leaving the domestic arms industry to its fate; and intervening to protect and promote the arms industry in order to make it strong enough to enter international markets with less risk.

Hungary chose the second option. According to István Bocskai, a spokesperson for the MOD, the decision was justified by the country's need for offset agreements, which were considered vital for the domestic arms industry, both as a means of gaining access to external markets and as a catalyst for wider domestic economic development. If the fragile and resource-poor domestic arms industry were to be exposed to the international market, this 'would hurt national interests and endanger the still existing defence industrial cultures'.²⁹

Hungary's official view was that temporarily keeping the country outside the COC arrangement was not a protective measure since by 2006 the Hungarian arms market was open, and exports and imports were significantly regulated. The bulk of arms procured by Hungary was provided by foreign companies. There was little domestic industry left to protect, and the restrictions on direct state intervention in the economy were strict. The Hungarian Government's decision was a belated gesture of solidarity with an industry on the verge of extinction. It was also an attempt to attract foreign direct investment, which had started to slow, by promoting offset deals because most officials felt that the COC guidelines would directly threaten offset arrangements. However, the decision was not followed by action; development budgets and state orders to the ailing arms industry did not increase. The major impact was psychological: defence companies received a long-awaited sign of solidarity from the government.

In April 2007 Miklós Merényi, the MET's State Secretary for International Economic Relations, declared that staying out of the COC agreement had proved to be counterproductive for Hungary and that the government was considering joining, while simultaneously increasing cooperation

²⁸ The Code of Conduct on Defence Procurement of the EU Member States participating in the European Defence Agency, Adopted by the EDA Steering Board 21 Nov. 2005, <<http://www.eda.europa.eu/docs/documents/code-of-conduct-on-defence-procurement.pdf>>.

²⁹ Ruff, O., 'Budapest még nem csatlakozik a katonai közbeszerzési kódexhez' [Budapest will not join the military procurement codex yet], *BruxInfo*, 25 May 2006, <<http://bruxinfo.eu/cikk/20060525-budapest-nbsp-meg-nem-csatlakozik-a-katonai-kozbeszerzesi-kodexhez.html>> (author's translation).

with the domestic defence industry. The government pledged to make public its acquisition plans, assist companies' efforts to participate in international projects and provide certain forms of economic assistance that indirectly would also benefit defence-related firms. While this increased institutional backing for the arms producers, it was not the directly funded measures they sought. Meanwhile, the government expected companies to propose other forms of state intervention and to improve the domestic supplier base by adopting high-tech solutions and improving internal coordination within the arms industry. As a first step towards more intense cooperation the MOD, the MET and the Magyar Védelmiipari Szövetség (Defence Industry Association of Hungary, HDIA), which represents the core arms industry firms, established the Védelmi és Biztonsági Együttműködési Fórum (VBEF, Defence and Security Cooperation Forum), with the aim of promoting the sector and improving cooperation with state agencies. The HDIA is a professional association representing Hungarian arms producers that was created in 1993 and headed until 2011 by Géza Péter Kovács, president of Dunai Repülőgépgyár Rt, the country's only surviving aircraft company. The cooperation agreement reached with the key state agencies was one of the highlights of the HDIA's activity and the association has strived to become an important actor in shaping decisions concerning the sector.

On 1 July 2007 Hungary joined the COC regime.³⁰ Hungary's joining was a signal of its willingness to cooperate with its EU partners on European-level arms production and liberalization of trade. Following the move, the authorities also intensified their pledges to protect the domestic industrial base in the face of increasing international competition.

Restructuring and modernization efforts

In late 2006 the Minister of Defence, Szekeres, launched a large military restructuring project that began with reorganization of the MOD and the armed forces. One important step that directly affected the domestic arms industry was the decision, with significant offset deals attached to it, to upgrade the missiles purchased for the 14 JAS-39 Gripen combat aircraft that Hungary leased from a Swedish–British consortium of Saab and BAE Systems (discussed below). Szekeres also pledged to continue modernizing the equipment used by the armed forces, promising to spend 20 per cent of the MOD's budget on procurement.³¹

³⁰ Hungary announced on 14 May 2007 that it would join the regime from 1 July. European Defence Agency, 'EU ministers pledge action to create integrated and competitive European defence industrial base', News, 19 June 2007, <<http://www.eda.europa.eu/info-hub/news/2007/05/13/>>.

³¹ Lencsés, K. and Dunai, P., 'A magyar modell a NATO-n belül is új' [The Hungarian model is novel even in NATO], *Népszabadság*, 11 Oct. 2006.

On 1 January 2007 the HM Fejlesztési és Logisztikai Ügynökség (MOD Development and Logistics Agency, DLA) was established under the aegis of the MOD from various formerly independent organizations for military-related R&D and procurement. The agency was put in charge of R&D, procurement, planning, logistics and task coordination in the armed forces. The statement presenting the DLA noted that ‘in order to be efficient, the agency will count on the *new* Hungarian defence industry that consists of approximately 50 defence industrial firms active in producing or developing arms’.³² The agency’s main tasks were upgrading air defence, vehicles and the BTR-80 APC; integrating the leased Gripen combat aircraft and the recently acquired air surveillance radar system into the Hungarian armed forces; developing a molecular biological laboratory; and modernizing field command and control. Initially, proposals were advanced to finance the DLA’s projects in a public–private partnership, but that approach was not pursued.

The arms industry was encouraged by these developments and expressed hope that, although the Hungarian armed forces remained unable to order some of its new products, the increased defence budget might be used to finance the development of prototypes that the arms industry was unable to adequately fund. Tamás Ráth, a DLA director who had previously headed the MOD’s defunct Institute of Military Technology, declared: ‘If now someone comes up with a new idea, we would promote it by all means to elevate it to alliance [NATO] or [European] Union level, to gain space in the European market.’³³

At the April 2007 VBEF conference Kovács, speaking in his capacity as president of the HDIA, stated that the government had pledged to elaborate a new arms industry strategy to address Hungary’s inadequate focus on its arms industry and the industry’s potential for development. The goal was a new, sophisticated arms industry built on leading technologies and developments that would be an engine of economic growth and able to supply the armed forces and manufacture products for export. Kovács expressed the view that special state intervention was required for the defence and security sectors because of market anomalies, and state agencies were urged to consider the ‘virtual defence industry’ (i.e. firms that had the potential to produce for military needs even though they were

³² Hungarian Ministry of Defence, ‘Honvédelmi Minisztérium Fejlesztési és Logisztikai Ügynökség’ [Ministry of Defence Development and Logistics Agency], 2 Jan. 2007, <http://www.hm.gov.hu/miniszterium/hm-fejlesztesi_es-logisztikai-ugynokseg> (author’s translation, emphasis added).

³³ Kotsis, M., ‘Lehetőséget kapnak a hazai hadiipari cégek’ [Domestic arms producers will have a chance], Magyar Rádió, 17 Feb. 2007, <http://www.radio.hu/read/214578/2007-02-17_11:52:34> (author’s translation).

not classified as military-related) as a platform for potential contracts.³⁴ Categorizing a firm as part of the virtual defence industry was based on its activity, not its organizational position, and mirrored the realities of the evolving arms industry.

In December 2007 Szekeres promised that the increased defence budget for 2008 would make it possible to increase the funds to be spent on military technology development from 15 to 20 per cent. Szekeres claimed that modernization and restructuring of the Hungarian armed forces had been completed and the country was ready to concentrate its resources on further technological improvements.³⁵ At the third meeting of the VBEF, in December 2009, Zoltán Mester, an MET state secretary, declared that the 'main interest of the Hungarian defence and security industry is to become an internationally competitive, high-tech growth engine of the Hungarian economy. . . . the government has to back the industry with all possible means, in the sphere of regulation, innovation, financing and access to markets'.³⁶

Despite these promises, in reality no significant changes occurred. Although the media and defence industrial actors discussed the 'new' Hungarian arms industry, intensified state backing to arms industry development projects and new procurement opportunities, events evolved differently. A significant gap existed between rhetoric and reality. This is a common phenomenon, but in the context of the Hungarian defence sector it was particularly strong. Arms industry actors had a tendency to project their wishes into politicians' declarations, looking at objectively possible options and treating them as strategic goals. State actors were willing to facilitate the arms industry's metamorphosis with administrative steps, such as the modification of offset regulations or the encouragement of cooperation between companies and state institutions. However, it remained clear that economic preferences would not change—except for occasional assistance and expressions of solidarity, there would be no major capital investments and official participation in the sector's 'revival'. Nonetheless, arms industry actors nurtured the hope that state funding, intervention and foreign direct investment would, at least in part, provide solutions for their long-standing problems and lead to the recovery of the arms-making industry.

³⁴ Kovács, G. P., President of the Defence Industry Association of Hungary, Lecture delivered at the Defence and Security Policy Cooperation Forum [Védelem és Biztonságpolitikai Együttműködési Forum], Budapest, 3 Apr 2007, <<http://www.nfgm.gov.hu/data/cms1232482/kgp.pdf>>.

³⁵ Hungarian Ministry of Defence, 'Nó a haditechnikai fejlesztésekre fordítható összeg' [Defence development budgets will increase], <http://www.vedelmiipar.hu/downloads/Vedelmi_ipar_0802-4.pdf>; and 'Több pénz a működésre és a fejlesztésekre' (note 5)

³⁶ Hungarian Ministry for National Economy, 'Új utakon a hazai védelmi és biztonsági ipar' [The domestic defence and security industry on new paths], ÖNkorNET, 7 Dec. 2009, <http://www.onkor.net.hu/cikk.html?cikk_id=17869> (author's translation).

II. The arms industry

Arms production

Hungarian arms production was reorganized during the reconstruction period after World War II, and by 1953 it was able to supply 70 per cent of the arms needed by the armed forces.³⁷ When Hungary became a Warsaw Pact member in 1955 the arms industry was restructured again to meet the Warsaw Pact's requirements, and by 1970 its size and structure met those needs. In addition to mass production of Soviet-licensed arms and parts, Hungary specialized in telecommunications, vehicle and chemical production.

Between 1970 and 1988 the internal structure of the arms industry gradually changed, mirroring the increasing specialization in telecommunications equipment production. The percentage of production dropped: for weapons (from 15 to 8 per cent), for ammunition (from 22 to 1 per cent), and for vehicles (from 34 to 7 per cent), while the share of telecommunications increased from 25 to 80 per cent. At that time, 70 per cent of the needs of the Hungarian armed forces were met by imports.³⁸ In the middle of the 1980s a major programme was undertaken to extend and modernize the existing production facilities. These investments should have borne fruit in the late 1980s and early 1990s, but the end of the cold war intervened. Instead of producing additional revenues, the investments of the 1980s created a heavy burden for the companies in the form of large stocks of unsold products and parts, unneeded materials and heavy financial obligations.

During the Warsaw Pact period Hungary's arms industry had occupied an important place in the national economy as one of the leading industrial branches and a main exporter. In 1988, its most successful post-World War II year, the Hungarian arms industry had an output of 20 billion forint (\$397 million) and 30 000–35 000 employees, nearly 2 per cent of the country's workforce.³⁹ Military-related production represented 3 per cent of Hungary's industrial output and approximately 1.5 per cent of the processing industry.⁴⁰ Approximately 50 enterprises were directly involved in arms

³⁷ Gömbös, J., 'Hungarian defence industry: past, present and future', eds B. Møller and L. Voronkov, *Defence Doctrines and Conversion* (Dartmouth: Aldershot, 1996).

³⁸ Tótszóllósy, G., 'The past of the Hungarian defence industry', *C&D*, no. 2 (1993), p. 5.

³⁹ 'Megrendelésekkel talpra állítható a hadiipar' [State orders can put back together the arms industry], *Magyar Nemzet*, 1 Mar. 2000; Csobay, J., 'Válságban van-e a magyar hadiipar?' [Is the Hungarian defence industry in crisis?], *Világgazdaság*, 21 Sep. 1990; and Babus, E., 'A Kalasnyikov-ügy: felfegyverző mosoly' [The Kalashnikov case: armed smile], *Heti Világgazdaság*, 14 Feb. 1991. Pre-1989 official Hungarian statistics on the arms industry included only those end producers whose direct weapons, military equipment and other military-related output represented at least 10% of the company's output.

⁴⁰ Szilágyi, B., 'A NATO-tagság nem segített a hadiipar helyzetén' [NATO membership did not help defence industry], *Magyar Hírlap*, 8 Nov. 2001.

production in 1988. Of these, 17 core firms produced 93 per cent of the country's military output. All but one had mixed production profiles with military production ranging from 7.1 per cent to 82.2 per cent of total production, but only five had more than 50 per cent military production. The bulk of core producers were located in Budapest or its outskirts, except for Videoton, whose headquarters were in Székesfehérvár. In addition to the core producers, around a dozen enterprises had military-related production assets, even if they temporarily did not produce military items, and another, much larger, group comprised suppliers to the core arms producers. All of these companies were state owned and were supervised by the Ministry of Economic Affairs or the MOD.

During this period most of the arms industry's products were at the high-tech end of the sector; telecommunications, electronics and precision instruments dominated, while weapons and ammunition represented a lower percentage.⁴¹ The arms industry manufactured 5 per cent of the machinery and 18 per cent of the telecommunications equipment and instruments output.⁴² Arms production had a higher growth rate than the industrial average.⁴³ Following the Warsaw Pact doctrine, parallel production capacities were established in geographically distant regions of the country in order to assure continuity of military supply in case of a Western attack.

After the cold war arms industry output, exports and the size of the workforce fell to less than 10 per cent of what they had been in 1988. The lowest point was reached in 1992–93: a large number of companies went bankrupt and closed, and the bulk of those that survived became insolvent. Although its size had decreased dramatically, by the mid-1990s the arms industry had stabilized somewhat: the decline in output had stopped, exports had increased slightly, several companies had managed to stabilize their positions and some new firms had emerged. By 1995, according to an MET representative, 2500 people were working in the arms industry, which was generating 3.7 billion forint (\$29 million).⁴⁴ By 2000 MET figures showed that output had reached approximately \$40 million, only a tenth of the 1988 record-high level.⁴⁵ According to Ferenc Györfi, a department head at the MET, in 2001 the sector's output reached 14.4 billion

⁴¹ Csobay, J., 'A magyar hadiiparról, pénzügyi szemmel' [The Hungarian defence industry from a financial perspective], *Pénzügyi Szemle*, no. 1 (1990).

⁴² 'Pénz, paripa, fegyver' [Money, horses and arms], Interview with Béla Takács, *Reform*, 25 Nov. 1997.

⁴³ Gömbös (note 37).

⁴⁴ Györfi, F., Hungarian Ministry of Economy and Transport, Official responsible for the defence industry, Interview with author, Budapest, 29 Mar. 2005.

⁴⁵ 'Defence production and R&D: Hungary', *Jane's Sentinel Security Assessment* (Jane's Information Group: Coulsdon, 23 Aug. 2000).

forint (\$50 million) and 2000 staff members were employed.⁴⁶ Compared to 1988, when defence output represented 1.5 per cent of Hungary's industrial production, by 2001 its share had dropped to 0.08–0.09 per cent.⁴⁷

In 2001, 62 companies were listed as involved in defence-related activities, with 40 of these engaged in actual production. Most of these firms were privately owned successors to former large state-owned arms producers. The bulk had a mixed manufacturing profile, and only a few were exclusively military producers. The output structure, size and economic status of these companies varied enormously. By the mid-2000s approximately 10 companies had a clear defence profile, with the MOD as their main customer; another 20 companies were occasional suppliers.⁴⁸ In 2004, 1156 people worked in the arms industry.⁴⁹ In 2005 arms industry output slightly exceeded 20 billion forint (\$100 million), but given the high inflation since the systemic changes started, this figure represented a tiny fraction of the pre-transition output levels.⁵⁰ By 2008 arms industry output had reached nearly 25 billion forint (\$145 million).⁵¹

A 2009 lecture by the HDIA's president reported that most companies continued to struggle with financial difficulties, and state assistance to protect and promote firms was still avidly sought. Opening markets to foreign competition was a threat to most domestic arms producers because few were able to effectively compete in the international market. However, between 2007 and 2009 some changes favoured the arms industry: there was modest foreign investment; the government provided increased assistance to companies; and cooperation between the arms industry, the MOD and the armed forces improved. Nonetheless, the arms industry remained almost exclusively oriented to the domestic market, although its share of that market was only 14–16 per cent.⁵²

According to the government's report on arms exports, 66 firms were involved in military foreign trade and 38 carried out military production in 2009. Output reached €98 million (\$136 million), and 1821 people were

⁴⁶ Györfi, F., 'A GKM pályázatai a védelmi ipar támogatására' [MET projects to assist defence industry], *Magyar Minőség*, 2 June 2004. The US Commercial & Foreign Service 2003 defence market overview listed the amount as 10 billion forint (\$35 million) for 2001. See US & Foreign Commercial Service, 'Hungary: defence market overview', 1 Dec. 2003, <<http://www.trade.gov/cs/>>.

⁴⁷ Szilágyi (note 40).

⁴⁸ Kovács, G. P., General Director, Dunai Repülőgépgyár RT, and President of the Defence Industry Association of Hungary, Interview with author, Tököl, 16 Apr 2006; and 'Törékeny fellendülés a hadiiparban' [Fragile recovery in the defence industry], *Világgazdaság*, 13 Apr. 2006.

⁴⁹ Györfi (note 44).

⁵⁰ Kovács (note 48).

⁵¹ Kovács, G. P., President of the Defence Industry Association of Hungary, Lecture delivered at Védelem-és Biztonságiipari Együttműködési Fórum [Defence and security policy cooperation forum], Budapest, 3 Apr. 2007, <<http://www.nfgm.gov.hu/data/cms1232482/kgp.pdf>>.

⁵² Kovács (note 51); and Kovács, G. P., Lecture delivered at Védelem-és Biztonságiipari Együttműködési Fórum [Defence and security policy cooperation forum], Budapest, 2 Dec. 2009, <<http://www.nfgm.gov.hu/data/cms2019229/5.pdf>>.

employed in the sector.⁵³ According to the 2010 government report, in 2010 output dropped to 19.86 billion forint (\$96 million), 17 per cent less than in 2009. The sector employed 1651 people and exported 27 per cent of its output.⁵⁴ The report on 2011 noted that output had decreased further, by 31 per cent to 14.84 billion forint (\$74 million), with 1497 workers. The industry manufactured land vehicles worth €12.8 million (\$18 million), €12.4 million (\$17 million) worth of electronic appliances and €5.1 million (\$7 million) worth of ammunition; 22.6 per cent of the output was exported.⁵⁵ (The employment figures in the 2012 catalogue of Hungarian arms companies lists the arms industry's workforce as far higher, with more than 7000 employees.⁵⁶)

The combined impact of the new defence industrial policy guidelines, the loss of markets and companies' worsening financial situation led to a significant drop in output and a substantial change in the industry's internal structure. The military telecommunications and instrument production that had been dominant for decades collapsed. The former top producers—Mechanikai Mérőműszerek Gyára (MMG); MMG Instrument and Service Ltd; Mechlabor (Mechanical Laboratory); and the Magyar Optikai Művek (MOM, Hungarian Optical Works)—went bankrupt in the 1990s. Others firms were forced primarily into work assembling non-military products. The once highly successful Videoton became a holding company with diverse activities. It was able to maintain its production of defence-related telecommunications equipment, principally for export to India, but at a substantially lower level. It absorbed the vestiges of Mechlabor and became Videoton-Mechlabor, whose core activity became the assembly of non-military products for large transnational corporations, such as IBM and Sanyo.⁵⁷ Some former telecommunications companies managed to survive, albeit with reduced or modified activities and fewer assets. HM EI ZRt, owned by the MOD, became the largest military-related company in Hungary and flourished. Siemens bought Telefongyár in 1991, carried out major internal restructuring and merged the company into the

⁵³ Hungarian Trade Licensing Office, Authority on Military Industry and Export Controls, *National Report on Arms Export Controls of the Republic of Hungary 2009* (Hungarian Trade Licensing Office: Budapest, [2010]).

⁵⁴ Hungarian Trade Licensing Office, Authority on Military Industry and Export Controls, *Tájékoztató a Haditechnikai és Exportellenőrzési Hatóság tevékenységéről 2010* [Report on the activity of the Authority on Military Industry and Export Controls 2010] (Hungarian Trade Licensing Office: Budapest, [2011]).

⁵⁵ Hungarian Trade Licensing Office, Authority on Military Industry and Export Controls, *Tájékoztató a Haditechnikai és Exportellenőrzési Hatóság tevékenységéről 2011* [Report on the activity of the Authority on Military Industry and Export Controls 2011] (Hungarian Trade Licensing Office: Budapest, [2012]).

⁵⁶ Hungarian Investment and Trade Agency (HITA), *Hungarian Defence Industry 2012* (HITA: Budapest, 2012).

⁵⁷ Megyeri, S., Managing Director, Videoton-Rendszertechnika System-Technics Ltd, Interview with author, Székesfehérvár, 8 Apr. 1994.

Siemens Corporation. The company preserved its profile but fully converted to civil production. A number of prosperous small-scale companies specializing in electronics with promising development potentials have emerged, but thus far their size and impact on the arms industry and the economy has been marginal. In 2002 telecommunications and other relatively high-tech equipment represented just 33 per cent of arms industry output—from a 1988 high of 80 per cent, while small arms, light weapons and ammunition contributed 50 per cent.⁵⁸ Recent output and export figures confirm this tendency. By the first decade of the 21st century, when electronics had established itself at the core of the modern arms industry, Hungary was no longer a leader.

The Hungarian arms industry lagged behind in its adjustment to the dramatic post-cold war changes. Its long-standing structural problems—the missing link between R&D and production, the discrepancy between the equipment produced by the domestic arms industry and that purchased by the Hungarian armed forces, and the arms industry's lack of markets, new technology and capital investment—were not resolved. The bulk of the companies struggled for survival and the few genuinely prosperous ones were either of modest size, such as the firms in the new aviation cluster, or benefited from major state orders, such as Rába. A 2012 analysis describes the sector accurately: 'What remains of the industry may just survive on the back of NATO membership. . . . Defence companies need to specialise in niche capabilities and strengthen their role as suppliers for large international prime contractors like BAE Systems if they are to survive—and thrive—in the long term.'⁵⁹

The Hungarian economy was among the most open in East Central Europe, with a high share of foreign exchange, FDI and foreign ownership; nevertheless, foreign capital played a modest role in the country's arms industry. During the 1990s occasional foreign investments and cooperation with firms outside the region had provided precious additional resources for Hungarian arms producers. International connections were modest and often ad hoc; they were initiated by the industry and until the late 1990s usually developed on the civil production side of the military-related companies. Foreign cooperation and foreign capital inflows received a boost with the emergence of the active state offset policy in 2004, first in the context of the Gripen combat aircraft lease deal (discussed below). Decision makers realized that foreign acquisitions offered a unique opportunity to enhance cooperation and attract external resources into the arms industry. As a representative of the MET put it: 'According to our experi-

⁵⁸ Takács, B., Hungarian Ministry of Industry and Trade, Head of the Department of Defence Industry, Interview with author, Budapest, 8 Apr. 2002.

⁵⁹ 'Hungary: defence production and R & D', *IHS Jane's Sentinel Security Assessment: The Balkans* (Jane's Information Group: Coulsdon, 4 Dec. 2012).

Table 4.1. Basic data on the Hungarian arms industry, selected years 1988–2011
Available data is limited for several years.

Year	Output		No. of core companies	No. of employees	Exports (US \$ m.)	Exports as share of output (%)
	Forint b.	US\$ m.				
1988	21	417	17	18 000	..	..
1993	..	..	..	..	..	21.1
1995	3.7	29	..	2 800	..	..
1998	8	37	..	1 800	..	..
1999	..	..	..	..	..	34.7
2000	8	28	25	..	..	..
2002	12.8	50	..	2 100	6.6	..
2003	17.6	78	..	1 750	4.5	..
2004	..	..	..	1 156	..	..
2005	20	100	..	..	..	..
2008	25	145	..	..	..	..
2009	27.3	137	38	1 821	23.6	..
2010	19.9	96	..	1 651	..	27
2011	14.8	74	..	1 497	..	22.6

Sources: 'Mankó a hadiiparnak' [Crutches for the arms industry], *Világgazdaság*, 25 Feb. 2000 (for 1988–98 and 2000); 'Kormánysegtség a hadiiparnak' [Government help to the arms industry], *Világgazdaság*, 29 June 2000 (for 1993 and 1999); Gyórfi, F., 'A GKM pályázatai a védelmi ipar támogatására' [MET projects to assist defence industry], *Magyar Minőség*, 2 June 2004 (for 2002–2004); Gyórfi, F., Hungarian Ministry of Economy and Transport, Official responsible for the defence industry, Interview with author, Budapest, 29 Mar. 2005 (for employment in 2004); 'Törékeny fellendülés a hadiiparban' [Fragile recovery in the defence industry], *Világgazdaság*, 13 Apr. 2006 (for output 2005); Kovács, G. P., President of the Defence Industry Association of Hungary (HDIA), Lecture delivered at Defence and Security Policy Cooperation Forum, Budapest, 3 Apr. 2007, <<http://www.nfgm.gov.hu/data/cms1232482/kgp.pdf>> (for 2008 output); Hungarian Trade Licensing Office, Authority on Military Industry and Export Controls, *National Report on Arms Export Controls of the Republic of Hungary 2009* (Hungarian Trade Licensing Office: Budapest, [2010]) (for 2009); Hungarian Trade Licensing Office, Authority on Military Industry and Export Controls, *Tájékoztató a Haditechnikai és Exportellenőrzési Hatóság tevékenységéről 2010* [Report on the activity of the Authority on Military Industry and Export Controls 2010] (Hungarian Trade Licensing Office: Budapest, [2011]) (for 2010); and Hungarian Trade Licensing Office, Authority on Military Industry and Export Controls, *Tájékoztató a Haditechnikai és Exportellenőrzési Hatóság tevékenységéről 2011* [Report on the activity of the Authority on Military Industry and Export Controls 2011] (Hungarian Trade Licensing Office: Budapest, [2012]) (for 2011).

ence foreign companies only involve Hungarian firms in the fulfilment of their commitments or are engaged in defence-related development in Hungary, if we oblige them to do so, for example in the framework of an offset deal.⁶⁰ Despite these incentives, the presence of foreign capital in the Hungarian arms industry remained limited.

⁶⁰ Ruff (note 29).

Exports

In 1988, the cold war Hungarian arms industry's most successful year, 76 per cent of its production was exported—60 per cent to the Soviet Union.⁶¹ When the Warsaw Pact markets started to become saturated in the 1980s and economic liberalization began, the arms surplus was sold with remarkable profit margins to allied and neutral developing countries. Arms producers often sold more sophisticated systems abroad than they did in the domestic market.

Following the end of the cold war, the Hungarian arms industry lost its main external markets and military exports decreased significantly, only starting a slight recovery in 1994 (see table 4.1). Nearly \$20–25 million worth of arms were exported from Hungary in 1999, approximately one-tenth of the value of arms exports in 1988.⁶² In 2000 sales fell to \$40 million annually, from \$400 million in 1989. Exports to former Warsaw Pact countries had dropped from 60 per cent of total sales to around just 30 per cent.⁶³ By 2002 approximately one-third of the Hungarian arms industry's 10 billion forint (\$39 million) output was exported. The export structure and destinations had significantly changed. SALW and ammunition became major export items, representing approximately 35–40 per cent of Hungary's arms exports. The main destinations were Germany and the USA, but it was assumed that a considerable portion of the arms sold first on US markets would be re-exported, principally to Latin America.⁶⁴ Under the arms export regulations of the early 2000s sports and hunting weapons were registered under the same heading as military weapons, which may have slightly inflated export figures.⁶⁵

In 2003 arms exports worth a modest \$9 million were reported, with approximately 80 per cent originating from 10 companies.⁶⁶ According to MET data quoted by the Forum of Hungarian Managers, in 2005 SALW and ammunition accounted for approximately 40 per cent of Hungary's arms exports, while around 25 per cent was telecommunications equipment, 25 per cent aviation technology and a small portion tank spare parts, plastics and explosives.⁶⁷ The MET's Merényi stated in the spring of 2007

⁶¹ 'Hadiipar–Védelmet kérnek' [Defence industry—they want to be defended, 27 Jan 1999, <http://fn.hir24.hu/gazdasag/1999/01/27/hadiipar-vedelmet_kernek/>.

⁶² Takács (note 24).

⁶³ 'Hungary: defence production and R & D' (note 59).

⁶⁴ Takács (note 58).

⁶⁵ Gyöngyös, J., Deputy Director, Hungarian Ministry of Foreign Affairs, Department for Control of Defence Industrial Activities, Trade Licensing Office, Interview with author, Budapest, 8 Apr. 2002.

⁶⁶ US & Foreign Commercial Service (note 46).

⁶⁷ Lázin, M. A., 'A magyar hadiipar ma is ütőképes' [The Hungarian arms industry is still ready to strike], Menedzsment Forum, 5 Dec. 2005, <http://www.mfor.hu/cikkek/A_magyar_hadiipar_ma_is_utokepes.html>.

that 90 per cent of the domestic arms industry's output was sold in Hungary.⁶⁸ These data are indicators of both the low competitiveness of the arms industry and its dramatically changed external environment.

In January 2008 the Prime Minister, Ferenc Gyurcsány, visited India and in February the Minister of Defence, Szekeres, accompanied by Hungarian officials and several arms industry representatives, participated in the February 2008 Defexpo India arms fair in New Delhi. On each of these occasions Hungarian officials stressed the importance of relaunching Hungarian–Indian arms industry cooperation, in hope of obtaining a position on India's emerging arms market. In a 2009 interview Szekeres stated that in recent years Hungary had exported weapons for €10–20 million (\$14–28 million) to the key markets of the USA, the Czech Republic, Italy, Germany and India.⁶⁹

According to a 2010 report on export of military and dual-use products, in 1996 Hungary sold €17.7 million (\$23 million) worth of weapons. Arms exports have been decreasing since, reaching a low point in 2004 at €8.9 million (\$11 million) and gradually recovering to €19.65 million (\$26 million) in 2010, a 14 per cent increase compared to 2009. The key markets were the USA, the Czech Republic and Germany.⁷⁰ In 2011 exports dropped to 5.49 billion forint (\$27 million), with a significant drop in US sales and a slight increase in exports to Africa. Approximately 80 per cent of the exported items were produced domestically, while the rest came from the armed forces' stocks or re-export activity. The bulk of export items consisted of ammunition (€9518, \$13 230), alert systems (€2311, \$3210), military software (€1941, \$2700) and electronics (€1453, \$2020). Imports amounted to €17.4 million (\$24 million)—an 8.1 per cent drop compared to 2010—of which public procurement represented 46 per cent; the biggest seller was Germany.⁷¹

In 2010 Hungary attempted and failed to sell 13 retired MiG-29 combat aircraft and seven L-39 jet trainers.⁷² Since 2010 the country has sold more than 10 000 57-mm S-5 aircraft-launched rockets from its surplus stocks

⁶⁸ Hungarian Ministry of Economy and Trade, 'Magyarország Védelmi és Biztonsági Együttműködési Fóruma' [Hungarian defence and security cooperation forum], OpenEU, 5 Apr. 2007, <<http://hungary.openeu.eu/2007/07/10/magyarorszag-vedelmi-es-biztonsagi-egyuettkoedesi-foruma/>>.

⁶⁹ "Én néha már ingerült vagyok": Szekeres a svéd ügyész "sejtelmes" nyilatkozatairól' [Sometimes I get irritated': Szekeres about the 'mysterious' declarations of the Swedish lawyer], *Világgazdaság*, 25 Feb. 2009.

⁷⁰ Hungarian Trade Licensing Office (note 54). For comparison, in 2009 Poland exported weapons for €84.2 million (\$117 million) and Slovakia for €32.4 million (\$45 million).

⁷¹ Hungarian Trade Licensing Office (note 55).

⁷² Haraszi, G., 'Milliárdok a MiG-ekért: az orosz–magyar viszony fokmérője lehet a 24 gép eladásának engedélyezése' [Billions for the MIGs: permission to sell the 24 aircraft can indicate the state of Russian–Hungarian relations], 26 July 2011, <http://mno.hu/migr_1834/milliardok-a-mige-kert-889303>.

for 250 million forint (\$1.1 million).⁷³ Beginning in early 2012 Hungarian defence officials have discussed a 10-year programme to modernize the Indian Army's Warsaw Pact-origin defence electronics equipment for 50 billion forint (\$231 million), but by the end of the year a contract had not been signed.

The history of the Hungarian arms industry: a chronicle of decay

The post-cold war history of the Hungarian arms industry is a history of decay. The initial shock caused by the radical change of political and economic circumstances and defence industrial policy was followed by a slow erosion of companies' assets and the dispersion of core workforce and accumulated know-how. The process started during the hectic years of the 1990s, as in Poland, but continued and became irreversible during the first decade of the 2000s.⁷⁴ It is well illustrated by tracing the trajectory of the sector's key companies (see table 4.2).

In a 1989 article József Csobay, head of department at the Ministry of Finance, publicly presented for the first time an official list of the 17 key Hungarian arms producers that produced the bulk of military output.⁷⁵ In 1993 a catalogue drawn up by the Military Industrial Office of the Ministry of Industry and Trade, was prepared (but not circulated publicly) with the evident intention of protecting and promoting the listed enterprises. The majority of the 68 firms included in the list were created from the vestiges of former traditional large state-owned enterprises. The profiles and composition of the companies reflected Hungary's specialization during the Warsaw Pact period with an accent on R&D (9 companies), telecommunications (7), electronics (12) and precision instruments (5). The catalogue included some companies that had been important traditional producers, but not listed earlier, such as Dunai Repülőgépgyár Rt, Nike-Fiocchi Kft, Füzfőgyártelep, an ammunition producer, and the Rába Magyar Vagon és Gépgyár (Győr), a vehicle manufacturer.⁷⁶ In 2001 the MET published another catalogue of the 58 most important Hungarian arms manufacturers.⁷⁷

⁷³ 'Hungary sells off 57 mm rockets', *Jane's Missiles & Rockets*, 2 Aug. 2012.

⁷⁴ On developments until the late 1990s see Kiss, Y., *The Transformation of the Defense Industry in Hungary*, Bonn International Center for Conversion (BICC) Brief no. 14 (BICC: Bonn, July 1999).

⁷⁵ Csobay (note 41).

⁷⁶ Hungarian Ministry of Industry and Trade, 'Brief presentation of Hungarian companies activated [sic] in the field of military and civilian production', 1st Central European Defence Equipment and Aviation Exhibition and Conference on Conversion, Budapest, Nov. 1993.

⁷⁷ Hungarian Ministry of Economic Affairs, Industrial Department, 'Védelmi ipari tevékenységben érdekelt magyar cégek ismertetője' [Brief presentation of Hungarian companies active in the field of defence industry], 2001.

Table 4.2. The trajectory of the main Hungarian arms manufacturers

In 1988 these Hungarian military producers were listed as constituting the core of the sector.

Organizational change	Workforce (year)	Output (US\$ m.)	Status in 2012
<i>DIGÉP AG (Diósgyőr), changed name to Army-Coop-Diag Kft</i>			
Military division of former SOE became independent company	c. 1 500 (1985) 320 (1997)	c. 35 (1985)	Bankrupt
<i>Fegyver és Gázkészülék gyár (Budapest), changed name to FÉG Army Rt</i>			
Military division of former SOE became independent ltd company	5 000 (1980) 500 (1993) 660 (1997)	12 (1994)	Bankrupt
<i>Danuvia Gépipari Vállalat (Budapest), changed name to Danuvia Gépipari Rt</i>			
Decentralization	5 000 (1973) 197 (1997)	6.3 (1990) 2.3 (1994)	Bankrupt
<i>Bakony Művek (Veszprém), changed name to Bakony Művek Rt</i>			
Major internal restructuring	4 192 (1989) 1 444 (1997)	37.7 (1988) 23.6 (1997)	Converted to civil car spare part production
<i>Mátrafém (Sirok), changed name to MFS 2000, later to RUAG Hungarian Ammotec Inc.</i>			
Military division of former SOE became independent company; MFS Magyar Lőszergyártó Kft, bought by RUAG in 2008	3 700 (1975) 600 (1997) 200 (2005)	0.2 (1997) 5.8 (2003)	Prosperous
<i>Gamma Művek (Budapest), changed name to Gamma Műszaki ZRt</i>			
Major internal restructuring	4 000 (1989) 230 (1994) 180 (1997) 35 (2010)	84.7 (1989) 3.6 (1994) 3.3 (2010)	Satisfactory
<i>Magyar Optikai Művek, MOM (Budapest)</i>			
Mother company went bankrupt, divided into several small successor companies	3 500 (1986) 1 100 (1992) 400 (1997)	79.3 (1988)	In 2008 a successor, Schmidt & Bender Hungaria Optik, employed 80 people
<i>Finommechanikai Művek (Budapest), changed name to FMV Finommechanikai Rt</i>			
Military division of former SOE became independent companies	4 000 (1988) 325 (1997)	79.3 (1988) 11.4 (1994)	Surviving successor firm: HM Radar Rádiótechnikai ZRt
<i>Orion Rádió és Villamossági Vállalat (Budapest), changed name to Yuganskorion</i>			
Major internal reorganizations; bought in 1992 by Russian company Yuganskneftegaz	4 500 (1988) 800 (1992) 240 (1997)	5.4 (1993) 8.2 (1996)	Bought in 1997 by Singapore-based TPL Investments Pte Ltd (Thakral Group)
<i>Videoton (Székesfehérvár)</i>			
Military division of former SOE became independent ltd company within Vidoeton holding company changed name to Videoton- Rendszertechnika Kft	6 000 (1988) 200 (1998) 32 (2010)	9.5 (1994) 3.6 (2010)	Satisfactory

Organizational change	Workforce (year)	Output (US\$ m.)	Status in 2012
<i>BHG Híradástechnikai Vállalat (Budapest), changed name to BHG Híradástechnikai Rt</i>			
Internal reorganization, divided into 3 ltd companies	8 000 (1990) 300+100 +150 (1997)	130.9 (1986) 21.5 (1995)	Bankrupt
<i>Mechlabor (Budapest)</i>			
Videoton Holding bought the remnants of the company and changed name to Videoton- Mechlabor Fejlesztő és Gyártó Kft	2 400 (1988) 200 (1998)	138.8 (1988) 2.6 (1994)	Ceased activity on 9 Dec. 2010
<i>Távközlési Kutatóintézet TÁKI (Budapest), changed name to TKI Távközlési Innovációs Rt</i>			
Major internal restructuring	1 200 (1985) 300 (1993)	2.7 (1993)	Bankrupt, some personnel to Pro Patria Electronics
<i>Telefongyár (Budapest)</i>			
Major internal restructuring; bought by Siemens in 1991, became 100% civil	382 (1997)	91.0 (1997)	Prosperous
<i>Labor Műszeripari Művek, Labor MIM (Budapest)</i>			
			Closed down
<i>Pestvidéki Gépgyár (Tököl), changed name to Dunai Repülőgépgyár Rt</i>			
Military division of former SOE became independent company	2 400 (1989) 1 200 (1990) 600 (1997) 10 (2010)	5.9 (1997) 2.0 (2010)	Stable

SOE = state-owned enterprise.

Sources: Kiss, Y., *The Transformation of the Defense Industry in Hungary*, Bonn International Center for Conversion (BICC) Brief no. 14 (BICC: Bonn, July 1999), pp. 32–33 (for 1988–98); the present volume (for 1999–2011); and Hungarian Investment and Trade Agency, 'Hungarian defence industry, 2012', <<http://www.hit.hu/en/Content.aspx?ContentID=d6b7edb4-17aa-42a4-8d70-470fa0f74895>> (for 2012).

Beginning in the early 2000s the HDIA, instead of ministry departments, started to regularly issue a defence industrial handbook. In 2005, of the 57 companies listed in the handbook many did not actually produce military items. Approximately 15 firms produced military products or provided assistance in such areas as representing foreign firms, providing trade, security, logistics and construction services, and supplying clothing. Some new small-scale R&D firms were also listed as were a handful of high-tech IT and electronics companies.⁷⁸ By late 2009 the companies listed on the

⁷⁸ Defence Industry Association of Hungary (HDIA), *Magyar Védelmiipari Kézikönyv* [Almanac of the Hungarian defence industry] (HDIA: Budapest, 2005).

HDIA's website focused primarily on service, construction and private security, and the bulk of the members were small firms with marginal arms industry activity.⁷⁹ The 2012 online register listed 25 firms; the companies under the MOD were no longer members. In 2012 the state-run Hungarian Investment and Trade Agency published a new online catalogue, 'Hungarian defence industry, 2012', which contained data on 33 companies.⁸⁰ Eight of the listed companies were established after 2000, including BM Heros Ltd—the largest new firm, with a staff of 100, which was established by the Ministry of Interior for vehicle repair and service—and several minor service, trade and security companies. The most important new producer was the private company Pro Patria Electronics Ltd (see the case study in appendix 4A, section VI).

The fate of the key arms-producing companies illustrates the continuous erosion of the Hungarian arms industry base (see table 4.2). Of the 17 firms that represented the core of the sector in 1988–89, 9 went bankrupt or completely changed profile and exited the sector. Some, such as MOM, generated minor successor companies, but none was listed in the arms producers' 2012 catalogue. Távközlési Innovációs Rt and MIKI-Teknowledge Rt, two outstanding military-related R&D institutes that were still active in 2001, went bankrupt and their premises were sold to private entrepreneurs. A small group of the two companies' highly skilled developers joined Pro Patria Electronics.

Three companies managed to survive by maintaining their military-related profile. Gamma Művek had kept struggling under tough conditions until the late 2000s when, thanks to changes in the government's defence industrial policy, it moved to the forefront of the sector. Mátravidéki Fémművek was decentralized and its military division, which specialized in ammunition production, became independent. After several ownership changes it became MFS 2000 and was bought by RUAG in 2008. Videoton-Mechlabor bought the remnants of Mechlabor, once an outstanding R&D company, and maintained a residual military-related production capacity, but the focus of its activity shifted to assembling, rather than manufacturing, non-military products. Among the other major traditional producers, Rába Zrt was relatively prosperous, thanks to a timely diversification and stabilization programme and a major state order. Nike-Fiocchi separated from the Italian company Fiocchi Munizioni, changing its name to Haltec (Hungarian Ammunition and Law Enforcement Technology). It continued to produce ammunition and pyrotechnical devices until 2009 but is no longer listed as a military producer.

⁷⁹ Defence Industry Association of Hungary, <<http://www.vedelmiipar.hu>>.

⁸⁰ Hungarian Investment and Trade Agency (note 56).

The history of Dunai Repülőgépgyár Rt is illustrative of developments in the past 25 years in Hungary's arms industry (see the case study in appendix 4A, section III). In the early 1990s the company was Hungary's only aircraft repair and maintenance facility, with significant assets and experience, enjoying a strategic status that provided a certain amount of protection. However, when domestic orders dramatically diminished and traditional foreign markets vanished, the company was forced to reduce its assets and modify its activities. By the late 2000s the firm had become the shell of an enterprise, with a minimal amount of production assets and core workforce, but possessing significant real estate, know-how, network capital and determined management.

Arms industry companies

In 2012 Hungarian arms industry companies were divided into three groups: (a) privatized traditional companies, (b) state-owned companies under the MOD, and (c) new, private start-up companies (see table 4.3).

Privatized traditional producers

The first group included core arms industry producers, some of which were successors to large-scale, state-owned arms makers. Many of these companies were also active in fields that were not directly related to weapon production.

MFS 2000 is a typical Hungarian arms manufacturer (see the case study in appendix 4A, section IV). Its history illustrates the twists and turns of Hungary's post-cold war arms industry policy, the impact of multiple ownership changes, the lingering dependence on domestic markets, the trial-and-error search for export and cooperation opportunities, and the difficulties stemming from the regional and overall economic environment. The company's capable management slowed the erosion of its assets and enabled it to respond to change, although it was unable itself to initiate change. The changes in ownership—from the state to foreign private venture capital, back again to the state, then to Hungarian private investors, next to Hungarian private venture capital and, ultimately, to a portfolio of foreign professional investors—were typical for companies in permanent search of funds and at the mercy of external factors over which they had limited control. Nonetheless, for MFS 2000 the future appears to hold the prospect of large capital investments, good market connections and professional management.

State-owned companies under the MOD

The MOD owned and controlled four companies that provided military-related production, and repair and maintenance services. All MOD-owned

Table 4.3. Major Hungarian arms companies, 2012

The table lists companies with more than 100 employees or net sales revenue greater than €3 million (\$3.9 million) in 2010.

Established	No. of employees	Net sales revenue (US\$ m.)	Main activity
<i>Arnitel Radiotechnical, Industrial and Trading Company Ltd</i>			
1992	12	3.9	Supply of spare parts, repair and maintenance; modernization schemes for various types of radar, air defence missile systems and anti-armour complexes of Russian origin owned by the Hungarian armed forces
<i>BHE Bonn Hungary Electronics Ltd</i>			
1991	75	4.6	UAVs, high-quality microwave radio altimeter module, low-phase noise synthesizer, microwave technology, satellite communication equipment, radar subsystems
<i>BM Heros Zrt (Ministry of Interior)</i>			
2001	-100	4.9	Fire trucks, special superstructure manufacture; repair of civil cars, trucks respiratory equipment and fire engines
<i>Carinex Ltd</i>			
1993	9	6.4	System integration, HF, VHF/UHF, SHF radio reconnaissance; communication monitoring; audio and video surveillance; data and information protection audit
<i>Fercom Ltd</i>			
1994	35	5.1	Supply and integration of command-and-control centres; tactical defence products; warning systems, Motorola systems
<i>ArmCom Communication-Technical C. Company Ltd (Ministry of Defence)</i>			
1992	113	3.9	Repair and modernization of analogue stable and mobile telecommunications equipment used by the Hungarian armed forces; missiles and missile systems, fire control systems, radars and other equipment; destruction of inactive military equipment; command posts and CIS 'national top secret' and EU and NATO 'secret' information security equipment
<i>Arzenál Electromechanical Company (Ministry of Defence)</i>			
1964	190	5.5	Overhaul and repair of missiles and missile systems, fire control systems, radars and other equipment; calibration activities; destruction of inactive military equipment
<i>Currus Combat Vehicle Technique Company Ltd (HM Currus Gödöllői Harcjárműtechnikai Zrt) (Ministry of Defence)</i>			
1993	250	9.6	Equipment maintenance for the Hungarian armed forces
<i>Electronics, Logistics and Property Management (HM EI Rt) (Ministry of Defence)</i>			
1992	4 000	..	Production of national cryptographic devices, UAV homing devices, technology for removal of arsenic from water, 'oil eater' equipment to purify industrial waste water

Established	No. of employees	Net sales revenue (US\$ m.)	Main activity
<i>Pannon-Flax NyRt</i>			
1988 (1911, predecessor)	174	8.9	Investment and real estate development and textile industries
<i>Pintér Works</i>			
1978	133	9.6	Production of industrial robots, equipment for nuclear power plants, special machines and precision instruments
<i>Rába Axle Ltd</i>			
1896	1 152	97.4	Research and manufacture of axles and axle components primarily for medium and heavy duty trucks, military use, specialty vehicles and buses
<i>Rába Automotive Ltd (Rába Járműipari Holding NyRt)</i>			
1999	182	29.2	Development of all-wheel driven off-road and standard vehicles; development and manufacture of self-propelling bus chassis, other vehicle parts
<i>Respirátor Zrt</i>			
1928	28	4.8	Manufacture of personal respiratory protective equipment, NBC filters, protective suits and other personal protective equipment kits; custom-made personal decontamination systems, casualty decontamination systems and armoured vehicles
<i>Vektor Munkavédelmi Ltd</i>			
1987	87	7.1	Development of special protective garments

CIS = Commonwealth of Independent States, EU = European Union, HF = high frequency, NATO = North Atlantic Treaty Organization, NBC = nuclear, biological and chemical, SAR = synthetic aperture radar, SHF = super high frequency, UAV = unmanned aerial vehicle, UHF = ultra high frequency, VHF = very high frequency.

Source: Hungarian Investment and Trade Agency, 'Hungarian defence industry, 2012', <<http://www.hit.hu/en/Content.aspx?ContentID=d6b7edb4-17aa-42a4-8d70-470fa0f74895>>.

firms were former traditional producers that changed their ownership form from state-owned enterprise to joint stock companies with all stock owned by the state after the end of the cold war. HM Armcom Kommunikációtechnikai Rt, located in Gödöllő, was dedicated to communications technology and repair; HM Currus Gödöllői Harcjárműtechnikai Rt, also in Gödöllő, specialized in armoured vehicle repair (see the case study in appendix 4A, section V); HM Arzenál Elektromechanikai Rt, in Nyírtelek, produced radar and rocket technology equipment, optical instruments and security systems, and repaired and updated computer systems; and HM EI Rt, in Budapest, worked with electronics and military IT production. Each company also had considerable civil production. These four companies

formed a separate bloc in the Hungarian arms industry. Relatively little information about them was public.⁸¹

In the 1980s the activities of the MOD-owned companies began to gradually shift from service and maintenance towards production. In the late 1990s and early 2000s proposals were made to combine the companies into a capital group, as had been done in Poland, but these plans were abandoned. Under MOD procurement guidelines the four companies were not given special priority or treatment in procurement tenders or offset deals.⁸² However, due to their profiles and network of contacts, they had an advantage in the MOD's bids and offsets arrangements.

In the autumn of 2006 Minister of Defence, Szekeres announced that the four MOD-owned companies would be sold, and in May 2007 they were officially offered for sale.⁸³ The authorities hoped to attract private capital, but companies were required to retain their character as primarily manufacturers of military products. Initially, the MOD intended to retain 51 per cent of the companies' shares, but later it abandoned this position. The companies were not sold until the 2010 elections, after which defence industrial policy changed radically (see also section IV below).

The largest Hungarian arms industry company in terms of turnover and staff, realizing revenues of 40.5 billion forint (\$200 million) in 2009 and employing 1979 workers in 2010, was HM EI ZRt. Its principal activities consisted of real estate management, security services, R&D, and electronics and IT. The company was established in 1993 on the foundations of an earlier MOD-owned enterprise, the MOD Electronics Directorate. In addition to supplying the Hungarian MOD, in 1998–99 it delivered and installed a medical facility with 20 beds in Bosnia and Herzegovina (later transferred to Kosovo) for the Norwegian Army. The company also provided logistical and training services for the Danish, Italian, Norwegian and US armed forces that were stationed in Hungary and in the southern Slavic region. According to the economic weekly *Figyelő*, in 2010 HM EI Zrt ranked 141th among Hungarian companies with the highest revenues and 15th among the 20 most efficient state-owned companies.⁸⁴ In the mid-

⁸¹ 'Holdingba szerveződő HM-cégek' [MOD companies to unite in a holding company], *Világgazdaság*, 23 May 2006; and 'Magánbefektetők honvédségi cégekben' [Private investors military firms?], *Heti Világgazdaság*, 2 Aug. 2006.

⁸² Kunos, B., Deputy State Secretary of Defence Economy, Hungarian Ministry of Defence, Interview with author, Budapest, 1 Apr. 2005.

⁸³ See the interview with Imre Szekeres, Minister of Defence, in 'Még az idén elindulhat a hadiipari cégek privatizációja' [The privatization of MOD firms can start this year], *Napi Gazdaság*, 5 Dec. 2006; and HM Zrínyi Kommunikációs Szolgáltató, *Honvédelem a magyar médiában* [Defence in the Hungarian media], Survey compiled for the Department of Communication and Recruitment of the MOD (HM Zrínyi Kommunikációs Szolgáltató: Budapest, 31 May 2007).

⁸⁴ A HM EI Zrt Bemutatása, <<http://www.hmei.hu/>>. In 2005 the company changed its ownership form from Rt (joint stock company) to ZRt (closed joint stock company). 'TOP200: kiderült, melyik cég lett az év vállalata' [Top 200: top company of the year announced], *Figyelő* online, 11 Oct. 2013, <http://figyelo.hu/top_200/hirek/>.

2000s HM EI ZRt's notably businesslike management outsourced several of its activities and set up joint projects with emerging private enterprises to fill niches that had development potential.⁸⁵ In 2010, after the change of government, the company's top management was removed and some were accused of corruption and participating in suspicious business deals. Under new guidelines, the company concentrated its activities on MOD-related tasks, focusing less on profitability.⁸⁶ In 2011 the four companies belonging to the MOD were united in a loose organizational unit that enabled rationalizing and reorganizing their activities. According to HM EI Zrt's vice-CEO, Katalin Hudák, the company employed 4200, while the other three MOD firms employed 500. More than 90 per cent of the firm's activities were conducted for the MOD.⁸⁷

New, private start-up companies

An important group of mostly small- and medium-sized private firms orbits around the core arms industry companies. These were established after the end of the cold war by private entrepreneurs, some of whom had been connected to the arms industry in the past. Others are complete newcomers to the industry. Unlike in Poland, where many similar exclusively defence-oriented private firms exist, in Hungary most of these companies are predominantly civil but have the capacity, know-how, technology and certificates to also meet military orders. Their advantages are their flexibility, the ability to switch rapidly to military production or to adapt their products to the needs of the military. All these companies have NATO supplier status. In 2005 the MOD issued NATO supplier certificates to 300 companies, while 100 achieved qualified supplier status.⁸⁸ Companies that hold these certificates do not necessarily deliver anything to a NATO mission-related task of the national armed forces or to NATO itself but fulfil the pre-conditions for delivery. These companies are mostly active in the automotive, information and communications, pharmaceutical or biotechnology industries.

The new small and flexible companies are able to seize opportunities that the large former cold war-era arms producers are unable to because they have become financially depleted after years of struggling to survive. One of

⁸⁵ Baranyi, J., 'Piackeresés külföldön is' [Looking for markets abroad as well], *Világ gazdaság*, 2 June 2004; and 'A HM EI Rt őrizi a laktanyákat' [HM EI Rt guards the military barracks], *Securifocus*, 18 June 2004, <http://securifocus-dev.dataglobe.eu/portal.php?pagename=hir_obs_reszlet&i=224>.

⁸⁶ See the interview with Lajos Móró, CEO of HM Ei Zrt, in Hernádi, Z., 'A honvédelem nem lehet kockázatos üzlet' [Defence cannot be a risky undertaking], *Demokrata*, 17 May 2011.

⁸⁷ 'Önálló marad a négy hadiipari társaság' [The 4 MOD companies will remain independent], *Biztonsági piac*.hu, 13 Dec. 2011, <<http://biztonsagpiac.hu/onallo-marad-a-negy-hadiipari-tarsasag>>.

⁸⁸ Molnár, S., Head of Hungarian Department of Industry, and Gyórfi, F., Hungarian Ministry of Economy and Transport, Official responsible for the defence industry, Interview with author, Budapest, 29 Mar. 2005.

the most successful Hungarian development products, the Gepárd sniper rifle was originally developed and produced by Bátori Épszolg Kft, a small cooperative in north-eastern Hungary. Bátori Épszolg Kft had struggled with financial and marketing difficulties for decades and was unable to break into international markets with its product. In 2001 a new private company, Sero Kft, was set up that had the necessary resources to develop the weapon further and market it internationally. Sero Kft became an important new player in the Hungarian arms industry, has also provided military services to the Finnish, Turkish and Slovak MODs, and has exported military equipment to Austria, Finland, Greece, Slovakia and Turkey.

SaveAs Kft, a small software company that specializes in electronic data protection and integrated solutions, is another typical arms industry satellite company. The firm obtained NATO supplier status in the hope of opening new markets for one of its main products, EagleEye security software, which was jointly developed by Hungarian and US firms. Another firm, Itea Ltd, specializes in information security and electronic technology and has participated in joint projects with HM EI Rt. This type of cooperation between state and private, Hungarian and foreign, core and marginal, amphibian-like companies that can produce both civil and military products is likely to become one of the principal development paths of the future.

While Dunai Repülőgépgyár Rt—the only remaining cold war-era Hungarian military aviation repair and maintenance company—struggled to survive, a new generation of small aviation companies emerged in the late 1990s. These companies originally manufactured products for the civil market but have the capacity to participate in military projects, such as those conducted under the auspices of the European Defence Agency. They are eager to catch up with developments in the global arms industry and to adapt such development to the needs of East Central Europe. They advocate cooperation among the region's countries, specifically the Czech Republic, Hungary, Poland and Slovakia (the Visegrád Four), in order to participate jointly in international tenders and improve the efficiency of domestic and regional-level supplies. In 2006 a group of these emerging companies set up an industrial cluster that offers a wide range of services, from R&D to manufacturing and consultancy.⁸⁹ (On the new Hungarian aviation companies see appendix 4A, section VII.)

⁸⁹ Dunai, P., 'Hadiipar: nyílik az európai kapu' [Defence industry: the European gate is opening], *Népszabadság*, 24 Feb. 2007; and Hideg, M., 'Overview of the Hungarian Aerospace Industry: research, product development, diversification, collaboration', Hungarian Aviation Industry Foundation, June 2012, <<http://fr.scribd.com/doc/99817954/HAC-AeroOverview-Jun12-En>>.

III. Military expenditure and procurement policy

Public procurement in Hungary is regulated by Law CXXIX of 2003, which was modified by Law LXXI of June 2011.⁹⁰ Public procurement can take place by open tender, restricted tender or negotiated tender with a contractor, and procurement announcements and decisions are public. Exceptions from obligatory procedures are allowed if they are justified by national security considerations. In September 1999 the Hungarian National Assembly approved an amendment exempting certain military procurement deals from the general requirements of the law and giving advantages to domestic subcontractors.⁹¹

Traditionally, the Hungarian arms industry had been oriented towards export, but by the mid-2000s approximately 90 per cent of its output was sold domestically, meeting 10–15 per cent of the needs of the Hungarian armed forces. Representatives of the domestic arms industry struggled to achieve a share of at least 25–30 per cent, or higher in certain areas, of the domestic market, but the gradual liberalization of the market and the simultaneous erosion of the industry did not favour these efforts. State procurement remained vital for domestic producers because of the contracts generated, which enabled them to obtain direct orders or benefit from offset arrangements. In one such example, in 2003 Rába Járműipari Holding Nyrt (Rába Rt, Rába Automotive Group Plc.), a vehicle manufacturer located in Győr, was the major domestic beneficiary of an important procurement deal in cooperation with its non-ECE partners (see the case study in appendix 4A, section II).

In anticipation of Hungary's joining NATO in 1999, procurement budgets increased, but after the early 2000s, even if their nominal value rose, they gradually diminished as a share of GDP. In 1999 military expenditure was 1.65 per cent of GDP, which grew to a peak of 1.83 per cent by 2001, and then dropped to 1.2 per cent by 2006 and remained at around that level through 2008.⁹² Due to the country's mounting financial difficulties procurement budgets have continued to diminish compared to GDP.

According to plans published in 2004, the arms industry expected to receive 3556.3 billion forint (\$17.5 billion) in the period up to 2014 from the state budget but, because of budgetary cuts, only 769.5 billion forint (\$3.8 billion) was allocated. In 2004, 50 per cent of the procurement budget

⁹⁰ Hungarian National Development Agency, 'Közbeszerzési útmutató: közlemények' [Procurement guide: releases], 7 June 2011, <<http://www.nfu.hu/doc/299>>.

⁹¹ Hungarian State Audit Office (ASZ), *Jelentés a Magyar Honvédség közbeszerzési rendszere működésének ellenőrzéséről* [Report on the Control of the Public Procurement System of the MOD], 0451 (ASZ: Budapest, Nov. 2004).

⁹² Szenes, Z., 'Válaszúton a magyar biztonságpolitika' [Hungarian security policy at a crossroad], *Új Honvédségi Szemle*, 5 Dec. 2005.

was still being spent on personnel.⁹³ According to the MET's Merényi, in 2005 the size of the Hungarian military market was €106 million (\$132 million), a fraction of the €35.4 billion (\$44 billion) EU military market.⁹⁴ In 2012 personnel costs still represented 48.6 per cent of the budget and development received a modest 12.9 per cent, which included the leasing payments for the Gripen aircraft.⁹⁵

In order to finance military procurement, Hungary sought external funding from NATO's NSIP. As of 31 December 2010 NATO had provided approximately €117 million (\$155 million) to Hungary for specific development projects.⁹⁶ The USA has been another important source of military financing. Since 1996 the US Government has provided Hungary with Foreign Military Financing grants that are to be spent on items chosen by the Hungarian MOD but manufactured in the USA. As of 2010 Hungary had received \$7.77 million in such aid.⁹⁷ After the collapse of Comecon, Russia's considerable debt to Hungary was met by providing arms: for a debt of \$900 million the country received 28 MiG-29 combat aircraft with supply systems and spares.⁹⁸

Procurement projects

In order to modernize its ageing military arsenal, the majority of which had been produced during Hungary's membership of the Warsaw Pact, four major military procurement projects were planned in the late 1990s, the largest of which was the modernization of Hungary's fleet of aircraft. In November 2001, 14 JAS-39 Gripen combat aircraft were leased from Saab and BAE Systems. In 2003 the deal was modified so that Hungary received more up-to-date aircraft and agreed to purchase them when the period of leasing was over. The value of the original contract was 211 billion forint (\$737 million), but the modifications nearly doubled that amount. The aircraft were delivered in 2006–2007.⁹⁹ The decision to acquire the Gripen had been made on economic grounds and contrary to the wishes of the

⁹³ HM: Védelmi fejlesztésekre 769,5 milliárd forint' (note 27).

⁹⁴ Hungarian Ministry of Economy and Transport (note 68).

⁹⁵ 'A honvédelmi költségvetés növelését tervezi a kormány' [The government plans to increase the military budget], *Haditechnikai Kerekasztal*, 30 June 2012, <<http://htka.hu/2012/06/30/a-honved-elmi-koltsegetes-noveleset-tervezi-a-kormany/>>.

⁹⁶ North Atlantic Treaty Organization (NATO), International Board of Auditors, *Report on the Audit of the NATO Security Investment Programme for the Year 2010* (NATO: Brussels, 25 Nov. 2011), p. 15.

⁹⁷ An estimated \$10 million was allocated for 2010, with the same amount requested for 2011. US Department of State, 'Foreign military financing account summary', 23 June 2010, <<http://www.state.gov/t/pm/ppa/sat/c14560.htm>>.

⁹⁸ Szabó, M. I., 'Gripmadártörténet: visszapillantás a vadászgéptenderre' [The story of the Gripen-bird: looking back at the aircraft tender], *Magyar Narancs*, 3 Nov. 2005.

⁹⁹ 'Gripen multirole fighter aircraft, Sweden', [airforce-technology.com](http://www.airforce-technology.com/projects/gripen/), <<http://www.airforce-technology.com/projects/gripen/>>.

military, which would have preferred the F-16 combat aircraft used by the US Air Force. The agreement included an attractive 110 per cent offset package and Saab–BAE Systems did not seek to have its preliminary investments of approximately \$860 million included in the offset calculations.¹⁰⁰ In early 2012 Hungary renewed the contract and will continue leasing the Gripen aircraft until 2026.¹⁰¹ The total value of the lease is 340 billion forint (\$1.5 billion) and pilot training is worth another 58 billion forint (\$257 million).¹⁰²

In addition to the aircraft, the MOD planned to buy weapons worth 28 billion forint (\$98 million) to equip them. In December 2004 Hungary purchased missiles from US-based Raytheon, targeting pods worth \$11 million from the Israeli–German consortium Rafael and Zeiss in January 2006, and radio systems for \$9.5 million from the German companies Rohde and Schwarz.¹⁰³ In late 2007 Swedish journalists reported irregularities and corruption in connection with Hungary’s purchase of the Gripen, and Hungarian authorities also launched an investigation to clarify the circumstances of the decision making.¹⁰⁴

The second procurement project aimed to modernize Hungary’s obsolete military vehicle fleet. In 2001 a tender valued at 230 billion forint (\$803 million) was announced for 2001–15 for 12 000 vehicles in three categories: buses, light military vehicles and transport vehicles. However, due to budget cuts and downsizing of the armed forces as a result of the military reform, the order was reduced to 8000 vehicles.¹⁰⁵ In 2003 it was announced that the Budapest-based Ikarus Trade Kft had won the contract for supplying the buses, which contained a relatively high proportion of domestic components.¹⁰⁶ Hungarian Rába Rt, and its subcontractors Rheinmetall MAN Military Vehicles GmbH (RMMV) and Mercedes-Benz, won the bid for production of light military vehicles.¹⁰⁷ This was the only important procurement contract won by a Hungarian arms industry firm,

¹⁰⁰ Lázár, G., ‘A Gripen-ügy’ [The Gripen affair], *Élet és irodalom*, 7 Dec. 2007.

¹⁰¹ Hoyle, C., ‘Hungary signs Gripen lease extension deal’, *Flightglobal*, 30 Jan. 2012, <<http://www.flightglobal.com/news/articles/hungary-signs-gripen-lease-extension-deal-367539/>>.

¹⁰² Hungarian News Agency (MTI), ‘Hungary begins renegotiating Gripen contract with Sweden’, *politics.hu*, 30 Dec. 2011, <<http://www.politics.hu/20111230/hungary-begins-renegotiating-gripen-contract-with-sweden/>>.

¹⁰³ Hungarian News Agency (MTI), ‘Defence ministry signs contracts worth USD 205m to outfit’, *Europe Intelligence Wire*, 4 Jan. 2006.

¹⁰⁴ Lázár (note 100); and Szentkirályi, B., ‘Elpazarolt Gripen-milliárdok’ [Wasted Gripen billions], *Index*, 21 Sep. 2010, <http://index.hu/gazdasag/magyar/2010/09/21/elpazarolt-gripen-milliardok-_mi_lett_a_gazdasagelenkitessel/>.

¹⁰⁵ Molnár and Gyórfi (note 88); and Romvári, F., Deputy Director for Government Relations, Rába Járműipari Holding Nyrt, Interview with author, Győr, 21 Apr. 2006.

¹⁰⁶ Hungarian News Agency (MTI), ‘Ikarus Trade wins contract to supply buses to Hungarian armed [forces]’, *Europe Intelligence Wire*, 16 Jan. 2003.

¹⁰⁷ Hungarian News Agency (MTI), ‘Az Ikarus, Iveco és Rába trió nyert a honvédségi tenderen’ [The trio of Ikarus, Iveco and Rába won the military vehicle tender], *Origo*, 14 Jan 2003, <<http://www.origo.hu/gazdasag/hirek/20030114azikarus.html>>.

although the foreign content of the final products was high. The tender in the third category was won by the Italian company Iveco, but the awarding of the contract was contested and it was suspended.¹⁰⁸

The third major procurement project focused on upgrading Hungary's Warsaw Pact-origin weapon systems, principally the MiG-29 combat aircraft and the T-72 main battle tanks, at a cost of \$300–400 million. To replace its fleet of ageing MiG-29 combat aircraft Hungary chose Czech-made Aero L-159 training/light combat aircraft, apparently because it could not afford 14 more Gripens, at a cost of about 145 billion forint (\$697 million), but they were never purchased. In addition, the Hungarian MOD had expected to spend 28 billion forint (\$135 million) to equip the Aero L-159s.¹⁰⁹ However, the global economic crisis that began in 2008 suspended most procurement projects.

The fourth project, costing approximately 80 billion forint (\$373 million), was modernization of the armed forces' telecommunications and information systems. In 1998 the German company Siemens won the private branch exchange (PBX) tender, and in 2007 the Hungarian MOD signed a contract with the Norwegian company Kongsberg Defence Communications to purchase an army-wide radio system. Initial plans had envisaged the purchase of 9312 sets, but budget cuts reduced that number to 4050 and the value of the deal to approximately 15 billion forint (\$82 million). During negotiations Kongsberg offered 180 per cent offset and work assembling non-military products for Videoton-Mechlabor.

Hungarian defence procurement has mostly been from suppliers in the EU, despite tempting offers and political pressure from US government and business circles. This orientation is somewhat surprising given the strong Atlanticist commitment that has characterized Hungary's post-cold war foreign policy. Hungary's procurement choices have been inconsistent and probably reflect domestic power struggles. In recent years there has been a clear intention to create a balance between potential suppliers. Major procurement decisions in favour of European companies have often been compensated for by awarding follow-up deals to US partners. For example, although the Saab–BAE Systems consortium won the combat aircraft contract, most of the weapon systems for the aircraft were of US origin.

An important landmark was the purchase in early 2007 of the FlyEye UAV system, which could be mounted on a Mercedes-Benz jeep, from the Polish company WB Electronics. This was the first significant post-transition procurement contract that was awarded to an ECE company. Other competitors for the contract included the Israeli companies Elbit

¹⁰⁸ 'Ajánlat terepjárók szállítására' [Offer to supply all-terrain vehicles], *Világgazdaság*, 28 July 2004.

¹⁰⁹ Czech News Agency (ČTK), 'Hungary still ponders L-159s lease, Czech govt does not debate it', *Europe Intelligence Wire*, 1 Mar. 2010.

Systems and Israel Aerospace Industries (IAI). Industry analysts maintained that the Polish company had won thanks to the quality and technical characteristics of the product and favourable delivery conditions, not because of price considerations.¹¹⁰

Offsets

Hungary was a pioneer in Eastern Europe in introducing offset deals that were connected to its major military procurements. Offset was always considered to be a legitimate tool for attracting FDI and technology transfers. As in the case of many other resource-poor countries, Hungary intended to channel incoming resources to the sectors of the economy that it desired to develop most. As early as 1996 the British–French consortium Matra BAe Dynamics won a tender for ground-to-air missiles and tracking systems worth \$100 million that had an offset clause. According to Hungarian sources, Matra BAe Dynamics carried out investments and purchases equal to the purchase price.¹¹¹

Under an April 1999 government decree, every defence-related procurement deal with a value higher than 1 billion forint (\$4.2 million) was required to be accompanied by an offset package. Offsets could take the form of subcontracts for or investment in Hungarian firms, or facilitation of Hungarian exports. In 1996 the MET developed a point system that reflected the government's economic policy choices in the evaluation of offset offers. Investments in certain industrial branches (electronics, telecommunications, transport and vehicles) and in certain, principally underdeveloped, regions of the country were given a higher value than other projects.¹¹²

In 2004 the policy guidelines for offsets were revised in order to stimulate technology transfer and innovation and to develop a domestic supplier system able to benefit from FDI and produce export items. Under the new guidelines, 20 per cent direct offset was requested in all contracts. The MOD adapted a proposal by the HDIA that included civil–military and purely civil companies among the potential recipients of offsets. This change meant a wider interpretation of what constituted the arms industry. Another modification allowed considering maintenance, logistic or training services as potential offsets—a reaction to the major changes that were

¹¹⁰ Holdanowicz, G., 'Mini-UAV SOFAR finally in Hungary', 9 Sep. 2007, <<http://www.militaryphotos.net/forums/showthread.php?119768-Reconnaissance-systems-for-Hungarian-Army>>.

¹¹¹ Peredi, A. and Horvath, G., 'A hadiiparban is vége a csődhullámnak' [The wave of bankruptcies is over in the defence industry as well], *Népszabadság*, 8 Oct. 1998. In 1997 Matra BAe Dynamics concluded an agreement to sell Mistral air defence systems and related equipment valued at \$100 million to Hungary. 'Matra BAe Dynamics', *Aviation Week & Space Technology*, 14 Apr. 1997, p. 23.

¹¹² Szabó, S., Director, and Szilágyi, A., Chief adviser, Ministry of Economy and Transport, Offset section, Interview with author, Budapest, 21 Oct. 2005.

occurring in the global arms industry and, at the same time, reflecting the absence of strong Hungarian arms producers able to fulfil offset agreements as producers of subsystems and parts.¹¹³

Offsets gradually became an increasingly important factor in the selection of potential procurement partners, and offset offers were sometimes more important than the quality, price or other parameters of competing products. According to Sándor Szabó, the head of the Offset Department of the MET, offset offers had a 20–30 per cent impact on decision making about procurement.¹¹⁴ Several cases, however, indicated that their role was more important; sometimes they were decisive. Explaining the choice of the Gripen combat aircraft that came as a surprise, since F-16s were expected to win the tender, the Minister of Economics, György Matolcsy, stressed that the government preferred the Swedish proposal, because it ‘strengthened European integration endeavours and it offered wide-ranging economic ties that offset the costs of cash payments’.¹¹⁵ In 2009 offset regulations were again rewritten in order to harmonize the system with the EDA codes and also to channel resources more efficiently to the arms industry, knowledge-based production branches and sectors that might contribute to the establishment of the European Defence Technological and Industrial Base.¹¹⁶

Offset offers promised much-needed additional resources for arms companies and the economy. However, promises made during negotiations were not binding and even signed contracts were not always fully honoured because conditions and partners on both sides kept changing during the long service periods. In addition, in Hungary some offset obligations were met through services, training and access to electronic information or marketplaces, the impact of which is more difficult to evaluate than trade or investments.

According to Szabó, 18 offset programmes had been started in Hungary since 1995 at a value of €1.2 billion (\$1.6 billion). As of May 2010, nine had successfully closed with an overall fulfilment of €0.9 billion (\$1.2 billion), and nine projects remained, worth €0.3 billion (\$0.4 billion).¹¹⁷ Hungary’s major offset agreement deals included the Gripen contract, valued at 211 billion forint (\$737 million) with offsets worth 110 per cent of the

¹¹³ Government decision no. 228/2004 (VII. 30) on procurements involving the acquisition of goods specifically designed for military and public order purposes and service contracts in the field of defence which concern the fundamental interests of the country’s security, <<http://government.defenceindex.org/sites/default/files/documents/Hungary-government-response.pdf>>.

¹¹⁴ Szabó and Szilágyi (note 112).

¹¹⁵ ‘Svédország nyert a vadászgép-tenderen’ [Sweden won the fighter aircraft tender], *Jetlag’s Reptér*, 10 Sep. 2001, <<http://repter.adatpark.hu/cgi-bin/hir.php?hid=19>> (author’s translation).

¹¹⁶ ‘Megújultak az ellentételezés általános szabályai’ [The general offset rules are renewed], *Világgazdaság*, 28 Jan. 2010.

¹¹⁷ ‘Interview with Dr. Sandor Szabo, Director general, Hungarian Ministry for National Development and Economy’, *Epicos Newsletter*, vol. 2, no. 20 (19 May 2010).

monetary value of the deal. In 2003 the MOD concluded a \$200 million contract with a 180 per cent offset with Kongsberg Defence Communications for the delivery of radio sets. In 2006 a project to supply the Gripen combat aircraft with up-to-date weapons led to further offset deals. Six contracts were signed at an estimated value of \$20 million, among them one with Raytheon that included a 100 per cent offset for the purchase of advanced medium-range air-to-air missiles (AMRAAMs). Part of the offset deal with Raytheon included the introduction of 80 Hungarian firms into the Epicos programme, an electronic information portal for the aerospace and arms industries.¹¹⁸ A deal with the Rafael–Zeiss consortium for aviation electronics included 100 per cent offset, some in the form of training for Hungarian aviation electronics developers and designers in Israel.

Other offset projects included the establishment of a service centre in Nyírtelek, in north-eastern Hungary, for the maintenance and service of the Maverick missiles with which the Gripen is armed. Hungarian sources expressed hope that the new centre would become a regional hub since the Czech Republic and Poland had bought the same weapons and other neighbouring countries were considering doing so.¹¹⁹ The German company Rohde & Schwarz, which supplied the radio sets for the Gripen, also pledged to enlarge its facility in Hungary. In early 2006 Boeing, the main contractor for the modernization of NATO aircraft equipped with the airborne warning and control system (AWACS), signed an offset agreement with Hungary worth \$10 million.¹²⁰ According to an MET presentation, as of July 2007 military procurement-related imports represented 232 billion forint (\$1.26 billion), while offset obligations had reached 279 billion forint (\$1.52 billion) of which 248 billion forint (\$1.35 billion) was fulfilled (see table 4.4).¹²¹

The fulfilment of the 191 billion forint (\$918 million) offset commitments related to the Gripen deal has been rapid, partly due to the performance of the Swedish companies that were established in Hungary before the contract was signed. Electrolux made two investments that represented nearly 94 per cent of the contract value: a refrigerator-manufacturing company in

¹¹⁸ European Finance Associates (EFA) Group of Companies, 'The Ministry of Economy and Transport of Hungary approves industry integration project through the global emarketplaces Epicos and Exostar', 28 July 2004, <<http://www.efagroup.gr/press/epicos/hungary.htm>>; and Dunai, P., 'Már nemcsak durran-pukkan' [Not only those that explode and make noise], *Népszabadság*, 28 Nov. 2005. Epicos is a global service for industrial cooperation and offsets for high-tech industries. Epicos, <<http://www.epicos.com>>.

¹¹⁹ Dunai, P., 'Gripen-ellentételezés: közelítenek a kétharmadhoz' [Gripen offset: close to 2/3], *Népszabadság*, 19 June 2006.

¹²⁰ 'Value of Hungarian military offset agreements reaches HUF 260 bln by end-'05', Interfax Central Europe, 29 Dec. 2006.

¹²¹ Hungarian Ministry of Economy and Transport, State Secretariat for International Economic Relations, Offset and Investment Unit, 'Offset in Hungary', Presentation, 3rd International Seminar on Offset and Industrial Cooperation, Jerusalem, 7–9 May 2007.

Table 4.4. Main Hungarian offset deals, as of July 2007

Company	Contract year	Offset obligation (%)	Offset obligation (US\$ m.)
Matra Defense	1999, closed 2001	100	109
Gripen International	2001, modified 2003	110	1 040
Kongsberg Defence Communications	2003	180	240
Rába Járműipari Kft	2003	170	103 (as of 2007)
Ikarus-Trade Kft	2003	100	..
Raytheon	2005, closed 2006	100	20
HM Currus	2005	100	..
VIV Rt	2005	100	..
Carl Zeiss Optronics	2005	100	15
Rohde & Schwarz GmbH	2005	112	13
Diehl-Raytheon Missile	2006	100	14
Raytheon	2006	100	21
Gripen International	2006	..	9 (additional)
Rheinmetall	2006	100	8
MBDA France	2006	100	11

Source: Reproduced with minor changes from Hungarian Ministry of Economy and Transport, State Secretariat for International Economic Relations, Offset and Investment Unit, 'Offset in Hungary', Presentation, 3rd International Seminar on Offset and Industrial Cooperation, Jerusalem, 7–9 May 2007, p. 12.

Nyíregyháza in north-eastern Hungary, and a facility in the central city of Jászberény to manufacture vacuum cleaners. Hungarian authorities also directed offsets towards SMEs, and contracts were signed with SMEs that produce plastic, vehicle parts, air filters, and telecommunications and wood-processing equipment. Other investments targeted knowledge-based and R&D-related activities in cooperation with the Swedish companies Ericsson, Astra and Semcon.¹²²

By early 2008 Saab had invested \$706 million in the Hungarian economy via the Gripen combat aircraft deal.¹²³ The total value of the deal was 251 million Swedish kronor (\$38 million), of which 12 million kronor (\$1.8 million) covered investments and 239 million kronor (\$36 million) represented exports. The Gripen offset agreement was completely fulfilled, ahead of schedule, by March 2008. Its final value reached 7.4 billion kronor (\$1.1 bil-

¹²² Gergely, Z., 'Kibekkelte a Gripen a csodaváró magyarok rohamát' [Gripen had the patience to outwait the flurry of miracle-hungry Hungarians], Origo, 14 Nov. 2007, <<http://origo.hu/itthon/20071113-nem-mutatta-meg-a-gkm-a-gripen-beszerzes-ellentetelezesi-megallapodasat.html>>; and Gergely, Z., 'Félidőre letudta magyar exportját a Gripen' [Gripen fulfilled its Hungarian export in half time], Origo, 21 Nov. 2007, <<http://www.origo.hu/itthon/20071120-teljesitette-az-ellentetelezesi-megallapodasbol-kovetkezo-exportkotelezettsegeit-a-gripen-international.html>>.

¹²³ Smith, K., 'Hungary cashes in with Gripen offsets', *Jane's Defence Industry*, 1 Feb. 2008.

lion). Both Hungarian Government and Saab representatives expressed their satisfaction and the hope that cooperation would continue.¹²⁴

Hungarian arms industry actors expressed disappointment because the bulk of the offset deals—practically all those linked to the Gripen combat aircraft deal—went to the civil sphere. The authorities also stressed that few Hungarian companies would qualify to receive investments or participate in military-related developments with foreign companies. Due to modifications of the offset policy, the contracts that were signed in the mid-2000s channelled more investment and cooperation possibilities towards the arms industry, particularly MOD-owned companies and privately owned firms that carried out both civil and military activities. The acquisition of Sidewinder missiles from Diehl Raytheon Missile Systeme GmbH in 2006 included a 100 per cent direct offset package for the establishment of a logistics and maintenance facility for the armed forces. The purchase of Maverick missiles from Raytheon Missile Systems in 2006 also promised 100 per cent direct offset in the form of technology transfer, possible subcontracting and marketing support to third countries for HM Arzenál, one of the Hungarian MOD firms.¹²⁵ In 2008 Raytheon and HM Arzenal set up a missile maintenance joint venture in Nyírtelek, Arzenal's base.

IV. Recent developments

In early 2010 a series of newspaper articles revealed widespread corruption in the higher echelons of the military establishment. Several key people were removed from the armed forces and the MOD-controlled institutions, including arms companies.¹²⁶

After regaining power in the April 2010 elections, the Fidesz–MPP government immediately replaced the entire management of the MOD and the armed forces. The new leaders of the MOD published a white paper on abuse and singled out widespread outsourcing and ambiguous accountability as leading to corruption. Criminal processes were started against some perpetrators.¹²⁷ The entire defence establishment was reshuffled and new defence policy guidelines were introduced with primary focus on reconstruction of the country's arms industry as a major employer, an

¹²⁴ Gripen International, 'Saab/Gripen team completes Hungarian offset contract: the Gripen industrial co-operation obligation in Hungary has now been completed', News release, 15 Aug. 2008, <http://www.gripen.com/en/MediaRelations/News/2008/080815_Hungarian_offset_contract.htm>.

¹²⁵ Szabó, S., Hungarian Ministry of Economy and Transport, 'Az ellentételezés céljai és eredményei Magyarországon' [The targets and results of offset in Hungary], Presentation, [n.d.], <<http://www.nfgm.gov.hu/data/cms930489/ellentetelezes.pdf>>; and 'Raytheon sets up missile maintenance JV in Hungary', *Budapest Business Journal*, 12 Sep. 2008.

¹²⁶ 'Szekeres utolsó töltényig kitart' [Szekeres persists until the last bullet], *Világgazdaság*, 26 Feb. 2010.

¹²⁷ Hungarian Ministry of Defence (MOD), *Korrupció, átvilágítás és büntetőjogi konzekvenciák* [Corruption, audits, legal consequences], White paper (MOD: Budapest, 2011).

important contributor to GDP and a means to establish new technologies. Gábor Márki, the MOD's deputy state secretary for defence economy stated: 'We have to be able to manufacture in Hungary what is possible—and necessary—to produce domestically. We have to be able to find a place for the Hungarian products, produced by Hungarian workers . . . in the very competitive world market for arms.'¹²⁸ The Minister of Defence, Csaba Hende, declared that 'it is very meaningful if a country is able to arm its national armed forces with the products of its own machinery industry, because this would not harm the balance of payment and, at the same time, would create or preserve employment. In addition, the defence industry is technologically more advanced than civil technology, so in this sense the sector has a leading role.'¹²⁹

According to Attila Zsitnyányi, the newly elected president of the HDIA, the new guidelines proposed introducing military-related production in those areas where the civil industry was highly developed, for example in vehicle, instrument, electronics and IT production. 'The political decision to reorganize the internal market, where it is possible, with import substitution, brings fruit even in the short term. This solution would lead to spectacular development, even without external resources, but the intention is not enough, we need proper domestic products as well.'¹³⁰ The government's new policy to promote domestic production and procurement aimed to help the Hungarian arms industry to recover and occupy 'the place it merits' on the world arms market. The HDIA sought to switch the focus of its activities from representing its members' interests to active lobbying and marketing.¹³¹

The top managers of the four MOD-owned companies (HM EI, HM Armcom, HM Currus and HM Arzenál) were dismissed and new directors and boards of management were appointed, filled principally with representatives of government institutions. In April 2012 the four companies were united in the Magyar Védelemgazdasági Klaszter (Hungarian Defence Industrial Cluster) in order to jointly participate in major Hungarian and international military procurement tenders, supply equipment to the

¹²⁸ Hungarian Ministry of Defence, 'Meg kell találnunk a rejtett forrásokat' [We have to find the hidden sources], Press release, 8 June 2012, <<http://www.kormany.hu/hu/honvedelmi-miniszterium/vedelemgazdasagert-felelos-helyettes-allamtitkarsag/hirek/meg-kell-talalnunk-a-rejtett-forrasokat>> (author's translation).

¹²⁹ 'Rába-vásár: saját gépiparral szerelhető fel a hadsereg' [Rába sale: the army can be equipped with its own machinery industry], *Gazdasági Rádió*, 18 Nov. 2011, <<http://gazdasagiradio.hu/cikk/70877>> (author's translation).

¹³⁰ 'Előnyt hoz a külföldi termék kiváltása' [Import substitution is advantageous], *Magyar Hírlap*, 20 Mar. 2012 (author's translation).

¹³¹ 'Újra helyzetbe kerülhet a magyar hadiipar' [The Hungarian military industry can have a new chance], Interview with Attila Zsitnyányi, President of the Defence Industry Association of Hungary, 20 Mar. 2012, *Biztonságpiac.hu*, <<http://biztonsagpiac.hu/ujra-helyzetbe-kerulhet-a-magyar-hadiipar>>.

national armed forces and upgrade its equipment. Rába Járműipari Nyrt was expected to join later.¹³² Until 2010 the four MOD firms were HDIA members, but they are no longer listed on the association's website. In August 2010 a new director and new management were appointed to head the MOD's Development and Logistics Agency, but in January 2011 the agency was replaced by a new state agency, the HM Fegyverzeti és Hadbiztosi Hivatal (MOD Armament and Military Commissary Office). In late 2011 MNV Zrt bought the majority of shares in Rába Járműipari Nyrt and a new president—Zoltán Borbíró, deputy state secretary of the MOD and head of the four MOD-owned companies united in the Magyar Védelemgazdasági Klaszter—was chosen to head the completely reshuffled board of directors and management.¹³³

In early 2012 the Hungarian Government announced its strategic Hadik plan to revive arms making.¹³⁴ According to the publicly available information on the plan, it aims to concentrate on relaunching the production of certain weapons, especially those in the fields of military electronics and ammunition, on boosting arms exports, particularly through a planned 50 billion forint (\$222 million) Indian deal, and on raising funds, by selling or commercially exploiting the army's assets, including its still considerable real estate holdings. The plan also anticipated re-nationalizing military vehicle production, creating a holding group of MOD-owned companies and establishing military-related industrial clusters.¹³⁵ (These latter measures had, in fact, already been accomplished by the time the plan was made public.)

Government representatives declared that the sector should aim to become 'self-financing' by generating revenues from selling in-house developments, such as those of HM Arzenal, including dual-use items, and by establishing and exporting the products of a 'genuinely Hungarian-owned domestic productive base for ammunition'. Universities and R&D institutes were expected to participate in these efforts, while government institutions were to promote Hungarian weapons abroad. Hende called

¹³² 'Hadiipari klaszter épül' [Defence industrial cluster is created], *Heti Világgazdaság*, 20 Apr. 2012.

¹³³ Hungarian Ministry of Defence, 'Megalakult a HM Fegyverzeti és Hadbiztosi Hivatal' [Formation of the MOD Armament and Military Commissary Office], 12 Jan. 2011, <<http://www.kormany.hu/hu/honvedelmi-miniszterium/vedelemgazdasagert-felelos-helyettes-allamtitkarsag/hirek/megalakult-a-hm-fegyverzeti-es-hadbiztosi-hivatal>>.

¹³⁴ The plan's name, Hadik or Hadfelszerelési Iparkorszerűsítési Terv (Military Equipping and Industrial Modernization Plan), is both an acronym and a reference to András Hadik, an 18th century Hungarian nobleman who had an impressive military career in the Austro-Hungarian Army.

¹³⁵ 'A kormány felélesztené a magyar hadiipart' [The government wants to revive the Hungarian military industry], *Origo*, 28 Feb. 2012, <<http://www.origo.hu/itthon/20120228-a-kormany-felelesztene-a-magyar-hadiipart.html>>.

Rába the ‘key to the future of Hungarian arms making’ and said it was possible that the state would place additional major orders with the firm.¹³⁶

The 2013 military budget did not allocate funds to realize these grandiose plans, although the revenues generated from the sale of the MOD’s assets could be used to finance the projects.¹³⁷ In 2012 the Hungarian defence budget was 240 billion forint (\$1.1 billion), less than what the US DOD spends on goods and services daily.¹³⁸ According to the government’s plans for the future, military expenditure will not drop further between 2013 and 2015, but will increase annually by 0.1 of GDP from 2016, reaching 1.39 by 2022.¹³⁹

Government officials and the media broadcast triumphant reports about the results of the new defence policy. According to Zoltán Borbíró, the MOD’s firms had been working on UAVs, a medium-size military bus, a special vehicle platform and on upgrading Warsaw Pact-type radar systems.¹⁴⁰ The Currus company participated in the development of a water purification and arsenic-removal device, and the MOD’s campaign to publicize it—in which Hungarian soldiers distributed drinking water in small towns—was well covered by the media.¹⁴¹ In November 2012 a Hungarian-developed UAV was also presented.¹⁴²

All these products were the fruits of years of development that had started under previous governments. The only genuinely new item was a mine-resistant, ambush-protected (MRAP) vehicle: the RDO-3221 Komondor chemical, biological, radiological and nuclear (CBRN) reconnaissance vehicle that was developed by Gamma Műszaki Zrt (under the leadership of Attila Zsitnyányi) and its subsidiary Respirátor Zrt. Work on the project began in 2010, thanks to a tender launched by the Hungarian National Development Agency, and the first prototype was presented in 2012. The

¹³⁶ Szalay, T. L., ‘Nemzeti ipart lát a kormány a hadiiparban’ [The government considers arms making a national industry], *Népszabadság*, 28 Feb. 2012 (author’s translation).

¹³⁷ ‘Állami álmok álmodói’ [Dreamers of state dreams], *Figyelő*, 10 July 2012.

¹³⁸ Whittle, R., ‘Hungary is hungry for Hueys; defense minister hopes for “a donation”’, *Breaking Defense*, 14 Sep. 2012, <<http://breakingdefense.com/2012/09/hungary-is-hungry-for-hueys-defense-minister-hopes-for-a-donat/>>.

¹³⁹ See the interview with the defence minister in ‘Hende Csaba: a stabilizáció ideje következik a honvédségnél [Hende Csaba: it’s time for stabilization in the military], *Richpoi*, 28 May 2012, <<http://richpoi.com/plugins/content/content.php?content.11444>>.

¹⁴⁰ Hungarian News Agency (MTI), ‘Borbíró Zoltán: új víztisztítót fejlesztett a honvédség’ [Zoltan Borbíró: the army has developed a new water purifier], *Galamus-csoport*, 17 Nov. 2012, <<http://www.galamuscsoport.hu/tartalom/cikk/174853>>; and ‘Hódító útra indulhat a magyar hadiipar’ [Hungarian arms industry on road to triumph], *Magyar Nemzet*, 10 Apr. 2012, <<http://mno.hu/belfold/hodito-utra-indulhat-a-magyar-hadiipar-1067187>>.

¹⁴¹ Hungarian Ministry of Defence, ‘New water purification kit developed by the Hungarian defence forces’, 21 Nov. 2012, <<http://www.kormany.hu/en/ministry-of-defence/news/new-water-purification-kit-developed-by-the-hungarian-defence-forces>>.

¹⁴² Matyko, K., ‘Felszállt az első magyar drón Veszprémben’ [The first Hungarian drone took off in Veszprém], *Biztonsági piac*.hu, 5 Nov. 2012, <<http://biztonsagpiac.hu/felszallt-az-első-magyar-dron-veszpremben>>.

vehicle is designed to detect CBRN threats and to replace the NBC vehicles used by the armed forces.¹⁴³ As a commentator put it, the company ‘sewed the coat to match the button’: it developed the MRAP vehicle in order to make it easier to sell its chemical detection instruments, which were well-regarded but difficult to sell. This type of vehicle was widely used in Afghanistan and Iraq, including by the Hungarian armed forces, which bought three under the previous government and used others on loan from the USA. In Poland AMZ-Kutno manufactured its own model, but in Hungary such a product had not existed for several decades prior to the advent of the Komondor.¹⁴⁴

For years the Hungarian economy has struggled with a serious recession and major economic and financial imbalances as well as with the decay of production assets, infrastructure and living conditions. The world market for weapons, including armoured vehicles, is extremely competitive and saturated. In such conditions the decision to invest the country’s modest development resources in resurrecting the arms industry—justified by an increasingly nationalistic ideology that advocates a vague concept of ‘economic independence’—is highly questionable. The extreme centralization of economic assets and decision making, and the speed and rigidity with which the measures are carried out (often in contravention of basic economic and legal principles) are also worrying aspects of the new policies.¹⁴⁵

V. Conclusions

Unlike Poland, post-cold war Hungary chose a *laissez-faire* defence industrial policy after the end of the cold war. Some attempts were made to revive the large-scale, traditional defence industry but, due to lack of funds and political will, sooner or later they were abandoned. In the early 1990s arms production went through a spontaneous adjustment process that was modified by the invitation to join NATO, which raised the importance of the sector and increased the resources allocated to it. However, by the mid-2000s, as soon as NATO-related modernization efforts ran out of steam and the economy started to show signs of crisis, arms making was again sidelined.

¹⁴³ Gamma Műszaki Zrt, ‘Hazai gyártású páncélozott ABV felderítő jármű fejlesztése’ [The development of a domestically produced NBC vehicle], <<http://gammatech.hu/?module=news&newsid=7>>; and József, G. S., ‘Magyar hadiipar: Lehetséges lenne?’ [Hungarian defence industry: would this be possible?], *híreextra*, 5 Feb. 2011, <<http://www.hirextra.hu/2011/02/05/magyar-hadiipar-lehetseges-lenne/>>.

¹⁴⁴ ‘Körbeszimatoltuk a 13 tonnás magyar harci Komondort’ [We sniffed around the Hungarian military Komondor, which weighs 13 tonnes], *Heti Világgazdaság*, 30 Oct. 2012.

¹⁴⁵ On loopholes in the anti-corruption campaign and the dubious methods of investigation see Rajnai, A., ‘Ami a honvédelmi fehér könyvből kimaradt’ [What is missing from the defence white book], *Élet és irodalom*, 2 Dec. 2011.

By the early 2010s the Hungarian defence production base had largely eroded; most of the former flagship companies went bankrupt and their assets, workforce and know-how were dispersed. However, a handful of sturdy traditional companies braved the tempests of transformation and continued production, while a small group of successful new start-up firms took up defence-related production. The most recent government policy change—which intends to resuscitate a large-scale, powerful arms-making industry that is able to supply both the national armed forces and to export—will have to start from scratch.

Appendix 4A. Hungarian company case studies

I. Fegyver- és Gázkészülékgyár Ltd: coping without the state

Fegyver- és Gázkészülékgyár (FÉG, Arms and Gas Boilermaker Factory), a large-scale industrial company located in Budapest, was established in 1891—making it one of the oldest arms producers in Hungary. In the early 1990s FÉG was divided into three plants, which produced gas boilers, convection heaters and arms, respectively. Each of the new plants was offered for sale separately. The arms plant was FÉG Fegyvergyártó Ltd (called FÉGArmY Ltd after 1996), which manufactured assault rifles and a range of pistols for Hungary's military and police forces as well as for a number of foreign clients. Until the late 1990s it was one of the most successful Hungarian arms producers, owing to its relatively stable export of pistols for civil use to Western markets, principally the USA.

In 1997 FÉGArmY and nine other companies were exempted from privatization and continued in state ownership due to their strategic importance.¹ Except for a short interval when FÉGArmY was owned by a Hungarian bank, it remained under the control of the state holding company ÁPV.

Initially, on average, 75 per cent of FÉGArmY's output was exported; by 1999, however, 60 per cent of its output was sold on the domestic market because of its weakened export position. In 1999 FÉGArmY also received a major order from the Hungarian Ministry of Interior for 4000 Parabellum pistols (worth 114 million forint, \$481 000)—which was meant to partially compensate the company for the loss of export markets. Nonetheless, from the late 1990s FÉGArmY struggled with mounting financial difficulties. In 1998, despite a remarkable 1.2 billion forint (\$5.6 million) turnover, the company's losses totalled 100 million forint (\$466 000). In 2002 a major loan of 80 million forint (\$310 000) from the ÁPV saved the company from liquidation. In 2003 its website featured the image of one of its popular pistols and the message: 'We still live!' In the same year, Fúzió-Pharma Gyógyszer Nagykereskedelmi Rt, a pharmaceutical trade company located on the neighbouring industrial estate, purchased FÉGArmY for 230 million forint (\$1 million). The new owner planned to demolish the military-related facilities and construct a warehouse on the site.

In 1980 FÉG had employed 5000 people. By 2000, after decentralization, reorganization and major reductions of its activities, FÉGArmY employed 400 workers. In 2005, when the company's final assets were liquidated, it had

¹ Two other military-related producers were on the list: the predecessor of MFS 2000 and Mechanikai Művek. The first managed to survive, while the other (like FÉG) went bankrupt.

240 employees.² The company's former and new owners perceived FÉGArmy to be a victim of Hungary's membership of the EU because the company could no longer obtain export licences to sell weapons to the Dominican Republic, which represented 60 per cent of FÉG's markets at the time. In 2005 Fúzió-Pharma also went bankrupt and FÉGArmy's industrial estate was again offered for sale.

II. Rába Járműipari Holding NyRt: a winner

Rába Automotive Group Plc, the only domestic arms producer to benefit from large MOD orders, was established in 1896 to produce railway carriages. In the early 20th century it also produced cars and other vehicles. By the late 1960s it had become a major producer of vehicles, automotive components, engines for Ikarus buses, and axles for commercial vehicles and agricultural and earth-moving machines. Thanks to the 20-year government programme to modernize the Hungarian transport system, its domestic market was stable. The company also exported products to the Eastern bloc and the USA. In 2007 its activities focused on mass production of axles, which provided 60 per cent of its income.

The systemic changes, the collapse of the massive civil markets of Comecon and the crisis of Hungarian agriculture dealt serious blows to Rába. The company restructured radically, reorganizing and streamlining its activities and downsizing. Two major production units became independent: an engine- and clutch-producing company was established in Szentgotthárd as a joint venture with General Motors, a US company; and a German-Hungarian joint venture for the production of trailer axles was set up in Szombathely. Unused company premises were sold—one to the German car-manufacturer Audi, which established a facility next to Rába's industrial estate. Although Audi drained some of Rába's highly trained workforce, it also provided jobs for many workers who became redundant due to Rába's downsizing. Non-core activities were cut; Rába experienced a major internal reorganization and became a holding company (Rába Járműipari Holding NyRt), with four subsidiaries: Rába Axle Ltd, Rába Vehicle Ltd, Rába Automotive Components Ltd (with plants in Mór and Esztergom) and Sárvár.

The company's military-related production had begun before World War II, but that type of production ended in 1972 when Rába started large-scale export of axles to the Steiger Tractor Company in the USA. Rába sought to avoid difficulties related to a defence-related profile: its management convinced Communist Party leaders that the hard currency income generated by Rába's exports to the West was more beneficial to Hungary than if Rába were to focus its efforts on producing military vehicles for the domestic market.

² Kemencei, I., Managing Director, FÉG, Interview with author, Budapest, 8 Oct. 1993; 'Fégarmy pisztolyok a BM-nek' [Fégarmy guns under the Ministry of Interior], *Heti Világgazdaság*, 27 Mar. 1999; Vigh, G. Z., 'Tartozásokkal együtt adnák el a Fégarmy' [Fégarmy would be sold with its debts], *Napi Gazdaság*, 13 Nov. 2001; and 'Bealkonyult a hazai fegyvergyártásnak' [The twilight of the domestic arms industry], *SecuriFocus*, 6 June 2006, <http://www.securifocus.com/portal.php?page_name=hir_obs_reszlet&i=13431>.

After the cold war, however, arms production became part of Rába's strategy to adjust to its changed circumstances. It sought to participate in the government's plans for modernization of the vehicles used by the armed forces and invested in and modernized its technology. In 2003 the Hungarian Army announced a tender for 12 000 new vehicles, which Rába won, gaining exclusive supplier status for 15 years. Rába was the prime contractor for the project and furnished its own designs for three types of vehicle. (In the other two categories the main contributors were Mercedes and MAN.) Rába (or its subcontractors) was able to produce approximately 66 per cent of the vehicle components in Hungary but had to import the rest. Rába also had a harsh offset obligation because, in order to improve its chances to secure the tender, it had offered a 170 per cent offset.

Rába and the MOD cooperated closely. Rába produced small series of special units, tailored to meet the needs of the armed forces and usually on short deadlines. The type and the number of vehicles to be delivered were fixed on a yearly basis. According to Ferenc Romvári, Rába's Deputy Director for Government Relations, in strictly economic terms military-related production did not bring the expected high profits because of the high cost of the initial investments made by the company (designed for a higher demand), which were mostly financed by its own resources, and because of the limits of the domestic market. At the same time, given the highly customized nature of the company's output, opportunities for export were limited. Nonetheless, the contract represented relatively small-scale, but guaranteed, markets and revenues and conferred a certain prestige among economic actors.³

When Rába returned to defence-related production, it arguably moved in a direction opposite to that taken by many other military producers that fled the sector at the start of the 1990s. Rába's decision was based on business considerations, not political pressure or calculations. However, it was impossible to foresee the major political changes that took place in Hungary and resulted in a considerable decrease of the military-related demand. Nonetheless, Rába managed to compensate for the reduction of state orders and succeeded in maintaining a relatively stable position, principally thanks to its civil production lines. In 2009 Rába modernized its forging plant and foundry and developed a new off-road axle family, the Rába MAXS. Rába also set up a joint venture with a German company, F.S. Fehrer Automotive GmbH—the Mór Components Business Unit—which specialized in foam pads for car seats. In 2011 axle production generated 61 per cent of Rába's revenues, automotive components 26 per cent and vehicles 13 per cent.⁴ Rába was one of few prosperous military-related producers in Hungary.

In late 2011, carrying out its plan to take over production assets in order to establish a 'genuinely Hungarian' military industrial base, the Hungarian Government bought the majority of the company's shares. Top management was changed and several government representatives were added to the com-

³ Romvári, F., Deputy Director for Government Relations, Rába Járműipari Holding Nyrt, Interview with author, Győr, 21 Apr. 2006.

⁴ Rába Járműipari Holding Nyrt, <http://www.raba.hu/english/our_profile.html>.

pany's board. Although the company's stable position was principally due to its civil production and export markets, the government's new defence industrial policy sought to increase the share of military-related activity and to make Rába the centre of the Hungarian arms industry.⁵

III. Dunai Repülőgépgyár Rt: the history in a nutshell

The trajectory of Dunai Repülőgépgyár symbolically summarizes the history of post cold war Hungarian arms production. Pestvidéki Gépgyár, the predecessor of Dunai Repülőgépgyár (Danubian Aircraft Company), was founded in 1941 to produce military aircraft as part of Hungary's large-scale, state-led rearmament in preparation for World War II. During the cold war aircraft production was suspended in Hungary and the company specialized in the repair and servicing of military aircraft and helicopters. It enjoyed a monopoly position, received plenty of orders from Warsaw Pact member countries and had the potential to become a unique service centre in East Central Europe. In 1980, 80 per cent of the company's output was destined for export, but later in the decade foreign orders began to diminish. Instead of facing the imminent crisis, the company's management tried to survive by postponing crucial changes and borrowing heavily.

In June 1990 Pestvidéki Gépgyár went bankrupt and had to be liquidated. After several unsuccessful efforts to sell, in June 1992 the management and employees established Dunai Repülőgépgyár Rt and leased the original firm's assets, which were finally completely transferred to the new entity after a six-year-long liquidation process. The state, represented by the ÁPV, retained ownership of 25 per cent of the shares plus 1. By the late 2000s this participation gradually diminished to a symbolic 'golden share' that gave the state a veto right.⁶ The new company's management aimed to streamline the production profile, improve quality and find new markets. After further reorganization in the late 1990s, civil production activities were separated into four independent subsidiaries owned by Dunai Repülőgépgyár. The company's general manager, Géza Péter Kovács, was one of the founders and became the President of the Defence Industry Association of Hungary.

Dunai Repülőgépgyár was badly hit by the political system changes, which deprived it of most of its export and domestic markets. Frugal MOD orders became the company's main source of revenue and made it vulnerable to political decisions. Aware that membership of NATO was probable in the future, the company carried out several upgrade projects for the Hungarian armed forces, adapting its Warsaw Pact-origin equipment to meet NATO standards.⁷ The

⁵ 'Állami álmok álmodói' [Dreamers of state dreams], *Figyelő*, 10 July 2012; Szalay T. L., 'Nemzeti ipart lát a kormány a hadiiparban' [The government considers arms making a national industry], *Népszabadság*, 28 Feb. 2012; and Ábrahám, A., 'Az orosz hadiipar lehetőséget jelent a Rábának' [The Russian defence industry represents an opportunity for Rába], *Népszabadság*, 10 July 2012.

⁶ Vígh, G. Z., 'Nyereségesek a HM társaságok' [The MOD companies generate profit], *Napi Gazdaság*, 25 Aug. 2002.

⁷ 'Natósít' a Dunai Repülőgépgyár' [Danubian Aircraft Company switches to NATO standards], *Heti Világgazdaság*, 13 Dec. 1997.

company's management made remarkable efforts to free itself from dependence on the MOD and find alternative markets, in Hungary and abroad, both in military and civil production. In preparation for Hungary's NATO membership and despite its precarious financial situation, in 1994 the company bought used machinery to produce spare parts for the Swedish-made Gripen combat aircraft. In November 1995 Dunai Repülőgépgyár signed a cooperation agreement with the Gripen's maker, Saab, and began to produce 11 elements for a part of the aircraft. The company's contribution was low-level supply of spare parts, but it was considered a potential opening for further cooperation, investment and advanced technology transfer and could also be used as a 'reference'—and so it was worth the effort. Despite its modest scale, the arrangement placed serious financial burdens on the company. In hope of large-scale future production and service opportunities, Dunai Repülőgépgyár acquired production facilities that were costly to maintain.

The Gripen cooperation did not lead to the desired full horizontal component production, to high-tech transfers or to additional industry contacts. Hungary was hindered by its non-NATO member status. In addition, in the late 1990s it appeared that the government would purchase F-16 combat aircraft instead of Gripens. While Saab waited for the government to make a choice, cooperation with Dunai Repülőgépgyár was put on 'standby'. After five years, when it became clear that the hoped for results had not materialized, Dunai Repülőgépgyár amicably terminated the contract. Less than two years later, in a sudden change of mind, the Hungarian Government chose to order the Gripen after all.

Dunai Repülőgépgyár continued to seek other export markets and opportunities for cooperation and seized every opportunity, but most of these were small-scale and random deals. In 2005 the company adapted infra-red anti-rocket systems from Warsaw Pact to NATO standards for the Turkish armed forces. In Ethiopia Dunai Repülőgépgyár serviced Soviet-type helicopters and built a helicopter repair plant that also trained personnel, conducted technology transfer and provided spare parts. The project ran for five years, but was terminated when war broke out between Ethiopia and Eritrea in 1998. A similar project was carried out in Egypt until the end of 2004. In 2006 the company again entered the Ethiopian market, winning a minor order over a Russian competitor thanks to its greater flexibility and efficiency. External markets were difficult to access, and competition, particularly from Russian firms, was extremely tough. Dunai Repülőgépgyár was keen on promoting East Central European cooperation. In the early 2000s it proposed the creation of a regional service and repair base for Mi-24 helicopters in Hungary, with the participation of companies from the Visegrád countries (and later others)—hosted and coordinated by the company. However, the governments in East Central Europe did not support the initiative, and potential partner companies were also not motivated.

Prospects on the domestic market were also bleak. Due to budgetary cuts, Hungarian defence expenditure was curtailed. In 2004 the MOD carried out a defence technology survey that led to a radical reduction of the armed forces'

equipment, in practice halving the domestic market, with special emphasis on the repair market. Certain aircraft types, such as MiG-29 combat aircraft, were to be discontinued, while the use of others, such as Mi-8 and Mi-17 helicopters, was to be reduced. As with its efforts to obtain orders for military-related repair and cooperation, Dunai Repülőgépgyár tried to increase the share of its civil activities, principally the service and repair of civil aircraft, but civil markets were also difficult to enter. The company tried to find a strategic partner for long-term East Central European projects, including budget airlines that started to establish bases in the region, but these efforts also failed.

The management considered using its still considerable production capacity for assembly and other specialized work for outside clients or outsourcing certain of its core production activities and selling the related facilities. In 2005 approximately 20 per cent of Dunai Repülőgépgyár's production processes were outsourced and the company supplied a wide range of products for other companies. In the event that military demand did not increase, management envisaged switching completely to civil production and creating an industrial cluster that took advantage of the company's location, infrastructure and facilities. Csepel Island, where the company was located, had been a cradle of the Hungarian heavy industry and the site of many of the former large-scale, state-owned enterprises, all of which had gone bankrupt or were teetering on the verge of bankruptcy.

In 1986 Pestvidéki Gépgyár had employed 2600 people; by 1993 Dunai Repülőgépgyár had a staff of 930 workers. By 2005 that number had been reduced to 200 and further redundancies were planned, together with further reorganization. The company continued to reduce its military activities and increase its civil activities, while divesting itself of production assets and getting rid of specialized workers. In 2006 the lack of orders and the worsening financial situation forced the company to dismiss most of its remaining workforce. Only 20 permanent employees remained. There was an informal agreement with the redundant workers that they would be rehired on a temporary contract basis should the company win a major tender. This move freed the company from financial obligations related to employment. Management considered similar schemes with other assets in the hope of gradually moving towards a project-based 'virtual' economic unit with a minimal permanent staff and facilities that could be expanded as required to meet the needs of an order.

From its foundation in 1992 the company generated a profit nearly every year, including in 2005 and 2006, the years of the MOD's first severe budgetary restriction package. Most of the profit was reinvested, increasing the value of the production assets. By 2006 the company's initial capital of 10 million forint (\$127 000) had grown to 52 billion forint (\$247 million), and it still owned a 30-hectare estate, some of which was rented. The rest was transformed into an airport industrial park. The functioning airport that was also located on the plant's premises was sold to a wealthy Hungarian entrepreneur who planned to convert it into a logistics centre for freight transport. After a long period of vacillation, in the summer of 2009 the MOD awarded Dunai Repülőgépgyár a

contract worth nearly 3.5 billion forint (\$17 million) to repair and modernize the armed forces' helicopters. Opposition news sources criticized the decision, arguing that the company no longer possessed the production assets required to fulfil the contract.⁸

After a change of government and policy guidelines in 2010, Dunai Repülőgépgyár's management concentrated its efforts on foreign cooperation. As of late 2012, 85 per cent of the company's activity was export related, while the remaining 15 per cent was domestic service and maintenance that was military-related. The company's key activities were concentrated in Ethiopia. Long-term business relations with the country enabled Dunai Repülőgépgyár to develop new civil products and win contracts for public transport, alternative energy and infrastructure development. Other long-term development prospects included the conversion to civil use of Ethiopia's defence-related heavy industrial base, which had been developed after World War II with the assistance of the Soviet Union and other Warsaw Pact member countries.⁹

IV. MFS 2000 Ltd: a typical Hungarian company

The predecessor of MFS 2000 Ltd, Mátravidéki Fém művek (MFS, Matra Metal Works) was established in 1952 in the village of Sirok, approximately 130 kilometres north-east of Budapest. The company was set up to produce ammunition for handheld weapons, but by the end of the decade civil products, such as industrial chains, aluminium tubes and other metal packing material, were also introduced. Defence-related production was approximately 20 per cent of the company's output. Before 1989, on average, 80 per cent of the military and 30 per cent of civil output were sold on Warsaw Pact and Comecon markets. With the end of the cold war Mátravidéki Fém művek lost its civil and military markets and went bankrupt in 1991.

In 1994 the company was divided into three successor entities. Ammunition production was continued at MFS Magyar Lőszer gyártó Ltd, with a staff of 200. In 1994, 25 per cent of this new company's shares were sold to the Canadian company Classic Distributors Ltd, which became a majority (75 per cent) shareholder in 1996.¹⁰ In May 1997 the ÁPV bought back the company. The move was justified by the new defence industrial guidelines under which certain strategically important enterprises were to remain in long-term state ownership, and by the discontent with the foreign owner's approach that, instead of bringing in new investments and markets, used the company as a money machine.

The new management of the now 100 per cent state-owned firm energetically reorganized production. In 1997 the company received an ISO 9001 quality

⁸ Haraszti, G., 'Hadakat terelők (V): kerülő úton, drágán beszerzett An-26-os szállító repülőgép' [Directing armies: AN-26s dearly purchased in a roundabout way], *Magyar Nemzet*, 3 July 2009.

⁹ Kovács, G. P., President and Director, Dunai Repülőgépgyár Ltd, and President of the Defence Industry Association of Hungary, Interviews with author, Tököl, 15 Apr. 1994, 5 Apr. 2002, 1 Apr. 2005, 16 Apr. 2006 and 25 Oct. 2012.

¹⁰ Pásztor, Z., Managing Director, Mátrafém Ammunition Factory, Interview with author, Budapest, 7 Apr. 1994.

certificate and a certificate from the Quality Control Committee of the Hungarian armed forces for military products. Despite the firm's strategic status, domestic orders were scarce. The company had large accumulated debts and could only survive thanks to a medium-term bank loan that it was able to receive because of a state guarantee. Some important export deals—a 1995 order from the Slovak police forces and a 1997 agreement with Turkey—helped the company. By the late 1990s nearly 90 per cent of its output was military related, of which 90 per cent was exported to the USA, Lebanon, Italy, Germany, Slovakia and Turkey.¹¹ In 1999 the firm became insolvent and was forced to again enter a bankruptcy procedure. At the end of the year it was bought by Innoterv, a private industrial planning and investment company that invested 100 million forint (\$422 000) in modernization of the ammunition-producing process. The company was renamed MFS 2000 Magyar Lőszer-gyártó SA.

Thanks to this infusion of capital, the firm's situation stabilized somewhat in the early 2000s, but it worsened by the middle of the decade, principally due to the radical decrease of domestic military demand. Following budgetary restrictions, both the MOD and the Ministry of Interior radically cut their orders. Their share in MFS's sales dropped to 10–15 per cent. In addition, ministry orders tended to have short deadlines, which complicated production schedules. Nonetheless, dynamically growing exports and increasing civil demand, principally for sport ammunition, partially compensated for these losses. The main export markets were the Czech Republic, Germany, Italy, Paraguay, Slovakia, Turkey and the USA.

NATO membership opened new markets for the company. MFS 2000 held an AQAP-2110 certificate and was also classified as a 'qualified NATO supplier'. The company had long been a supplier to the Turkish police and a Turkish military ammunition company, and had some orders from the Czech Republic and also the Slovak MOD and Ministry of Interior—a considerable achievement, given the dominant presence of the Czech company Sellier & Bellot, the Czech Republic's key ammunition producer. Approximately 6–10 per cent of MFS 2000's output, nearly 2–3 million rounds of ammunition, were produced for the domestic market, for civil, hunting and sporting purposes. In this market the company's main competitors were Sellier & Bellot and the Brazilian company Magtech, which despite the geographic distance was able to offer its products at a lower price than MFS 2000. MFS 2000 was also involved in ammunition disposal projects. Altogether the company annually produced 40 million rounds of ammunition, although it had the capacity to manufacture 60 million rounds.

In the early 2000s the company cooperated with the Austrian company Hirtenberger, which contributed its technology, and brought raw material and orders, while MFS produced Hirtenberger's products. Cooperation lasted until 2003 and was valued as a positive learning experience for both management and workers, even though in economic terms it produced losses. In June 2003

¹¹ Paulenka, L., General manager, and Medveczki Telekné, A., Economic director, Magyar Lőszer-gyártó Kft, Interview with author, Sirok, 5 Nov. 1997.

MFS 2000 entered another cooperation agreement, with the Norwegian company Nammo Nad SA, to adapt and produce 12.7–40-mm calibre ammunition for the domestic market. The new ammunition was also tested in the Hungarian Gepard GM1 sniper rifle.¹²

In July 2004 Innoterv sold its shares to a Hungarian investment and consultancy company, Bonitas, that was owned by Sándor Csányi, a wealthy Hungarian businessman who headed an ever-growing business network. According to the Office of Competition, which approved the deal, in 2003 MFS 2000 had a turnover of 1.3 billion forint (\$5.8 million), more than two-thirds from exports. On the Hungarian market MFS 2000 had a 60 per cent market share of pistol ammunition, 10 per cent of hunting ammunition, 75 per cent of blank cartridges and 100 per cent of military ammunition.¹³ MFS 2000 had a wide range of technology and experience that enabled its flexibility. However, it lacked the financial resources to introduce new products that would have required additional investments. According to György Károly, the company's CEO, introducing a new product could cost 3–5 million forint (\$14 000–24 000) for each calibre of ammunition, which was beyond the firm's means. MFS 2000 cooperated with the MOD's research institute to develop new NATO-calibre ammunition. The company's new owner had the resources to invest in R&D and new products, but it was unclear whether this was prioritized. Struggling to preserve its precarious financial balance, MFS 2000 sought to diminish expenditure by rationalizing production and logistics. In 2005 the company had 190–200 employees, most inherited from its predecessor, Mátravidéki Féművek. Their average age was high. Only a few young skilled workers found the company attractive. Thus, management envisaged future workforce shortages and tried to take steps to address the situation, providing study grants and developing contacts with local vocational schools. Although unemployment was high in the Sirok region, most of the unemployed were unskilled.¹⁴

In 2008 *The New York Times* listed MFS 2000 as one of the companies that supplied defective ammunition to the Afghan security forces through a small trade company, AEY Inc., registered in Miami Beach, USA. According to an MFS 2000 press release, between May and August 2007 the company had sold ammunition—re-bought from Hungarian armed forces—to AEY that was destined for the Afghan MOD. These items were of good quality and had the necessary authorizations. After thorough investigation it was established that the defective ammunition came from China and had been shipped via Albania, and the company was cleared.¹⁵

¹² Marcsonyi, G., President of the Board of Directors, MFS 2000 Magyar Lőszergyártó Kft, Sirok, Interview with author, Budapest, 4 Apr. 2002.

¹³ Gazdasági Versenyhivatal (GVH), Press Release Vj-162, Nov. 2005, <http://www.gvh.hu/gvh/alpha?do=2&st=3&pg=218&m299_doc=3986>. In 2004, the year it bought the firm, the Csányi business group realized a 28.3 billion forint (\$140 million) turnover.

¹⁴ Károly, G., General Manager, MFS 2000 Magyar Lőszergyártó Rt, Interview with author, Budapest, 2 Apr. 2005.

¹⁵ Chivers, C. J. and Schmitt, E., 'Finding of fraud led to suspension of company supplying arms to Afghanistan', *New York Times*, 28 Mar. 2008.

In December 2008 MFS 2000 was purchased by the RUAG Group, an international holding company that concentrates on aviation and space, defence and security and small-calibre ammunition. It is based in Bern, Switzerland, and employs 1400 people, who work at production facilities in Austria, Germany, Sweden and Switzerland.¹⁶ The move was part of the group's strategy to strengthen its international position in the small-calibre ammunition business. As RUAG's annual report stated: 'The Hungarian market leader's range of pistol and revolver ammunition in new calibres will not only help strengthen individual product groups, but will also help RUAG Ammotec enter new markets in eastern Europe.'¹⁷ MFS 2000 was renamed RUAG Hungarian Ammotec Inc.

V. HM Currus Gödöllői Harcjárműtechnikai Rt: an MOD company

During the cold war MN Gödöllői Gépgyár (MOD Machinery Works), located in Gödöllő, was the only entirely military company in Hungary. By 1990 the company had lost 95 per cent of its orders as a result of economic and political changes. It was briefly placed under the supervision of a state-owned financial agency, Pénzüntézeti Központ Bank Rt (Financial Institute Center Bank Ltd), but in 1993 it was taken over by the MOD, reorganized and renamed Currus ZRt. The company was divided into three parts: HM Currus Zrt; Caterpillar Hungary, a joint venture with the Swiss branch of the US company Caterpillar; and Hungaro SLR, a branch of the German SLR Group, a metal-processing firm. The joint ventures soon became completely independent and shared only the large industrial estate and some of the infrastructure services owned by the military branch, HM Currus ZRt, which specialized in repair and modification of military equipment and armoured vehicles. In 1989 MN Gödöllői Gépgyár had a workforce of 350 people, and in 2007 HM Currus employed 320. Retired workers and those who had been made redundant and resided in the vicinity formed a labour pool that could be mobilized in the case of increased workload.¹⁸

In 2005 the MOD and Currus signed a contract worth 9 billion forint (\$45 million) to repair and upgrade 215 BTR-80 armoured vehicles for the Hungarian armed forces. The contract was for six years, with the exact number of vehicles to be defined on a yearly basis, depending on the financial resources of the MOD. Related to the contract, Currus and the Norwegian company Kongsberg, which had entered the Hungarian market through the sale of radios to the Hungarian military, jointly developed a heavy machine gun stand that

¹⁶ 'Viszik a magyar lőszergyárat' [They took the Hungarian ammunition producer], *Világgazdaság*, 11 Dec. 2008; and RUAG Group, 'RUAG strengthens successful small calibre ammunition business', Media release, 10 Dec. 2008, <http://www.ruag.com/Group/Media/Media_releases/Mediadetail?id=175>.

¹⁷ RUAG Holding Ltd, *Annual Report 2008* (RUAG: Berne, 2009), p. 23.

¹⁸ Ács, J., General Director, and Czene, G., Economic deputy to the General Director, Currus, Ministry of Defence Combat Vehicle Technique Company Ltd, Interview with author, Gödöllő, 6 Apr. 1994.

could be mounted on the BTR-80. Currus generated some additional income by repairing, updating and selling redundant MOD equipment to Czech and Polish companies that resold the equipment.

Currus did not receive regular state subsidies except for a modest sum that covered approximately 14–15 per cent of the cost of maintenance of its military-related equipment. MOD orders represented a relatively stable, although limited, market for the company and provided approximately one-third of its revenues. In 2005, the year that Currus was involved in the BTR-80 project (a ‘megabusiness’, according to a Hungarian economic daily), it had a turnover of 3.6 billion forint (\$18 million), of which 1.4 billion forint (\$7 million) came from domestic military orders and 629 million forint (\$3 million) from the BTR-80 deal.¹⁹ Ever since 1993, when it became a corporation, Currus was able to yield a steady, although modest, profit. The company used some of the revenue for minor investments and modernization.

Hungary’s international military missions generated orders for Currus. In 2001 a Currus team participated in Operation Essential Harvest to demilitarize ethnic Albanian armed rebels in Macedonia and destroy their weapons. In 2005 Hungary donated 77 T-72M1 main battle tanks to the new Iraqi Army and Currus was selected to repair them. The contract was negotiated by a US company, Defense Solutions, but, despite mutual satisfaction, there was no follow-up.²⁰ In Afghanistan Currus maintained and upgraded the equipment of the Hungarian contingent on a continual basis. In cooperation with the Swedish company Sepson, Currus also manufactured spare parts for military vehicles manufactured by Rába. Making use of its ‘idle’ technology, Currus carried out a wide range of civil activities that represented approximately 25 per cent of the company’s revenue. Even though civil activity was always ‘residual’ and was never specifically developed, the income it generated was occasionally invested in military-related production, although the reverse did not take place.²¹

Its status as a state-owned, strategic company protected Currus but also limited its freedom to manoeuvre. The armed forces had rather eclectic equipment and permanent financial constraints which meant that their demands often required individual solutions and a fair amount of creativity. Currus ZRt was able to meet these demands thanks to the quality and flexibility of its workforce and management, their long experience and familiarity with the armed forces’ needs. However, neither the company nor the MOD was able to fund the badly needed investments to modernize the company and upgrade its

¹⁹ ‘Megaüzletben a HM Currus’ [Currus has a megabusiness], *Világ gazdaság*, 30 Nov. 2005, p. 15.

²⁰ ‘Defense Solutions ... will refurbish the tanks in Hungary under a US State Department licence, before NATO takes possession of them and transports them to Iraq. Included in the deal are a number of VT-55 recovery vehicles and wheeled maintenance trucks. Defense Solutions will rebuild the tanks at its Currus facility in Godollo.’ *Jane’s Defence Weekly*, 1 June 2005. Defense Solutions, ‘Defense Solutions to rebuild T-72 tanks and other military vehicles for the Iraqi Army’, PRWeb, 9 May 2005, <<http://www.prweb.com/releases/2005/05/prweb238009.htm>>; and Defense Solutions Holding, Inc., ‘Delivery of main battle tanks to Iraq’, <<http://www.ds-pa.com/index.php/deliverytanks>>.

²¹ Ács, J., General Director, HM Currus, Gödöllői Harcjarmútechnikai ZRt, Interview with author, Gödöllő, 22 Aug. 2006.

technology. Thus, in the late 2000s the government lifted the ban on privatization of its remaining state-owned military-related enterprises in the hope of attracting external capital. After the 2010 change of government, privatization plans were dropped and Currus, together with the other MOD-owned companies, became part of the defence industrial cluster and was given new tasks, including R&D projects that were principally carried out together with HM EI ZRt. Since all MOD companies had important idle capacities and insufficient revenues, government representatives hoped to offer upgrade and maintenance services for Warsaw Pact-origin military hardware owned by former business partners in Africa and India.²²

VI. Pro Patria Electronics: an amphibian-like company in a turbulent environment

Pro Patria Electronics was founded in 1999 by Peter Wilhelm, a Hungarian émigré. He had returned home after decades spent in Sweden, at the Royal Swedish Academy of Engineering Sciences and LM Ericsson, focusing on communications and defence technology. Wilhelm intended to save and bring together the most valuable assets of the disintegrating Hungarian arms industry (which still had pockets of excellence): its human capital. Together with his business partners, Wilhelm bought several bankrupt former military-related firms. His associates dealt with real estate, while Wilhelm created an R&D institute with 120 experts recruited from Mérés-technikai, Informatikai, Kutató és Innovációs Rt (MIKI, Measurement, Information Technology, Research and Innovation Ltd), Távközlési Kutató Intézet (TÁKI, Telecommunications Research Institute), Mechlabor and Mechanikai Mérőműszerek Gyára (MMG)—the former Hungarian flagships of military-related R&D, telecommunications and IT. The strategic goal was to convert and upgrade the Warsaw Pact-based military technology used by the Hungarian armed forces to meet NATO standards, thereby making possible military modernization with relatively few investments, while simultaneously identifying export markets.

Pro Patria Electronics made a promising start with important orders from the MOD and other state organizations. Its main projects included the digitalization of Soviet-origin radar systems, the development of a coordinated fire control system and the development of ‘intelligent’ mines. In 1995, during the Yugoslav wars, Pro Patria had the task of converting the Taszár airbase to meet US security standards so US peacekeeping forces could use it as their base of operations in the Balkans. However, after the 2003 downsizing of military expenditure, the company’s orders—even those in the process of being filled—were radically cut back. In 2004 the company’s turnover fell to 10 million forint (\$49 000) from several billion forint in previous years. At the end of the year the company’s management decided to terminate its Hungary-based military-related activities and not accept any more defence orders or participate in domestic tenders.

²² ‘Hódító útra indulhat a magyar hadiipar’ [The Hungarian weapons industry on the road to triumph], *Magyar Nemzet*, 10 Apr. 2012.

The core of company strategy shifted to microwave technology. Since 2005 the company has spent approximately 800–900 million forint (\$4–4.5 million) on developing this new activity and a similar amount on setting up production and entering new markets. According to the company's website, Pro Patria has invested more than \$5 million in R&D, a significant amount, particularly considering that Hungary has one of the lowest and still diminishing R&D expenditures among EU countries. After several years the company had become a technological leader in digital signal processing. Eighty-five per cent of its products were based on leading US technology, which was further developed thanks to the creativity and familiarity with domestic demands of the Hungarian team and management. Pro Patria's main product was Beagle, a unique frequency-modulated continuous wave (FMCW) man-portable ground surveillance radar (GSR) system, which was exported to countries in Asia and the Gulf.²³ In early 2007 the product was tested in Pakistan. Another successful product was a mobile border guard system mounted on cars: the mobile ground surveillance and security systems (MGS3) Scout. Pro Patria also developed and manufactured a microwave level gauge (MLG) tool—a low-cost microwave pulse radar unit that is able to measure the level and amount of liquid in tanks and other storage facilities.

By 2006 Pro Patria had increased its turnover to 250 million forint (\$1.2 million). As of mid-2007 the company employed 40 developers who were trained as software experts or microwave hardware specialists, half of whom had a background in advanced mathematics. The company's management was eager to apply the latest technological developments, which made conversion between military and civil products and services both possible and easy.²⁴ According to the 2012 Hungarian arms industry catalogue, in 2010 the company had net sales revenue of €2.1 million (\$2.8 million).²⁵ Recently, the company has been involved in a project, supported by the EU and its European Regional Development Fund, to develop an adaptive multi-sensor system; and a multinational R&D project to develop a synthetic aperture radar for UAV application, which is also co-financed by the EU.²⁶

VII. The new Hungarian aviation industry

The new Hungarian aviation industry emerged in the early 1990s, spearheaded by a handful of companies that focused their efforts on developing small aircraft. These companies also produced spare parts for foreign companies that had become established in Hungary. Two joint ventures were the first key actors: Aeroplex Ltd, established in 1992 by Lockheed Martin and the Hun-

²³ 'Ázsiai hódításra készülhet egy magyar radar' [A Hungarian radar can prepare to conquer Asia], *Magyar Hírlap*, 9 Aug. 2006, p. 5.

²⁴ Wilhelm, P., President, Pro Patria Electronics, Interview with author, Budapest, 25 May 2007; and Fahidi, G. and Gyenis, Á., 'Az utolsó töltényig' [Until the last bullet], *Heti Világgazdaság*, 23 Mar. 2005.

²⁵ Hungarian Investment and Trade Agency (HITA), *Hungarian Defence Industry 2012* (HITA: Budapest, 2012).

²⁶ Pro Patria Electronics, <<http://www.propatria-inc.com>>.

garian air carrier Malév; and GE Engine Services, a greenfield investment started by General Electric in 1999. In the early 2000s another group of aviation SMEs was set up, also as greenfield investments, funded by foreign capital and using Hungarian know-how. These included GEES in Veresegyház, Lufthansa Technik in Budapest, Elektrometal Ltd in Paks, Hungaerotech in Debrecen and Flame Spray Ltd in Gödöllő. Another company, Alcoa-Köfém in Nemesvámos, was privatized with US capital. The impetus of the creation of these companies led to the establishment of another group of small aircraft producers, again mostly in provincial towns, such as Ballószög, Tököl, Eger and Miskolc.

Several of the new companies became very successful. One outstanding firm, Aviotronics Ltd, specialized in software development, measuring technology, aviation electronics, signal processing and data collection. Other prosperous firms included Aero-Target Bt, which designed and developed unique UAVs for both domestic use and export, and Diehl Aircabin Hungary Llc, which opened a new composite site in Nyírbátor in 2012. The totally Hungarian-owned Corvus Aircraft Ltd, one of the most successful small companies, manufactured small composite aeroplanes using the latest technology and had a global distribution network. In 2012 it signed a \$16 million greenfield joint venture contract to set up Corvus China Composite Industries in Yanlian, China, to manufacture composite airframes and, subsequently, assemble the Corvus Fusion LSA. In 2012 Corvus also signed a letter of intent with a US partner to establish a new joint venture in the USA.²⁷

In 2003 six engineers founded the Hungarian Aviation Industry Foundation (HAIF), which subsequently launched the Aerospace Suppliers Initiative (HASI) programme in December 2004. Automotive component manufacturers were the main participants in the programme and more than 20 of them declared interest in diversifying their production to include manufacture of components for the aerospace industry. In March 2006 the HAIF established the Hungarian Aerospace Cluster (HAC), with 4 founding members and 16 additional members. The HAC intended to further develop the Hungarian aviation industry, to foster cooperation with international companies and organizations—including those located in the Polish Aviation Valley—and to promote R&D. In 2012 the HAIF united 133 organizations that employed 2500 people.

The emergence of the new Hungarian aviation industry was a remarkable development. Nearly all companies were SMEs using Hungarian intellectual capital and financed often, although not always, by foreign funders. These firms were flexible, efficient and profitable, had a high level of R&D, adapted the latest technologies to their use and participated in international financial, scientific and business circuits. Most of these companies were located in the countryside, while traditional Hungarian arms manufacturers were concentrated in Budapest. The new companies reached out to the automotive industry, which had been a key factor in post-cold war economic recovery in East

²⁷ Corvus, 'Corvus to found joint venture in the USA: new market opens for Corvus', 28 Apr. 2012. <http://corvus-hungary.com/en/sa_only_rsa/i_news_2/i_corvus_to_found_joint_venture_in_the_usa_14/>.

Central Europe. When the traditional arms industry collapsed, car-making was one of the branches that absorbed redundant workers and reutilized industrial experience, know-how, technology and premises that had formerly been used for arms production. The sector also benefited from the stimulus generated by the electronics and information industry, at this stage represented nearly exclusively by transnational companies in Hungary.²⁸

²⁸ Hideg, M., 'Overview of the Hungarian aeronautical industry: developing by clustering', Presentation, Hungarian Aviation Industry Foundation, Budapest, 27–28 Nov. 2006, <http://www.conf.uni-obuda.hu/space2006/Mihaly_Hideg.ppt>; Hideg, M., Presentation, Hamburg, 2008, <<http://www.scribd.com/doc/7334729/HAIF-AeroOverview-2008-Hamburg>>; and Hideg, M., 'Overview of the Hungarian Aerospace Industry: research, product development, diversification, collaboration', Hungarian Aviation Industry Foundation, June 2012, <<http://fr.scribd.com/doc/99817954/HAC-AeroOverview-Jun12-En>>.

5. A comparison of Poland and Hungary

At the onset of systemic changes Poland had a relatively large defence industry that remained significant and had promising prospects even after two decades of hectic transformations. Hungary's once significant defence industrial basis, however, shrank to an operational minimum and kept struggling for survival. The differences between the two countries' post-cold war arms industry development are due to both external and internal factors, spontaneous movements and deliberate policy choices. The comparison of Poland and Hungary identifies these factors, providing some points of reference that can also be used to evaluate the models that emerged in other countries in East Central Europe.

I. The size and the state of the economy and the arms industry

Among the countries of East Central Europe, Poland's economy was the largest and included a sizeable domestic market for weapons. Supported by a favourable defence industrial policy, the needs of the national armed forces were placed high among Polish economic priorities. The desire for 'polonization' also contributed to the creation of a domestic market that was large enough to maintain the defence sector. Poland's rapid economic recovery and robust economic growth provided significant resources for the sector. By the late 2000s, when domestic resources began to be exhausted but the arms industry was still in need of modernization, important injections of capital arrived from external sources through exports, foreign cooperation and foreign direct investment. In Hungary, in contrast, economic recovery was slower and more fragile and, owing to the liberal policy followed during most of the post-cold war period, resources provided for the sector were also limited. This meant that the domestic market for weapons was also rather limited.

During the post-cold war period of adjustment the size of the defence-related facilities was significantly reduced in both countries. In addition, arms producers grabbed every possible cooperation deal with foreign companies, which dispersed their scarce resources and often led to further erosion of their assets. However, despite drastic reductions of military-related assets, a relatively large-scale arms industry survived in Poland during the tough years of the 1990s. Due to their large size and the state's defence industrial policy that protected the arms-producing firms, when domestic and export demand started to increase in the early 2000s, they remained large enough to respond to expanding markets. In Hungary,

however, the laissez-faire state policy and the spontaneous 'cleansing effect' of the crisis decimated the sector. A sizeable order could create headaches rather than satisfaction for company managers because production assets had shrunk to such an extent that mobilizing resources to increase output posed a significant challenge.

II. The arms industry's place in the economy

In Poland, despite fundamental economic and political changes, free market rhetoric and generally applied liberal policies, the importance and place of the arms industry did not change. It was instead actually reinforced during the turbulent years of transition to a market economy. The sector preserved its special position, largely owned, guided and protected by the state, and enjoyed special privileges, occasionally even at the expense of economic rationality. Military strategic arguments often prevailed over economic considerations.

Discussing the procurement of the F-16 combat aircraft, Jerzy Szmajdzinski, the Polish Government's representative, declared in 2001 that it would be 'imprudent to back out of purchasing a multipurpose plane due to budget constraints'.¹ In 2006 the Minister of Defence and later Minister of Foreign Affairs, Radoslaw Sikorski, reiterated: 'For us, the fate of the Polish arms industry is of utmost importance.'² Although their scope and scale diminished significantly, defence-related firms continued to enjoy special privileges, such as increased budgetary resources, special subsidies or tax breaks. In May 2002 the Deputy Defence Minister, Janusz Zemke, outlined a \$3.5 billion priority allocation to the sector (in relation to the F-16 deal) to be financed outside the normal defence budget that had already risen to 1.95 per cent of GDP.³ Offsets were also linked with promoting military production. At least 50 per cent direct offset was required in Poland, in contrast with 20 per cent in Hungary. To encourage direct offset activities, financial initiatives were introduced, among them tax breaks. Michal Jeziorski noted that 'The Ordinance of the Finance Minister came into force after April 19 concerning the exemption from income tax for offset recipients, who as part of the implementation of obligations, will receive state-of-the-art technologies free of charge.'⁴

The sector's privileged position reinforced continuity at the company level, confirming the determination of the arms companies' management to remain in the sector and continue to invest in military-related activities.

¹ Quoted in Seguin, B. R., *Why Did Poland Choose the F-16?*, Occasional Paper no. 11 (George Marshall Center: Garmisch-Partenkirchen, June 2007), p. 10.

² Jach, K., 'Plan of attack', *Warsaw Business Journal*, 20 Mar. 2006.

³ Seguin (note 1), p. 11.

⁴ Jeziorski, M., 'The state of arms', *Warsaw Voice*, 26 May 2004.

Additionally, the policy attracted ambitious newcomers. By the mid-2000s some arms-making firms were among the best exporters and the most innovative and profitable Polish companies. In 2006 ZR Radmor SA, one of the oldest Polish defence industrial enterprises, was chosen as the most innovative Polish company by the *Rzeczpospolita* newspaper, and in 2012 it was still in the group of the most innovative firms. Other companies, such as PZL-Swidnik, WB Electronics and Computerland (a private SME that conducted both civil and military activities), were also highly ranked.⁵ Thanks to offset deals and large-scale export opportunities, several arms producers were able to enter the sphere of best-performing companies. These success stories were used to confirm the argument that the arms industry was a key driver of growth and had to remain at the core of the Polish economic system. In Hungary, in contrast, the place of the arms industry became marginal. The former flagships of the defence sector went bankrupt and only a handful of arms companies were successful, most of them small- or medium-sized.

Arms production's place in the economy and the nature of the economic and institutional framework have affected its development. During the Warsaw Pact period arms-producing companies were tightly connected to each other in both Hungary and Poland. The wave of bankruptcy that took place after the end of the cold war prompted a domino effect: when one company had difficulties, others were also hurt. Intra-sector exchange, cooperation and supply chains were broken, deadlines were not met and debts were not paid. During the partial recovery of the arms industry some key end-producers were able to stabilize their positions, but the situation for suppliers remained far more precarious.

In Poland the intentional efforts of the state enabled the core of the sector and its institutions to survive. The paths of cooperation and communication, the division-of-labour mechanisms and the crucially important personal links between the companies were damaged, but not broken. Once recovery started the sector was able to function as a relatively coherent system again; positive developments in one area stimulated other elements of the network. After a while the series of positive effects gained momentum, leading to overall recovery of the arms industry.

In Hungary the defence sector fell apart. Some companies managed to survive, following considerable struggles, and sporadic efforts to work cooperatively also took place, but only isolated successes occurred. Reconstruction efforts failed to gather momentum, in part because the internal

⁵ On the *Rzeczpospolita* list see Polish Ministry of Treasury, 'Innovativeness of Polish companies against European backdrop', Economic news, 12 Nov. 2012, <<http://msp.gov.pl/en/polish-economy/economic-news/3829,dok.html>>; and 'Economists have chosen the most innovative Polish companies', PAP–Science and Scholarship in Poland, 10 June 2011, <<http://www.naukawpolsce.pap.pl/en/news/news,382686,economists-have-chosen-the-most-innovative-polish-companies.html>>.

links of the sector were broken. Efforts that might have been successful tended to wane rapidly and their impact remained limited.

III. Defence industrial policy

The Polish arms industry was considered one of the key engines of economic growth. Until the early 2000s the facts did not support this view and the generous assistance given to it appeared increasingly to be a futile and extremely costly policy. It appeared that the importance attached to arms making was an ideological afterthought to rationalize the policy of the 1990s, when the allocation of scarce resources and the military establishment's shopping spree had again placed military-related production at the centre of the emerging new economic system. However, the developments resulting mainly from external factors that took place in the early 2000s—the Iraq invasion, some major arms export contracts and the F-16 deal—confirmed the sector's importance and seemed to justify 'retroactively' the defence industrial policy of the previous decades. Reacting to the global economic crisis that began to unfold in 2008, which Poland managed much better than most European countries, Polish decision makers decided to again promote the military-related sector in hope that its development would create a positive momentum for the whole economy.

In Hungary, in contrast, the arms industry was relegated to a marginal position and remained there throughout the transition to a market economy. It received limited funds and contributed little to the economy. The most recent radical change of defence industrial policy in Hungary, which aims to breathe new life into the sector, would require significant sacrifices.

Comparison of Hungary and Poland shows that whether or not the government opted to promote or abandon the arms industry, consistent and conscious state policy was a key factor. The absence of such a policy created tremendous losses both in human and economic terms. In addition, these losses did not function as 'creative destruction', using the term of the Austrian economist Joseph Schumpeter; space was not cleared for new, more advanced companies and types of economic activity. Instead, the collapse of the old structures was usually followed by their slow and expensive reconstruction before new ones could be introduced.

In both countries the state agencies in charge of implementing industrial policy tended to be bureaucratic, inefficient and often prone to political pressure. They put governmental defence industrial policy into practice with varying efficiency. Ministry departments often proved to be slow and unproductive, but Poland's state-owned ARP, for example, succeeded in stimulating efficient restructuring.

In Poland companies benefited from the relative continuity of both the institutional system and the defence industrial policy. Although managers

never felt it was sufficient, the sense of security that was created allowed the formulation of relatively long-term company strategies. A major improvement was the introduction of medium-term orders by the MND in the early 2000s, which facilitated company-level adjustments.

In Hungary one of the producers' major complaints was the lack of clear defence industrial guidelines or even medium-term strategic planning. Directives often changed, even in the case of signed contracts, placing companies in a difficult position. Due to financial difficulties contracts were often signed at the last minute, necessitating short-time delivery. Companies were also often paid late (e.g. in the autumn, near the end of the financial year), further destabilizing their financial situation.

Research, development and prototype production take a long time, particularly in the arms industry. Thus, relatively constant defence industrial guidelines and regular orders benefited the arms industry, even if the plans were only for the medium term and not realized in the end. In the case of the W-3 Huzar helicopter and the Iryda advanced trainer aircraft projects in Poland, equipment was not ordered or incorporated into the army's arsenal as planned, but future projects were easier to initiate on the basis of developments that had taken place related to those projects. However, abandoned or suspended projects could be more beneficial for the overall development of the defence industry than no projects at all, as in Hungary where due to insecurity about the future of the sector companies hesitated to launch medium- or long-term projects, which led to standstill.

IV. The Warsaw Pact heritage

Poland did not fundamentally alter the defence industrial structure created during its membership in the Warsaw Pact but reduced, revamped and restructured it as much as possible. The sector preserved some of its key features, its core still consisted of the large-scale military companies of the past that retained their previous profiles. With some important new elements and modifications, their output and export structures also mirrored the legacy of the past.

Practically from the beginning of the systemic changes, new and alternative forms of ownership and activity emerged in the margins of this preserved core. Defence industrial authorities intended to suppress, or at least keep these firms at the periphery of the sector for a relatively long time, as if the rewards of economic liberalism that were welcome in other segments of the economy were undesirable in the military-related one. However, in the early 2000s, as state agencies witnessed the international market success of new products and companies from the periphery, the newcomers were gradually recognized and cooperation with them was authorized. Increasingly, organic cooperation became one of the catalysing

forces of defence industrial development, and today the marginal companies have entered the core of the arms industry.

In Hungary the traditional Warsaw Pact industrial base was by and large demolished. A few survivors maintain production on a diminished scale and often with a radically changed production structure. Some new companies have emerged with different production profiles, but the sector's firms no longer constitute an organic, consistent entity. The bulk of the defence industrial heritage of the past has been lost.

V. The arms industry's links with national armed forces and participation in foreign operations

In Poland the elements of the institutional system—the MND, the armed forces, political institutions and the arms industry—were interconnected, cooperated and, in general, were motivated by similar principles and intentions. This relatively close cooperation facilitated restructuring of the industry. State institutions assumed control of at least part of the financing and coordinating of R&D, technical developments and marketing. The defence industrial holding groups took care of promotion and marketing and handled some of the companies' administrative affairs. This division of labour relieved pressure on the companies and liberated resources that they could use for future projects. The vital links and feedback between R&D and industry and between industry and the armed forces functioned, although at times not as fast or as completely as the arms industry desired.

In Hungary this was not the case. The major defence actors failed to cooperate, which contributed to the poor performance of the sector. Lack of integration led to a considerable waste of resources that was accompanied by persistent shortages and industrial bottlenecks. The arms industry was unable to resolve long-standing problems, such as the discrepancy between the needs of the armed forces and the output of the arms industry. The meagre sums spent on R&D appeared wasteful because the results were not produced on an industrial scale and were not introduced in the national army. The army's needs were principally covered by imports; the domestic arms industry attempted to cope with lack of demand and the absence of R&D activities that might have led to improved products and prospects.

In the past Poland's arms industry sold most of its output on the domestic market, which was interpreted as a sign of the weakness of the industry. At present, because internal demand is linked with the foreign missions of the Polish armed forces, domestic sales are regarded positively. Such sales are also large-scale and high-level, representing serious business opportunities for the companies. The bulk of Hungarian arms production is sold on the

domestic market, which is an indication of the limited selection that the sector can offer. Hungarian companies have difficulty entering export markets. Meanwhile, Hungary's military needs are met by foreign companies, while domestic producers play an auxiliary role at best. In addition the domestic market is limited and less demanding than that of Poland.

The catalysing impact of international operations was more limited in Hungary than in Poland. Participation in international military operations was seen in East Central Europe as an incentive for domestic arms production and as an entry ticket to the world's arms markets. However, the nature of the foreign missions was also significant. A direct link existed between the type of military mission, the equipment used by the country's internationally deployed forces and the development of the domestic arms industry. Hungary took part in joint military operations with auxiliary mandates, mostly in infrastructure, rescue and after-crisis reconstruction tasks, while Poland participated with combat units. Hungary's successful foreign military operations stimulated demand for the specialized equipment used by its troops, but the impact on domestic arms production was limited. Polish military operations generated demand for large quantities of different types of developed weapons, creating a stimulus for the entire defence sector.

Poland's participation in military operations enabled weapons to be tested on the battlefield, adjusted and fine-tuned in combat conditions, and made available for sale on the spot. The Iraqi Army was offered the same type of equipment that Polish soldiers used. These products were also sold on other markets. Their dual usability, domestically or in NATO missions, significantly increased their marketability. Additionally, the existence of first-rate export products gave further impetus to the arms industry's development as a major export branch.

VI. Foreign ownership and partnerships

FDI played a different role in the two distinct models of defence industrial adjustment in East Central Europe. In Hungary an economic model led and dominated by transnational corporations emerged. Foreign capital dominated key areas of the economy, but it was under-represented in the arms industry and, while transnational corporations invested in a few defence-related companies, such investment did not play an important role. In Poland, particularly in the first decade after the end of the cold war, FDI assumed a less important role and position than in Hungary. Impressive FDI inflows began in the late 1990s, but transnational corporations principally invested in low-tech assembly production and the service sector, banks, infrastructure and retail trade. Despite the efforts of the Polish authorities, the presence of foreign capital in high-tech production

branches was rare; FDI, in fact, contributed to the persistence of obsolete economic structures.⁶

The arms industry, in contrast, attracted significant high-tech FDI, one of few sectors to do so. Foreign ownership of key economic assets was less widespread in Poland than in Hungary, but in the defence sector large transnational corporations owned several key companies and joint projects proliferated. Although its plants were often isolated in enclaves, rendering the benefits of foreign capital inflows limited, the presence of FDI strengthened and reinforced the sector's importance and enabled it to present itself as a principal engine of growth, a key revenue-generating machine and an important tool of international political alliances.

VII. Conclusions

A comparison of two similar companies, Poland's Ośrodek Badawczo-Rozwojowy Sprzętu Mechanicznego Sp. z o.o. (OBRSM), based in Tarnów, and Hungary's Gamma Műszaki Zártkörű Részvénytársaság, located in Budapest, illustrates the differences between the situations of and paths taken by Poland and Hungary (see appendix 5A). Both companies were high-tech research-oriented enterprises with outstanding products that were produced in small quantities. Both were medium-sized and well-run with a determined, creative management staff and a committed, highly skilled workforce that excelled in R&D and R&D-based small-scale production. Their products were well regarded on both domestic and international markets. However, while OBRSM operated in the sheltered environment of state protection and in the relative cohesion of the well-organized Polish defence industry, Gamma struggled to survive in a tougher and more difficult environment. OBRSM could count on relatively predictable orders through the MND that provided steady income and its management did not need to be concerned about tenders or international competition because the Bumar Group represented its interests. Gamma, on the other hand, waged a lonely battle with scarce resources and had to deal with the challenges presented both by domestic budgetary institutions and powerful international competitors. The new defence industrial policy advocated by the Fidesz-MPP-led coalition since 2010 has radically changed the company's situation.

The following chapters briefly present the trajectories of the other four ECE countries highlighting some of their characteristic features.

⁶ Zorska, A., 'Foreign direct investment and transformation: evolution and impacts in the Polish economy', *Eastern European Economics*, vol. 43, no. 4. (July/Aug. 2005); and Organisation for Economic Co-operation and Development (OECD), *OECD Economic Surveys: Poland* (OECD: Paris, 2010), pp. 105–107.

Appendix 5A. Comparing a Polish and a Hungarian company

I. Ośrodek Badawczo-Rozwojowy Sprzętu Mechanicznego Sp. z o.o.

Ośrodek Badawczo-Rozwojowy Sprzętu Mechanicznego Sp. z o.o. (OBRSM, the Mechanical Equipment Research and Development Centre) was established in 1971 to support ZM Tarnów as an independent research and development company. Its initial task was to adapt Russian licences and technology used in the framework of the Warsaw Pact.¹ After 1980 the company concentrated on its own development and ceased to develop Russian licence-based products. By 2006 OBRSM conducted R&D for various industrial companies, primarily for members of the Bumar Group, and carried out small-scale prototype production. At that time the firm employed 90 people, twice the size of the staff in 2000 and more than half of them in R&D. Management preferred not to expand further in order to preserve the company's well-functioning internal structure, communication and management. By the late 2000s the company possessed sophisticated technology, had a well-trained workforce, whose average age was 36, and held ISO and AQAP quality certificates.² In September 2009 OBRSM received the Defender award for its 7.62-mm sniper rifle, code-named 'Alex', at the 17th International Defence Industry Exhibition in Kielce, Poland.

OBRSM focused totally on military production, with the Polish Ministry of National Defence as its main customer. At the end of the cold war the company was one of 10 military-related R&D institutes in Poland. Three went bankrupt and were liquidated; the rest were consolidated and united under state ownership. In the initial post-cold war period the company had to address economic and political difficulties, but the government financed the bulk of OBRSM's projects, and the Board of Education, a state-owned agency that funded R&D projects, also sponsored some others. OBRSM self-financed some projects whose development the company itself initiated without external demand. In the mid-1990s OBRSM developed 81-mm mortars and produced a prototype for the Polish Army, but the army chose a different model. Because the project had been initiated by the company, its losses were not compensated.³ Since the 2000s OBRSM and the Bumar Group have cooperated closely and the resulting

¹ Ośrodek Badawczo-Rozwojowy Sprzętu Mechanicznego Sp. z o.o., <http://www.obr.tarnow.pl/obr_sm/index.php?option=com_content&view=frontpage&Itemid=121&lang=en>.

² Gruszecki, W., Managing director of Ośrodek Badawczo-Rozwojowy Sprzętu Mechanicznego Sp. z o.o. (OBRSM), Swietek, T., OBRSM's technical director, and Suwara, A., its marketing specialist, Interview with author, Tarnów, 1 Oct. 2007.

³ The Polish company Huta Stalowa Wola later started to produce the mortar; similar products were also manufactured in Romania and Slovakia.

products have been distributed through Bumar, Cenzin or the Cenrex export-import company. OBRSM joined the Bumar holding group in 2010, and the company's management hoped that the Bumar Group would fund its development projects.

OBRSM's projects included a tank training simulator, 60-mm mortars and modernization of the ZSU-23-4 'Szyłka', a 23-mm mobile anti-aircraft gun. The company developed the ZSU-23-4, originally a Soviet-licensed cannon, into a high-tech electronically controlled system. Together with ZM Tarnów, OBRSM developed 12.7-mm sniper rifles for the Polish Army, special forces and police. These rifles were able to use NATO standard ammunition but not Russian ammunition. ZM Mesko supplied the NATO ammunition, which enabled OBRSM to adjust the specifications to NATO standards. The award-winning Alex sniper rifle was completely designed by OBRSM, but the Polish armed forces participated in its development and modification.

The order-scheduling practices of its partners created one of OBRSM's main problems. The MND's time frame for orders was two to three years, but R&D projects had a time frame of as long as five or six years. However, OBRSM and its suppliers usually struggled to balance their cash flow and were forced to operate in a shorter, usually annual, time frame.⁴

OBRSM was a member of the Bumar Group's Soldier Division. In 2010 the company started work on the development of a new weapon, the SKW-338 semi-automatic sniper rifle, which uses 8.6-mm x 70 (.338 Lapua Magnum) ammunition.⁵ In June 2011 the company celebrated its 40th anniversary, and in July 2012 OBRSM merged with ZM Tarnów.⁶

II. Gamma Múszaki ZRt

The state-owned predecessor of Gamma Múszaki Zártkörű Részvénytársaság (Gamma Technical Corporation), Gamma Múvek, was founded in 1920. It flourished in the 1970s and 1980s, providing the countries that were members of Comecon and various developing world markets with measuring, detection and optical instruments for both civil and military use. When the cold war ended, because of its strategic importance, privatization of the company was not an option. However, Gamma Múvek lost most of its markets and state agencies provided inadequate support. In 1993 the company went bankrupt and was liquidated. The management and employees took over Gamma's remaining assets and together with a US businessman set up its successor, Gamma Múszaki ZRt. By 1994 the company employed 250 people and produced some

⁴ Gruszecki (note 2).

⁵ 'Debut of SKW-338', Altair, 5 Sep. 2011, <http://www.altair.com.pl/mspo-report/view?article_id=291>.

⁶ 'Zakłady Mechaniczne Tarnów (ZMT) zaprezentowały swoje ubiegłoroczne wyniki finansowe' [Mechanical Plant Tarnów (ZMT) presented last year's financial results], Altair, 4 June 2013, <http://www.altair.com.pl/news/view?news_id=10600&q=obrsms>; and ZM Tarnów, <<http://www.zmt.tarnow.pl/en.html>>.

high-quality products, but it suffered from a severe lack of orders and its outstanding debts equalled 30 per cent of its assets.⁷

Starting in the early 2000s the company's new management introduced a radical internal restructuring package. The company sold one estate (another was transferred to a Gamma-owned real estate agency), delegated some activities to its independent subsidiaries and cancelled others. In the early 2000s the company's financial situation also stabilized and Gamma won important orders from the Hungarian MOD, the Customs Office and the Paks Nuclear Power Plant. By 2007 Gamma and its key subsidiaries employed 100 people and produced nuclear and chemical radiation measuring instruments, environmental protection and meteorological equipment, early-warning systems and instruments for monitoring industrial processes. Several of its products won prizes at prestigious international fairs, and the Slovak armed forces also ordered equipment from Gamma.

In 2007 Gamma used its last reserves and took loans in order to buy Respirator ZRt, an important producer of protective equipment for NBC threats, and for industrial accidents and natural catastrophes.⁸ Respirator had a monopoly position on the market; the purpose of the acquisition was to generate resources for Gamma's further stabilization and subsequent expansion. The management hoped that, together, the two companies could secure a single-supplier position on the Hungarian market and, subsequently, access export markets as well.

Despite its achievements, Gamma lacked capital and domestic orders. The procedures of the main purchasing institutions, including the MOD, created problems as orders were usually formulated for the subsequent year. However, budgetary readjustments often led to downward revision and late payment, even of signed contracts. Slow, complex bureaucratic procedures and, at times, unfair competition for tenders exacerbated the situation. Paradoxically, Gamma received its first major domestic MOD order because of US mediation. On another occasion, Gamma won an MOD tender that subsequently was cancelled. Later, the tender was announced again and the major transnational company that won subcontracted Gamma as a supplier.

Gamma has been profitable since the early 2000s, which has enabled it to reinvest, principally in R&D. Few of the R&D centres that formed the backbone of the sector in the 1970s and 1980s in Hungary survived; Gamma was one of them. Its products fit into Hungary's missions in NATO's CBRN defence. Nevertheless, the company continued to face economic and financial challenges. The uncertainty of domestic orders and late payments made the company's financial situation precarious and limited its ability to enter foreign markets, among other problems, because participation at major international arms fairs or the acquisition of international copyrights for Gamma's indigenously developed products was difficult.⁹

⁷ Koi, M., General manager of Gamma Műszaki ZRt, Interview with author, Budapest, 3 July 1997.

⁸ Spronz, I., Managing director of Comasec-Respirátor, Interview with author, Budapest, 16 Feb. 1994.

⁹ Zsitnyányi A., General manager of Gamma, Interview with author, Budapest, 29 Oct. 2007.

Thanks to the 2010 defence industrial policy shift, Gamma was able to secure financing for the development of a completely new product, the Komondor reconnaissance vehicle. Gamma had to build the product from scratch, and 70 suppliers were involved in the process.¹⁰ Gamma's general manager, Attila Zsitnyányi, became the new president of the HDIA and was a fervent advocate of the policy of import substitution and reconstruction of the domestic arms-producing base.¹¹

¹⁰ 'Körbeszimatoltuk a 13 tonnás magyar harci Komondort' [We sniffed around the Hungarian military Komondor which weighs 13 tonnes], *Heti Világgazdaság*, 30 Oct. 2012.

¹¹ 'Újra helyzetbe kerülhet a magyar hadiipar' [The Hungarian military industry can have a new chance], Interview with Attila Zsitnyányi, President of the Defence Industry Association of Hungary, 20 Mar. 2012, *Biztonságpiac.hu*, <<http://biztonsagpiac.hu/ujra-helyzetbe-kerulhet-a-magyar-hadiipar>>.

6. The Czech Republic: bright promises and sober reality

On 1 January 1993, with the peaceful dissolution of Czechoslovakia, the Czech Republic and Slovakia became independent countries. In the early 1990s, of the countries of East Central Europe, the Czech Republic was in the best position to accomplish a swift economic and political transformation, including the revamping of its arms industry. Several factors combined to provide considerable leverage for the achievement of radical changes: the economy of the former Czechoslovakia had been relatively sound; some pre-World War II democratic traditions had existed; and the new political leadership of the Czech Republic was widely supported both inside and outside the country.

In 1990, in the first free elections in Czechoslovakia, the *Občanské fórum* (OF, Civic Forum) won a landslide victory. In the elections that have been held since the Czech Republic became an independent state, the *Občanská demokratická strana* (ODS, Civic Democratic Party) and the *Česká strana sociálně demokratická* (ČSSD, Czech Social Democratic Party) have dominated. The ČSSD won the elections in 1998 and 2002; in 2006 the ODS took back power. All elections have been close and governments of varying unstable coalitions have been formed. The June 2006 general election was inconclusive and followed by months of intense negotiations, resulting in the formation of a three-party coalition—of the ODS, the *Křesťanská a demokratická unie–Československá strana lidová* (KDU–ČSL, Christian and Democratic Union–Czechoslovak People’s Party) and the *Strana zelených* (SZ, Green Party)—led by Mirek Topolánek (ODS). The coalition governed from January 2007 to the spring of 2009, when it broke up, seriously undermining the Czech Republic’s presidency of the Council of the European Union. A caretaker government took over until the May 2010 elections, after which a centre-right coalition, headed by Petr Nečas (ODS), was formed by the ODS and two new right-wing parties—the *Tradice Odpovědnost Prosperita 09* (TOP 09, Tradition Responsibility Prosperity 09) and the *Věci veřejné* (VV, Public Affairs)—even though the ČSSD won most seats.

The Czech economy performed rather well in the 1990s, although a major slowdown occurred in 1997–98. Thereafter, structural changes that increased exports and a wave of foreign direct investments, particularly in the transport and electronic equipment sector, improved the economic situation. During the 2000s economic growth was steady, although less spectacular than that of Slovakia or other ‘latecomer’ countries in East

Central Europe, fluctuating between 1.9 and 6.8 per cent. Nonetheless, the increasing budget and current account deficits warned of unresolved structural problems.¹ While the Czech economy was less vulnerable than that of many other countries to the financial turmoil that accompanied the global economic crisis that became manifest in 2008, GDP and exports dropped significantly in 2009 and, despite better performance in 2010, they have been lower than in the previous decade ever since.

The Czech Republic's foreign policy has been markedly Atlanticist, reinforced since 2003 by President Václav Klaus's Euroscepticism, although the country has played a less active international role than Poland or Romania. Security and defence policies have been tailored to meet NATO's requirements, while the EU's policy has had less impact on these policies.² Within NATO the Czech Republic's efforts have focused on chemical, biological, radiological and nuclear defence and include participating in a joint CBRN battalion and hosting NATO's Joint CBRN Defence Centre of Excellence, which opened in July 2007 in Vyskov.

Since the mid-1990s the Czech Republic has actively taken part in international military operations, both in the framework of the United States' 'global war on terrorism' and in Europe. The country has participated in NATO's military operations since 1999 as part of the Kosovo Force, initially with a reconnaissance company, and, later, a mechanized unit. Between 2002 and July 2005 a joint Czech–Slovak KFOR battalion of, on average, 500 Czech and 100 Slovak soldiers contributed to KFOR's Multinational Brigade Centre.³ The Czech Republic also took part in the EU Military Operation in Bosnia and Herzegovina. Its soldiers were withdrawn in June 2008 but were redeployed from June 2010.⁴

In Iraq two teams of instructors trained and assisted the Iraqi military in the maintenance and service of Soviet-designed T-72 main battle tanks and BMP-1 infantry fighting vehicles (which were produced under licence by Czechoslovakia as the BVP-1) at an Iraqi–US base north of Baghdad. The Czech Republic's activities in Iraq ceased at the end of 2008.⁵ In NATO's International Security Assistance Force in Afghanistan the Czech Army has

¹ A current account deficit occurs when the value of total imports is greater than that of total exports.

² According to Jiří Štábl, an MOD spokesman, NATO initiatives take precedence in the new Czech defence policy: 'The ambition is that three quarters of the armed forces of the Czech Republic are consistent with NATO standards.' He also noted that the EU's Common Security and Defense Policy operations would be undertaken depending on the funds remaining. Quoted in Contiguglia, C., 'Czech military strategy looks toward U.S.', *Prague Post*, 8 Sep. 2010.

³ Czech Ministry of Defence, 'KFOR: NATO operation "Joint Enterprise" in Kosovo', 8 Aug. 2011, <<http://www.army.cz/scripts/detail.php?id=15976>>.

⁴ Czech Ministry of Defence and Armed Forces, 'Czech Republic armed forces re-join EUFOR BiH', <<http://www.army.cz/en/ministry-of-defence/newsroom/news/czech-republic-armed-forces-re-join-eufor-bih-42809/>>.

⁵ Czech Ministry of Defence and Armed Forces, 'Foreign operations', 12 Oct. 2011, <<http://www.army.cz/scripts/detail.php?id=5807>>.

contributed to six operations in security maintenance, in the provincial reconstruction team in Logar province (PRT Logar) and in the ACR Task Force ISAF, an organizational unit set up in 2010.⁶ As of 2011 the Afghan contingent was 790 strong, and in 2011 the Senate earmarked 82 million korunas (\$4.6 million) for ‘reconstruction and development assistance’ in Afghanistan.⁷ The Czech Republic has also participated in the EU’s Naval Force Somalia (EU NAVFOR Somalia, or Operation Atalanta) anti-piracy operation.⁸

Most of the tasks carried out by the troops involved in these operations have not been directly combat-related, but they have generated domestic demand for military equipment, although on a far more modest scale than in Poland. Czech-made chemical defence equipment was, for example, widely used in Iraq. Other military-related activities have also led to domestic orders, such as the donation to the Afghan Government in 2007 of 12 machine guns and 12 Soviet-made helicopters, all refitted with modern equipment.⁹ In 2010 Letecke opravny Malesice (LOM Praha, Aircraft Repair Enterprise), located in Prague, won a €10 million (\$13 million) NATO tender to repair four Mi-17 helicopters for the ISAF operation.¹⁰

In the mid-2000s the controversial plan to establish a US missile defence radar system on Czech territory was a key foreign and domestic policy issue. Even though the project was abandoned, it provides insight into defence-related decision making (see section II).

I. Defence industrial policy: from conversion to selective promotion

The ‘velvet divorce’ of the Czech Republic and Slovakia led to reorganization of the arms industry in both countries. Both states had lost elements of the industry to the other and both chose the option to restore or develop the missing parts—manufacturing of heavy weapons was introduced in the Czech Republic, and aviation and electronics were developed in Slovakia.

⁶ Czech Ministry of Defence and Armed Forces (note 5). See also Czech Ministry of Defence and Armed Forces, ‘ACR Task Force ISAF’, 2 Aug. 2013, <<http://www.army.cz/scripts/detail.php?id=14355>>.

⁷ Contiguglia, C., ‘Rules of disengagement in Afghanistan’, *Prague Post*, 16 Feb. 2011; and Czech Ministry of Defence and Armed Forces, ‘Vojenská policie opět ve Štěchovicích’ [Military police again in Štěchovice], <<http://www.army.cz/scripts/detail.php?id=1435>>.

⁸ EU NAVFOR Somalia, ‘The Czech Republic’s support to EUNAVFOR anti-piracy operation’, 17 Feb. 2010, <<http://www.eunavfor.eu/2010/02/the-czech-republic-s-support-to-eunavfor-anti-piracy-operation/>>.

⁹ The donation came from the army’s unused stocks after the Czech Republic received a Russian debt instalment payment in the form of various military goods, including 26 new helicopters. Mlčochová, J., ‘Don’t be angry: helicopters to Afghanistan’, *Czech Business Weekly*, 19 Feb. 2007.

¹⁰ ‘La société tchèque LOM remporte un important appel d’offres de l’OTAN’ [The Czech company LOM wins major NATO tender], Radio Praha, 1 Aug. 2010, <<http://www.radio.cz/fr/rubrique/infos/infos-2010-08-01>>.

Each country rehabilitated its arms industry, in hope of turning it into a key engine of economic growth that was able to attract foreign investors and employ thousands of people. The arguments in support of the sector were similar in both countries, although initially each country chose a different strategy. The Czech Republic opted for liberalization and radical privatization, concentrating on developing its aviation industry in cooperation with Boeing. In Slovakia, the state retained ownership of the arms industry and attempted to salvage what could be saved while revamping it to suit domestic needs and promote export. Over time Czech policy became more protective and the Slovak approach became more liberal. Cooperation between the two countries eased and intensified.

The Czech Republic retained the most developed arms-making facilities of the former Czechoslovakia, which made their conversion and promotion easier than similar efforts in Slovakia. From the early 1990s defence industrial facilities were privatized and foreign investors were invited to participate in the arms sector. The Czech Republic was included in the first wave of NATO enlargement, becoming a member in 1999. (Slovakia became a member in 2004.) Despite these favourable conditions, transformation of the arms industry was slow and inefficient, and failed to address several structural problems.

The resolute conversion policy launched by President Václav Havel at the start of political change in Czechoslovakia lasted only a few years, and when the federation broke up, in 1993, the Czech leadership lost interest in the issue. Arms production resumed and arms exports were again promoted. The Minister of Industry and Trade, Vladimír Dlouhý, voiced the new official policy, stating that Havel's arms policies had been naive and forced on the country by hypocritical Western powers: 'They preached to us to drink water while they themselves were drinking wine. . . . Armaments are a commodity and Czech weapons have a good reputation worldwide.'¹¹ Lubomír Soudek, general director of Škoda Plzeň, one of the country's biggest arms manufacturers and president of the Research, Development and Production (RDP) Group, a consortium and the most important arms industry lobby, put it more bluntly: 'President Havel is a man of high moral principles. . . . But the world is not moral. If it were moral, there would be neither arming nor re-arming.'¹²

After this first major change of course, the Czech Republic adopted a liberal hands-off policy, at least officially. In reality, its defence industrial policy selectively promoted the arms industry, mixing a laissez-faire approach with targeted state intervention in a combination of elements of the Hungarian and Polish models. Although state agencies abandoned

¹¹ Perlez, J., 'Czechs gear up to resume weapons exports', *New York Times*, 4 July 1993.

¹² Perlez (note 11).

direct ownership and management, from the mid-1990s the government actively promoted an ambitious modernization project for the Aero Vodochody (Aero) aircraft company in Odolena Voda (see appendix 6A, section I).

Aero was the largest and one of the most successful military-related companies and its upgraded L-159 multi-role combat aircraft, a technologically sound product with ample potential for development, was launched on the international market. In the late 1990s aviation had been an emerging branch, and Aero had a robust industrial tradition. Despite its financial difficulties, the company produced high-quality, high-tech equipment, had a good reputation and a broad international network, and had begun major restructuring from the mid-1990s.¹³ In 1998, with government assistance, Aero entered a joint venture with Boeing, a partnership that was regarded as the 1990s success story of the arms industry in East Central Europe. However, a combination of bad luck, an unfortunate choice of partner, rapidly changing international conditions, and the failure of the government and Aero to respond quickly to these problems created difficulties for the project and the entire defence industry. The September 2001 terrorist attacks on the USA led to a slump for the aviation sector that had not been possible to predict. Czech decision makers were ill prepared to judge the sincerity of Boeing's commitment to promote the L-159 aircraft, and they wrongfully assumed that the joint venture with Boeing would automatically enhance efficiency and profitability. By 2004 it became clear that Boeing had failed to deliver on its promises, and the Czech Government bought Boeing's share in Aero.¹⁴ In 2007 a Czech-Slovak private equity fund, Penta Investments, bought Aero for 2.9 billion korunas (\$143 million). The new owner pledged to keep the company together and preserve the existing production profile.

Concentrating the country's scarce resources in one project at a single company proved to be a mistake. Had the project worked out as expected, it would have lifted the entire sector. Instead, its failure made the whole sector vulnerable. Recovery for Aero and a handful of entrepreneurial Czech firms took nearly a decade. The most spectacular resurgence occurred in the aviation sector, where a cluster of small private companies emerged with new products and a modern approach to management.

Firms that were connected in some way to Aero could also count on government backing. This was the case with Zbrojovka Vsetin-Indet (renamed ZVI Inc. in 2000), a small-arms and ammunition producer that

¹³ Stranak, A., Deputy President of Aero Vodochody, Engineering, Interview with author, Odolena Voda, 21 Apr. 1994.

¹⁴ Martin, E. P., 'For pennies, Boeing pulls out of Czech aircraft company', Radio Praha, 7 Oct. 2004, <<http://www.radio.cz/en/section/curaffrs/for-pennies-boeing-pulls-out-of-czech-aircraft-company>>.

had been a civil company in the early 1990s but that conducted a ‘reverse conversion’ in the early 2000s and resumed its pre-World War II military activities. It received state assistance and orders for its 20-mm Plamen (PL-20) aircraft weapon system for the L-159, and by 2004 the PL-20 had been integrated into the L-159 aircraft and certified for use in military aviation in compliance with the STANAG (NATO) and MIL (US) standards.¹⁵

While state agencies had provided assistance to the Aero-Boeing joint venture in various ways, the rest of the arms companies were expected to cope on their own and bore the full brunt of economic adjustment, market change and tough foreign competition. Their traditional markets were lost and the level of domestic orders for items other than those related to the L-159 aircraft was low, although for several years orders from the Ministry of Interior and other armed security forces partially compensated for the drastic reduction in orders from the army. However, as weapons were modernized, the domestic market shrank and the ‘non-Aero’ companies had to seek export markets and international cooperation or, in the absence of other alternatives, were forced into conversion.¹⁶ After a brief period of state-sponsored conversion assistance in the early 1990s, during which companies desperately tried to reinvent themselves and find feasible alternative projects, most of the Czech arms producers sank into inertia and continued to carry out their past activities, using up their reserves, while waiting for the government to take action. In the late 1990s the *Asociace obranného průmyslu* (AOP, Defence Industry Association) and most defence industrial players frequently criticized the government’s policy and its lack of medium- and long-term development and procurement plans.¹⁷ By the early 2000s the Aero project’s difficulties had become apparent and the unbalanced nature of support for the arms industry had led to serious bottlenecks. The government decided to back other programmes, including the modernization of handheld weapons for the police and armed forces, which was carried out by the small-arms producer *Česká Zbrojovka* (ČZUB), and programmes in the electronics field. Government agencies became more active, mediating with foreign partners, placing orders, providing occasional financial assistance and promoting exports. However, economic difficulties meant that the defence budget could not be increased, which limited the scope of these interventions. In comparison to Hungary,

¹⁵ Vajnar, V., Vice-President for international relations and Managing Director, Association of the Defence Industry of the Czech Republic, Interview with author, Prague, 22 Apr. 2002; and ZVI Inc., ‘Company profile’, <<http://www.zvi.cz/>>.

¹⁶ Vajnar (note 15); and Jarabica, J., Senior Director of industrial policy and restructuring, Gabriel, V., Development of industrial technology section, and Hlavicka, O. (Col.), Department of advanced technologies, Czech Ministry of Industry and Trade, Interview with author, Prague, 22 Apr. 2002.

¹⁷ ‘The Czech Republic: industry faces testing time of opportunity’, *Jane’s Defence Weekly*, 20 May 1998. The AOP is now called the *Asociace obranného a bezpečnostního průmyslu ČR* (AOBP, Defence and Security Industry Association of the Czech Republic, DSIA). *Asociace obranného a bezpečnostního průmyslu ČR*, <<http://www.aobp.cz/en/english/home-page>>.

with its more liberal policy and more drastic defence budget cuts, the Czech arms industry actors ought perhaps to have felt sheltered. The Czech Government had intervened to save some firms and to promote others, but after several years companies became aware of the limits of 'selective' defence industrial policy and lowered their expectations vis-à-vis the government.

Privatization

Most arms makers were privatized in the first waves of 'coupon (or voucher) privatization' in which the shares of large state enterprises were distributed among Czech citizens. Only a small group continued to be owned by the state, under the supervision of the Ministry of Defence or the Ministry of Economic Affairs. Coupon privatization was more a political gesture than an economic solution. Within a few years the bulk of the companies' shares ended up in mutual funds or, through a complicated system of cross ownership, remained in the hands of state-owned banks, investment agencies and other institutions. The investment funds, which were meant to introduce efficient management methods and improve the companies' performance, instead created unprecedented opportunities for corruption, fraud and unscrupulous enrichment, attracting skilful businessmen, former *nomenklatura* members and swindlers who were interested in personal gain rather than industrial restructuring. State agencies also lacked the resources and mandate to force restructuring. In the vicious chain of mutual indebtedness, most arms industry companies had to focus on day-to-day survival. By the end of the 1990s these companies were still badly in need of thorough restructuring and suffering from a lack of capital, investment and markets.

Company managers justified their inability to accomplish real change by placing blame on the mixed signals that were given by the government. Nonetheless, due to lax bankruptcy laws, few companies closed. While some well-known firms, such as the various branches of Tesla and the Slavičín ammunition company, went bankrupt, the bulk managed to get by, skilfully balancing on the brink of ruin. When a company's economic significance or political considerations justified intervention, the state became involved by placing orders, providing financial assistance or offset opportunities and, in some cases, by buying back the company.

A major order from the state rescued ČZUB, a former flagship company located in Uherský Brod, which had become increasingly indebted. Aero was bought back by the state because the economy and the military establishment could not afford to let it go bankrupt. In 2002 the Synthesia ammunition company (later renamed Explosia) in Pardubice, the producer of the plastic explosive Semtex, again became state owned; because of the

'global war on terrorism' the government perceived a need to heighten security and control the company. It had been under the control of the Ministry of Finance for some years before it was later reintegrated into the framework of Synthesia. The company appeared to have recovered from the difficulties that it had experienced in the early 2000s and even presented a new product, lightweight dynamic armour, at the 2011 International Exhibition of Defence and Security Technologies (IDET). However, by late 2011 it again had financial problems.¹⁸

Several military producers under the MOD, such as VOP 025 Nový Jičín and VOP 026 Šternberk, remained state-owned until the late 2000s.

II. The arms industry

The break-up of the federation and the general economic slowdown led to a drop in defence industrial output by the end of the 1990s. In the early 2000s the sector employed 7000 people. In 2001, 60 per cent of the arms industry's output was destined for the national armed forces.¹⁹ In 2002 the arms industry had an annual turnover of 4–5 billion korunas (\$122–153 million), less than 0.5 per cent of total industrial production. The production of small arms and light weapons represented nearly 5 per cent of the total arms industry output.²⁰ According to one source, in 1989 the sector employed 73 000 people directly and 60 000 indirectly, but the number of those employed had dropped to 27 000 by 2010.²¹

Aviation has remained important, and in 2011 approximately 50 aviation-related firms employed 10 000 people. Except for the two largest companies, Aero and Letov Letecká Výroba (Letov), most of these small- or medium-sized firms specialized in high-tech niche products or worked as subcontracters for major international aviation companies. Letov, which was located in Kbely, was bought by the French Groupe Latécoère in 2000 and had a workforce of 530; today it supplies sections of aircraft fuselage and doors to Airbus, Boeing, Ambraer and several other key transnational corporations.²² Similarly, the Prague company Inter-Informatics was privatized and restructured as the Inter-Informatics Group in 2000. The firm possesses the technology, know-how, certificates and flexibility to allow it to switch rapidly between the military and civil sphere. The Inter-

¹⁸ 'Explosia looking past Semtex', *Prague Post*, 23 Sep. 2009; and Léko, I., 'Czech SEMTEX producer strapped for cash', *Czech Position*, 5 Oct. 2011, <<http://forum.ceskapozice.cz/en/business/companies/czech-semtex-producer-strapped-cash>>.

¹⁹ Proceeds from sales of arms and ammunition went up', *CTK Report*, 20 June 2001.

²⁰ Jarabica et al. (note 16).

²¹ Defence and Security Industry Association of the Czech Republic, 'Defence and security industry of the Czech Republic', Unpublished manuscript, Prague, Oct. 2008.

²² Veluire, A.-C., 'Aéronautique tchèque: "nous espérons retrouver le niveau que nous avions avant la crise d'ici un an ou deux"' [Czech aviation: 'we hope to see the level we had before the crisis within a year or two'], *Radio Praha*, 21 Jan. 2011, <<http://www.radio.cz/fr/print/article/135429>>.

Informatics Group provides engineering design services for civil and military-related projects and designed the virtual cable for the Airbus A-380. In 2011 it employed 300 people in the Czech Republic, France, Germany, Romania and Slovakia.²³

By the mid-2000s three new tendencies had appeared in the Czech arms industry. First, state-owned and private firms had begun to carry out some of the leading modernization and export projects together. Second, after two decades of practically uncontrolled capital accumulation, some domestic companies had become strong enough to enter the sector as important mid-level actors. Penta, the company that finally took over Aero, was completely Czech-owned, possessed a wide range of major production facilities and had the ambition to become a regional leader both in defence-related and civil activities. Third, foreign financial investors had entered the Czech arms industry. For example, Tatra, a manufacturer of military and civil vehicles, was purchased by financial companies that had no connection with arms making and lacked the technical knowledge, personal attachment and informal networks that had been indispensable in the past.

The manufacturers

In 2008 approximately 80 companies were engaged in military-related activities, and 40 of these were significant core producers. Due to the complex socio-economic changes and the eclectic Czech defence industrial policy, the form that arms-producing companies took varied greatly and included slightly reformed, privatized traditional firms; new, flexible, dynamic small- and medium-sized companies searching for a niche in the global arms industry; efficient state-owned firms that collaborated with large international players; companies that withdrew from defence-related activity, while preserving some assets; firms whose productive assets became completely dispersed, with only the brand name remaining; and others whose positions were solidified by financial infusions from international equity funds or domestic private financial investors.

Four main groups of defence-related companies existed: (a) the successors of the large traditional arms makers that had been taken over by private entrepreneurs, which was the dominant group; (b) companies that had been taken over by private foreign investors, a subgroup of the first group; (c) state-owned companies, which were principally under the MOD; and (d) new companies, including some 'amphibian' companies, that had been set up by private entrepreneurs and that were predominantly military-oriented.

²³ Moxon, J., 'Czech Inter-Informatics thrives on back of Airbus business', Flightglobal, 8 Nov. 2005, <<http://www.flightglobal.com/news/articles/czech-inter-informatics-thrives-on-back-of-airbus-business-202668/>>; and Inter-Informatics Group, <<http://www.iiprg.cz/hello>>.

Successors of the large traditional arms makers

The large former flagships of the traditional arms industry broke up into several smaller companies that were privatized. Some of these were restructured and some went bankrupt, while others struggled to survive. Although Aero, ČZUB and Explosia were saved because of state intervention, other companies that were not included in the government's strategic projects had to cope on their own or perish.

Tesla, once the pride of the Czechoslovak electronics and communications sector, was divided into small companies, some of whose products used Tesla's name. One such firm supplied radio-relay equipment for stationary and mobile (tactical) military telecommunications networks for the Czech Republic's armed forces, while another specialized in television sets and became fully civil.

Tesla's most advanced military-related product, the Tamara passive surveillance system, had been produced at a Tesla subsidiary in Pardubice that went bankrupt. A private Czech company, ERA, began to manufacture the product, and the buildings at Tesla Pardubice were sold to a Taiwanese firm, Foxconn, that produced computer parts for major computer manufacturers such as Apple and Compaq. The city of Pardubice has created an industrial park on the site of the former Tesla industrial estate. In 2006 the US company Rannoch Corporation bought ERA and changed the name of the Tamara passive surveillance system to VERA. The history of the equipment illustrates the typical trajectory of an outstanding defence industrial product in East Central Europe (see appendix 6A, section II). VERA was a superior system that had been developed endogenously with the concentrated support of scarce state and company resources. Despite its unique nature and high quality, institutional and financial difficulties limited its prospects until it was able to enter the international market when Rannoch acquired ERA.

Another former member of the once powerful RDP Group, Vlarské Strojírny, which was located in Slavičín and produced bombs and artillery ammunition, went bankrupt and closed after several changes of ownership and failed restructuring projects. CzechInvest, the Czech Republic's investment and business development agency, offered its premises for brown-field investment. The small-arms producer Zbrojovka Brno experienced dramatic ups and downs and survived until 2003, when it went bankrupt.²⁴ Nonetheless, most of the former core companies of the Czech arms industry managed to survive due to the determination of their management and staff and because of state intervention.

²⁴ Zeman, M., Managing director, and Machovec, J., Head of production, Zbrojovka Brno, Interview with author, Brno, 24 Apr. 2002; and Zbrojovka Brno, 'About us', <<http://www.zbrojovka-brno.cz/en/pages/340-about-us.aspx>>.

One such case was the Meopta optical instrument company, located in Přerov, which succeeded thanks to its early privatization and stable ownership, continued in-house R&D and fruitful cooperation with several Czech universities and research institutes. During the cold war the company was predominantly a military producer (with defence-related output of up to 75 per cent between 1970 and 1988). It became a civil producer in the early 1990s and returned to defence production by the end of the decade. In 2004 the company entered into partnership with the US distributor of its products, TCI of New York, and later changed its name to Meopta USA. In 2009 Meopta was awarded second place for 'greatest innovation potential' in the Czech Republic's Investor of the Year 2009 competition.²⁵

ČZUB, one of the world's largest handgun producers, was relatively solid when the major economic and political transformations began. In 1997 CZ-USA, a fully owned subsidiary, was set up in the USA to market ČZUB's products overseas. However, by the early 2000s, despite an increase in sales, the company's losses led it to consider diversifying its output—principally to automotive production. ČZUB announced major restructuring plans, including the dismissal of 110 of the 2050 employees.²⁶ In 2002 Eximat, a Czech aerospace and defence company, bought ČZUB's shares from Komerční Banka, and by 2004 ČZUB's losses had reached 16 million korunas (\$623 000), compared with 22 million korunas (\$567 000) in profit in 2003. The company blamed its difficulties on the strong koruna and export licence problems that were related to EU accession.²⁷

However, the history of the CZ 75 D compact pistol hinted at deeper problems of management and difficulties to adjust to the changed economic situation. The Ministry of Interior announced a public tender for the production of a new police handgun in 1999. In 2001 ČZUB presented its new CZ 75 line of pistols, which failed to meet the ministry's requirements. Despite the warnings of experts, the Ministry of Interior placed an order worth 650 million korunas (\$30.4 million) for the production of 46 000 pistols for the police. The first batch of 3000 had many imperfections and, following a series of complaints, heated exchanges and delays, the ministry fined ČZUB 11 million korunas (\$360 000). Nonetheless, by 2005 the company was able to produce a high-quality weapon that won a gold medal at IDET 2006 and has since been widely exported, including to the police forces of Egypt, Mexico and Viet Nam.²⁸

²⁵ Sedlák, L., 'Arms maker hit by financial woes', *Prague Post*, 1 Dec. 1993; and Indruch, J., 'The jewel of the Czech Republic: Meopta-optika', *Czech Focus*, no. 1/2012 (June 2012), pp. 8–9.

²⁶ 'Arms maker Ceska Zbrojovka gets a new owner, continues to diversify', *newnations.com*. Jan. 2002, <<http://www.newnations.com/archive/2002/January/cz.html>>.

²⁷ 'Business week', *Prague Post*, 6 July 2005.

²⁸ Company managers rarely acknowledged their own faults and usually blamed external circumstances for the difficulties. ČZUB general manager Lubomír Kolařík declared: 'Out of the line of

In 2007 Eximat's acquisition of the former premises, technology, stocks, raw material, and the like of Zbrojovka Brno, a company that had formerly cooperated and competed with ČZUB before its bankruptcy, further strengthened ČZUB's position.²⁹ By that time ČZUB had managed to achieve financial balance, mostly due to increased exports. Its US-based subsidiaries, CZ-USA and Dan Wesson, represented approximately 3 per cent of US rifle and shotgun production and ČZUB's weapons accounted for half of Russia's small-arms imports.³⁰ In addition to state assistance, the company received EU funds in the framework of the European Social Fund's 'Development of human resources in the manufacturing industries to increase efficiency and to overcome the economic and financial crisis' project.³¹ In May 2011 ČZUB and Fabryka Broni Łucznik, a Polish company located in Radom and part of Bumar's Soldier Division, signed a cooperation agreement concerning joint R&D, production and marketing. Additionally, ČZUB's Scorpion sub-machine gun won a golden medal at IDET 2011. In June 2011 ČZUB was reported to have signed a contract estimated to be worth 1.2 billion korunas (\$68 million) to sell 20 000 pistols, rifles and machine guns to police forces in Arab countries, possibly the UAE and Saudi Arabia.³²

Some former arms manufacturers have become predominantly civil producers while retaining some military-related activity. For example, Poličské Strojírny, an ammunition producer located in Polička, survived thanks to a state-brokered offset project to convert ammunition used in combat into training ammunition. When no subsequent orders were forthcoming, the company recognized that its prospects on the ammunition market were limited and opted to increase civil production, including pneumatic components for bus doors, which gradually became dominant in its output. The company's purely military-related facilities were refitted for ammunition disposal, a service that became one of its niche capacities.³³

famous homegrown weapon companies, ČZUB is probably the only company that won the fight with the insensitive political interferences that hit the industry after 1989'. Quoted in Hulpachová, M., 'Staring down the barrel: hassling by Interior Ministry forces ČZUB into manufacturing a world-class pistol', *Prague Post*, 27 June 2007.

²⁹ The company site says: 'after several recoveries, falls, and changes of the owners, the company's situation turned into agony [and] culminated in the declaration of bankruptcy in autumn 2003. In mid-2006, the firearms production in Brno Zbrojovka was terminated and an auction of the production premises of Zbrojovka Brno took place in January 2007.' Zbrojovka Brno (note 24).

³⁰ Hulpachová (note 28).

³¹ Česká Zbrojovka, 'Programmes of subsidies', <<http://www.czub.cz/en/pages/289-programmes-of-subsidies.aspx>>.

³² 'Business week', *Prague Post*, 29 June 2011.

³³ Pospisil, B., General Director, Poličské Strojírny, Interview with author, Polička, Apr. 1992; Lajzner, P., Economic Deputy Director, Poličské Strojírny, Interview with author, Polička, June 1993; Dvorak, M., Commercial director, and Skala, J., Chief of sale and planning of ammunition production, Poličské Strojírny, Interview with author, Polička, 23 Apr. 2002; and 'Interview with the Chairman of the Board and the General Director of Polické Strojírny a.s. Mr. Jaroslav Travnicek', *Epicos Newsletter*, vol. 3, no. 2 (12 Jan. 2010).

The Sellier & Bellot ammunition plant in Vlašim typified a Czech company that had a healthy mix of flexibility and continuity (see appendix 6A, section IV). Its production traditions, in-house R&D and stable ownership helped it through the first chaotic years of the 1990s and made it one of the best performing Czech companies. Sellier & Bellot was a rare example of endogenous development; it was fully Czech-owned and most of its cooperation links and inputs were also domestic. Although Sellier & Bellot had stable foreign markets, the firm remained independent and did not seek to become involved in mergers or joint ventures. Nonetheless, in April 2009 Companhia Brasileira de Cartuchos (CBC), a privately owned international ammunition producer group based in Brazil, bought the company, illustrating the irresistible pressure of internationalization in the arms industry.

Companies taken over by foreign investors

Companies that were owned by foreign partners formed a separate subgroup among defence-related Czech firms. They were privatized early in the 1990s and Western investors bought them sooner or later. From the beginning of the systemic changes the Czech Government actively encouraged foreign participation in defence industrial restructuring.³⁴ Several foreign takeovers occurred, but only a few proved successful and lasting. Despite high initial hopes on the Czech side, foreign ownership did not necessarily resolve a company's difficulties. As Jiří Hynek, the AOP's president put it: 'To be honest, U.S. investors in this country's defense industry have not proved themselves in the past.'³⁵ Aero's history and similar cases provided sobering lessons that selling to foreign entities was not a panacea for problems.

State orders, together with foreign management and financial investment, saved Tatra, which became prosperous from the early 2000s (see appendix 6A, section III). The hard-won success of some other companies, such as Prague-located Walter, a turboprop engine manufacturer that General Electric bought in 2008, demonstrated that companies could be saved and turned into prosperous undertakings by efficient management, innovation and a cautious expansion policy combined with the capital, new technology and know-how that foreign investors could contribute.³⁶

³⁴ A Jan. 2006 amendment to the classified information law added tough new security clearance measures for individuals on boards of directors or supervisory boards of companies that did business with the arms industry. Foreigners would not have been permitted to hold seats. The defence sector reacted to the proposal with astonishment and it was eventually abandoned. Bouc, F., 'Rules worry defense investors: amendment forbids foreigners from holding seats on boards of firms', *Prague Post*, 8 Mar. 2006.

³⁵ Bouc, F., 'Next in line: American-led investment group is fourth Tatra owner in 12 years', *Prague Post*, 9 Aug. 2006.

³⁶ 'GE buys Walter, Czech turboprop manufacturer', *Flightglobal*, 10 July 2008, <<http://www.flyingmag.com/news/ge-buys-walter-czech-turboprop-manufacturer>>.

State-owned companies

In the late 2000s the MOD owned five companies and operated them as commercial entities. The two most successful of these, VOP 025 Nový Jičín and VOP 026 Šternberk, participated in major modernization projects together with leading Western firms.

VOP 025 Nový Jičín was founded in 1946 as a repair company for the Czech Army. After operating in a variety of forms and a merger with another small MOD repair firm, the company began to develop and produce special vehicles with both wheels and caterpillar treads for military and civil use, using Tatra's T815 chassis. (The T815 chassis has been widely used, most notably in Tatra's ACHR-90M NBC decontamination vehicle, which the Czech Chemical Brigade has used during foreign missions.) VOP 025 produced a modernized version of the T-72M4 CZ armoured vehicle (in 2007), the VT-72M4 CZ recovery tank and an export version of the Austrian Pandur II 8x8 CZ wheeled armoured vehicle. At IDET 2007 the company presented new products, such as decontamination and cistern vehicles, and the latter was tested by the Algerian Army for use in foreign missions. VOP 025's areas of competence included welding, metal machining and forming, and constructing roads and agricultural handling facilities.³⁷ According to the AOBP's 2011 Defence & Security Catalogue, the company had a workforce of 600 and a turnover of 731 million korunas (\$41 million).³⁸

VOP 026 Šternberk s.p. specialized in military vehicle repairs and modernization. In 2006 its orders for the Czech military accounted for 62 per cent of the company's output; 18 per cent of orders were for other military-related customers; and the remaining 20 per cent was civil production. In 1998–2001 the company modernized 350 military vehicles for the Swedish Army. In 2006 VOP 026 employed 1037 people in its five divisions and generated 1.11 billion korunas (\$49 million) in sales.³⁹

In 2010 the VOP 026 military repair enterprise in Šternberk and the VOP 025 military repair factory in Nový Jičín were merged into one company: VOP-026 Šternberk s.p. According to the government's plans, due to the decrease in the MOD's demand and economic constraints, repair work for the Czech Army (previously carried out in Šternberk) and the professional

³⁷ Adamčík, M., 'Oprávérenská základna ve VOP 025 Nový Jičín, s.p.' [Repair base in VOP 025 Nový Jičín, s.p.], CzechTrade, 31 Aug. 2006, <<http://www.czechtrade.cz/reference/czechtrade-media/opravarenska-zakladna-ve-vop-025-novy-jicin/>>; and VOP 025, 'General information', Epicos, <<http://www.epicos.com/EPCompanyProfileWeb/GeneralInformation.aspx?id=785>>.

³⁸ Defence and Security Industry Association of the Czech Republic, 'VOP 025 Nový Jičín, s.p.', Defence & Security Catalogue portal, 2011, <<http://www.defencecatalogue.cz/catalogue-of-companies/irs-security-technologies/?spol=vop-025-novy-jicin-sp>>. On AOP's change of name to AOBP see note 17.

³⁹ 'VOP Sternberk sees sales rise', *Czech Business Weekly*, 22 Oct. 2007.

workforce were to be moved to Nový Jičín. The Šternberk-based enterprise, which employed 370 people and expected to realize a turnover of 300 million korunas (\$17 million) in 2011, was to be sold.⁴⁰ In 2011 VOP-026 Šternberk had 1300 employees; in April 2012 it changed its name to VOP CZ s.p.⁴¹

As of late 2012 the MOD owned LOM Praha, VOP CZ in Nový Jičín, and the Military Forests and Farms of the Czech Republic, in Prague.⁴²

New companies

From the mid-1990s a number of new small private companies emerged that were specialized in high-tech production with a considerable share of domestic R&D. Most of these were primarily military-oriented, although several also intended to develop a civil profile. The bulk of new aircraft producers belonged to this category, along with emerging IT and communication technology firms.

Retia, which was established in 1993, is located in Pardubice. It specializes in military electronics, weapon system modernization, radar technology, development of C⁴I systems and software equipment. The company's products included ReDat systems for voice and data recording, and quality-management and localization systems.

RS Dynamics was set up in 1991 in Prague to develop specialized environmental and medical instruments. The company has developed a unique detector for explosive and radioactive materials that won a Lynx Award for the best European research project in 2008 within the EUREKA programme of support for R&D. RS Dynamics's current products include explosives analysers, portable instruments for solid contamination survey, stationary monitoring systems, micromagnetic instruments and instruments for medical research.⁴³

A significant cluster of small-scale aviation producers have also emerged. Track System, located in Hradec Králové, has developed an unmanned helicopter, while Sedláček UL-JIH, in Kaplice, produces an ultralight aircraft. Evektor in Kunovice, which started as Aero's cooperation partner for the L-159 and Ae-270 Ibis aircraft, has become a leading company in aircraft and automotive development and design.

⁴⁰ Jones, T., 'Czechs to sell military repairs workshop in Šternberk', *Czech Position*, 4 Oct. 2011, <<http://www.ceskapozice.cz/en/business/companies/czechs-sell-military-repairs-workshop-sterberk>>.

⁴¹ VOP CZ, s.p., 'Company profile', <<http://www.vop.cz/en/kategorie/company-profile.aspx>>.

⁴² Czech Ministry of Defence and Armed Forces, 'State enterprises set up by MoD, and allowance organisations', <<http://www.army.cz/scripts/detail.php?id=64999>>.

⁴³ European Commission, DG Research and Innovation, 'Czech scientists target safe transport with substance detector', 13 Jan. 2009, <http://ec.europa.eu/research/headlines/news/article_09_01_13_en.html>; and Falvey, C., 'Science journal', *Radio Praha*, 26 Feb. 2011, <<http://www.radio.cz/en/section/science-journal/science-journal-2011-02-26>>.

A few new private start-ups were created after the break-up of Czechoslovakia to fill the void left by the producers that were now located in Slovakia. The SVOS Company, founded in 1992 in Přelouč, was the first manufacturer of armoured vehicles in the Czech Republic and has produced a wide range of vehicles for domestic use and export. The company's VEGA multipurpose armoured vehicle won a golden award at IDET 2011. S.P.M. Company, in Liberec, originally produced leisure and sport equipment but switched to military-related production in the mid-1990s. Its MNS 2000 modular load-carrying system and its NPP-2006 armoured backpacks and pouches for hardware and weapons have been used by the Czech armed forces in foreign missions and have also been exported.

Many of the relatively small-scale, high-tech companies that have emerged in the past two decades in the sector have hoped to expand through cooperation with or investments by Western companies. These firms have been particularly keen to establish joint R&D projects with US military companies in the planned research projects related to the Czech radar base. Czech arms industry actors have actively sought new, cutting-edge niche products that could become their trademark in the new international defence market.

Defence industry organizations

In the late 1990s the four defence industry associations that existed in the Czech Republic actively competed with each other. The most important of these, the RDP Group, established in June 1993, had close ties to the MOD and the Ministry of Industry and Trade. This consortium of almost 40 firms united steel producers, military hardware manufacturers and companies in heavy industry and was headed by Lubomír Soudek, general director of Škoda Plzeň, one of the biggest arms manufacturers. The RDP Group's main project was the modernization of the T-72 main battle tank. The group emerged as a powerful and well-connected lobby but had a mixed record and faded away by the end of the 1990s.⁴⁴

After internal struggles, the Defence Industry Association, established in 1997, emerged as the leading representative of the Czech arms industry. The AOP consolidated its position in the late 1990s and became a visible and powerful advocate of the Czech arms industry in relation to official agencies and foreign partners. In 2008 it had 80 members, both state-

⁴⁴ Škoda Plzeň's military-related branch went bankrupt in 2001, but other parts of the holding company, such as car and transport vehicle production, survived. In 2002 Soudek was accused of financial mismanagement and brought to trial but he was cleared, even after prosecutors appealed the verdict. Kononczuk, P., 'Getting away with it? Five businessmen, five major financial scandals, nobody in jail', *Prague Post*, 26 Aug. 2004; and Kawaclukova, Z., 'Ex-Skoda Plzeň director cleared: court finds Lubomir Soudek innocent of damaging firm', *Prague Post*, 24 Apr. 2003.

owned and private.⁴⁵ Its 2008 name change, to Asociace obranného a bezpečnostního průmyslu ČR (AOBP, Defence and Security Industry Association of the Czech Republic, DSIA), mirrored the changing nature of the sector.⁴⁶ In September 2010 the Minister of Defence, Alexandr Vondra, signed a cooperation agreement with the AOBP to improve the transparency of defence-related tenders and facilitate communication among key defence industrial actors. AOBP representatives hoped that the agreement would lead to more orders for domestic arms producers.⁴⁷ In 2011 the AOBP and Epicos began implementing a four-year offset project for the integration of more than 90 Czech aerospace, defence, dual-use and advanced technology companies into the two leading international e-business platforms for the aerospace and defence industry, Epicos and Exostar.⁴⁸

Another organization, the Asociace leteckých výrobců ČR (ALV, Association of Aviation Manufacturers in the Czech Republic), which was established in 1994, unites 40 aviation companies, mostly SMEs, and represents 40 000 employees.⁴⁹ In June 2011 members of ALV set up the Confederation of the Czech Aviation Industry. Its members include Aero, ATG, GE Aviation Czech, Jihlavan, LA composite, Letov, Quittner & Schimek, Znojenské Strojírny and Zlín Aircraft, with the mechanical department of the Czech Technical University in Prague as an associate member. Initially, the confederation discussed its participation in the development and aviation training of Embraer's KC-390.⁵⁰

Other company-based, specialized industrial associations, such as Mesit Holding in Uherské Hradiště, tried to reconstruct the vertical integration of production characteristic of the past by uniting 12 companies that are specialized in electronics and communication devices, principally in the aviation field. According to Mesit's website its major advantage was the 'continuity of special industrial production ... [as] time-tested technological and cooperative relations within the group were not disrupted when the individual members acquired economic and legal independence'.⁵¹ Collaboration with military and civil research institutes and schools during production, manufacturing and control has contributed to the group's

⁴⁵ Vajnar (note 15).

⁴⁶ Hlavaty, R., Managing Director of the DSIA, Interview with author, Prague, 25 Oct. 2010.

⁴⁷ Czech News Agency (ČTK), 'Defence Minister signs agreement with Czech arms dealers', Prague Daily Monitor, 14 Sep. 2010, <<http://praguemonitor.com/2010/09/14/defence-minister-signs-agreement-czech-arms-dealers>>.

⁴⁸ 'Epicos in Czech Republic', *Epicos Newsletter*, vol. 3, no. 10 (9 Mar. 2011).

⁴⁹ Association of the Aviation Manufacturers of the Czech Republic (ALV), *Association Members' Presentation Brochure* (ALV: Prague, Dec. 2010).

⁵⁰ Czech Embassy in Paris, 'Création de la Confédération de l'industrie aéronautique tchèque' [Creation of the confederation of the Czech aviation industry], 7 July 2011, <http://www.mzv.cz/paris/fr/economie_commerce/actualites_1/creation_de_la_confederation_de_l.html>.

⁵¹ Mesit Holding, 'History', <<http://www.mesit.cz/en/art/173-history>>.

success. Another company-based, specialized grouping, the Czech NBC Team, which was established in 2004, united 10 companies that were specialized in R&D and the manufacture of NBC defence equipment and services.

The Czech arms industry and the missile defence system

In 2002 US President George W. Bush proposed establishing a missile defence system in Europe that would have involved placing a radar base in the Czech Republic and locating up to 10 ballistic interceptor missiles at a base in Poland. The bases would have been part of the satellite-based anti-missile National Missile Defense system, meant to protect the USA and its allies from long-range nuclear missiles fired from the Middle East, particularly from Iran, or from North Africa. The Czech Republic and Poland viewed the proposal both as an obligation and an opportunity.

Poland saw the project as a way to update its air force and, after a period of tough negotiations that lasted several years, the USA pledged to assist Poland in modernization of its air force. The Czech Republic was slower to perceive the potential economic advantages, although the head of the US Missile Defense Agency (MDA), Lieutenant General Henry Obering, highlighted this aspect of the proposal.⁵² In the end, the Czech authorities attempted to use the project to enhance top-level R&D, indispensable in a knowledge-based economy and envisaged as a key economic target.

Politicians presented the establishment of the radar base as a unique opportunity to revamp the arms industry and to boost innovation. The Prime Minister, Mirek Topolánek, declared that it was ‘a great chance . . . to enhance the innovation potential of the Czech Republic, [to] get in our country technologies at the highest possible level. Apart from defence of our freedom, I regard the missile defence as a practical contribution to Czech citizens and to [the] quality of their life’.⁵³ He was also quoted as saying that ‘to refuse the missile defense plan would be as grave a mistake as not having accepted the Marshall Plan’, the post-World War II US European Recovery Program.⁵⁴

In January 2008 Czech media reported that the Czech Republic would receive ‘tens of millions of Czech koruna’ (more than \$1 million) from the USA for cutting-edge research whether the proposed radar base was real-

⁵² Obering was quoted as saying: ‘And you’ll make money off of it’. Vondra, P., ‘Better safe than sorry: Mr. Umbrella pitches for radar’, *Aktuálně.cz*, 17 Jan. 2008, <<http://aktualne.centrum.cz/Czechnews/clanek.phtml?id=518773>>.

⁵³ Topolánek, M., Speech at the Conference on Missile Defence, Prague, 8 July 2008, <<http://www.vlada.cz/en/za-premierem-a-vladou/speech-of-the-prime-minister-mirek-topolaneck-at-the-conference-on-missile-defence-delivered-on-8th-july-2008-39182/>>.

⁵⁴ National news reporters and Straková, N., ‘US and ČR sign missile defense treaty in Prague’, *Aktuálně.cz*, 8 July 2008, <<http://aktualne.centrum.cz/czechnews/clanek.phtml?id=610303>>.

ized or not.⁵⁵ The USA was expected to finance 24 areas of research, including defence, robotics, optics, nanotechnology and experimental medicine. Most of the proposed R&D projects focused on the arms industry.⁵⁶

In January 2008 the four largest US defence contractors—Boeing, Lockheed Martin, Northrop Grumman and Raytheon—met with 40 Czech defence-related firms and representatives of the Czech scientific community.⁵⁷ Raytheon, the company chosen to construct the radar base, suggested in March that Czech participation in the project should consist of putting up fences, constructing buildings, participating in road maintenance or disposing of refuse, the routine tasks that domestic firms perform at a foreign military base. The Czech partners rejected the proposal and negotiations resumed.⁵⁸

In April 2008 Obering announced that three projects had been selected to receive US funding. Crytur, a small company located in Turnov and specialized in high-resolution imaging applications, would work on X-ray and three-dimensional technology with US-based DR Technologies, a developer of composite structures and components for missiles; České Vysoké Učení Technické (CVUT, the Czech Technical University) in Prague and US-based Sparta would cooperate on a spectroscopy project; and the Czech Academy of Sciences' Institute of Physics and US Kyma Technologies would collaborate to develop radar technologies. Projected funding for the projects was less than \$500 000.⁵⁹ MDA officials stated that cooperative projects could result in contracts with Czech companies worth \$740 million for 2008–13.⁶⁰

Opinion polls reported that two-thirds of Czech citizens opposed the planned radar base, and the government responded by appointing a coordinator to publicize the project's merits.⁶¹ Despite public protest and calls from opposition politicians for a referendum on the issue, in July 2008 the Czech Republic and the USA signed an agreement for a radar facility at the Brdy military base, 90 kilometres from Prague, and in September a status of

⁵⁵ Vondra (note 52).

⁵⁶ Wilson, D., 'Czech defense companies to get US investments', *EE Times*, 11 Apr. 2008, <<http://www.eetimes.com/electronics-news/4193719/Czech-defense-companies-to-get-US-investments>>; and Wilson, D., 'US to invest in Czech R&D regardless of radar base outcome', *EE Times*, 7 Jan. 2008, <<http://www.eetimes.com/electronics-news/4192523/US-to-invest-in-Czech-R-D-regardless-of-radar-base-outcome>>.

⁵⁷ Bailer, B., 'U.S. defense contractors "testing the waters" for Czech cooperation', *Czech Business Weekly*, 14 Jan. 2008, pp. 12–13.

⁵⁸ Baroch, P., 'Armament companies seek out US commissions', *Aktálně.cz*, 25 Mar. 2008, <<http://aktualne.centrum.cz/czechnews/clanek.phtml?id=600573>>.

⁵⁹ Wilson, 'Czech defense companies to get US investments' (note 56).

⁶⁰ 'Czech scientists, companies to benefit from missile shield', *EE Times*, 10 Apr. 2008, <http://www.electronics-eetimes.com/en/czech-scientists-companies-to-benefit-from-missile-shield.html?cmp_id=7&news_id=207100832>.

⁶¹ Tomasky, M., 'Poland and the Czechs: people vs. elites', *The Guardian*, 18 Sep. 2009.

forces agreement (SOFA) was also signed.⁶² The experiences of other East Central European countries that had hosted NATO or US military installations and the arguments of US critics who questioned the military and economic viability of the undertaking were not considered.⁶³ Commenting on the democratic deficit of the decision-making process on both sides, the RAND Corporation's Stephen Larrabee noted that 'The basic problem is that the Bush administration didn't realize how politically sensitive this issue was going to be, and didn't realize the many ways Poland and the Czech Republic have become more "Europeanized" [where] public opinion has gotten more important. . . . They used to be authoritarian countries, and the Bush administration thought they could do this behind the scenes.'⁶⁴

It was, however, not lack of democracy but lack of funds, together with political change in the USA, that fundamentally altered the plans for the missile defence system. In September 2009 US President Barack Obama cancelled the project and proposed a new system, the European Phased Adaptive Approach (EPAA), to deploy SM-3 interceptors by 2011, first on ships and later in Europe 'in a NATO context'. Romania and Poland were named as possible ECE partners.⁶⁵ Several commentators stressed that the Czech Republic and Poland had invested enormous political capital in the respective projects in the face of negative public opinion and might feel irritated that improving relations with Russia, which opposed the missile defence system, had taken priority.⁶⁶

In early 2010 Czech media reported that an early-warning system would be located in or near Prague. This amended European missile defence system, under the aegis of NATO, received the backing of all the parliamentary parties except the Komunistická strana Čech a Moravy (KSČM, Communist Party of Bohemia and Moravia). According to Vondra, the Minister of Defence, the Czech Republic would 'likely cover at least part of the operational costs', estimated at tens of millions of korunas per year.⁶⁷ In June 2011 Vondra declared that, while the Czech Government supported

⁶² Agreement between the Czech Republic and the United States of America on Establishing a United States Ballistic Missile Defense Radar Site in the Czech Republic, Prague, 8 July 2008, <http://www.aic.cz/cms/Agreement_EN.pdf>; and Declaration on Strategic Defense Cooperation between the Czech Republic and the United States of America, London, 19 Sep. 2008, <http://www.aic.cz/press/Declaration_on_strategic_defense_cooperation.pdf>.

⁶³ See e.g. Coyle, P. and Samson, V., 'Missile defense malfunction: why the proposed U.S. missile defenses in Europe will not work', *Ethics & International Affairs*, vol. 22, no. 1 (spring 2008); and Obering, H. A., 'Response to "missile defense malfunction": setting the record straight', Carnegie Council, 30 May 2008, <http://www.carnegiecouncil.org/resources/journal/22.1/special_report/002.html>.

⁶⁴ Bailer (note 57), p. 13.

⁶⁵ Baker, P., 'White House scraps Bush's approach to missile shield', *New York Times*, 17 Sep. 2009; and White House, 'Fact sheet: implementing missile defense in Europe', 15 Sep. 2011, <<http://m.whitehouse.gov/the-press-office/2011/09/15/fact-sheet-implementing-missile-defense-europe>>.

⁶⁶ Kulish, N. and Dempsey, J., 'In face of U.S. shift, Europeans recalibrate', *New York Times*, 17 Sep. 2009.

⁶⁷ Cunningham, B., 'ČR will host missile-defense component', *Prague Post*, 4 Aug. 2010.

missile defence, it was not willing to install strategic early-warning system (SEWS) computer terminals on Czech Army premises because the new system would be part of a comprehensive NATO framework and the related costs would annually amount to \$1 million, which the USA would fund only for the first two years.⁶⁸ According to Tomas Valasek of the Centre for European Reform, the Czech Republic objected to being offered a marginal part in the missile defence system when it wanted to play a central role.⁶⁹ Apparently, the promised large-scale contributions to Czech R&D have also failed to materialize.

Poland, however, managed to negotiate more substantial participation in the modified missile defence project. In September 2011 Poland and the USA announced that part of the system would be located at Redzikowo Air Base, Poland, as an element of the EPAA. In addition, Romania and Turkey have agreed to host radars in support of NATO's missile defence efforts.⁷⁰

III. Military expenditure and procurement

In 1999 when the Czech Republic joined NATO the defence budget was 41.6 billion korunas (\$1.2 billion): 2.25 per cent of GDP and 7 per cent of all government spending. After increases in the early 2000s, the amount decreased and has steadily declined since 2005. In 2011 the defence budget reached 43.8 billion korunas (\$2.5 billion), 1.15 per cent of GDP and 3.7 per cent of government spending.⁷¹

Procurement was shaped by the needs of the modernized armed forces and the country's involvement in international missions. Amid sweeping internal political changes and the new external obligations, the armed forces underwent major restructuring and modernization that was intended to create a small and efficient army.⁷² As Jaroslav Tvrdík, the Defence Minister, put it in 2001, the aim was to achieve the four 'm's: mala (small), mobilni (mobile), moderni (modern) and mlada (young).⁷³

Professionalizing the military and joining NATO meant that the Czech Republic urgently needed to update its military hardware. The main

⁶⁸ Druker, J., 'Understanding US–Czech relations on missile defense', International Relations and Security Network (ISN), 13 July 2011, <<http://www.isn.ethz.ch/Digital-Library/Articles/Detail/?id=131038>>.

⁶⁹ Druker (note 68).

⁷⁰ US Embassy in Poland, 'Joint statement on the U.S.–Poland ballistic missile defense agreement', Press release, 15 Sep. 2011, <<http://poland.usembassy.gov/missile.html>>.

⁷¹ Czech Ministry of Defence and Armed Forces, 'Defence budget', 3 Jan. 2012, <<http://www.army.cz/scripts/detail.php?id=5760>>.

⁷² Tůma, M., *Relics of Cold War: Defence Transformation in the Czech Republic*, SIPRI Policy Paper no. 14 (SIPRI: Stockholm, Sep. 2006).

⁷³ Cameron, R., 'Tvrdik steals march on rivals as Czech cabinet approves army modernisation', Radio Praha, 30 Aug. 2001, <<http://www.radio.cz/en/section/curaffrs/tvrdik-steals-march-on-rivals-as-czech-cabinet-approves-army-modernisation>>.

procurement projects included acquiring L-159 multi-role combat aircraft, the Gripen combat aircraft and armoured vehicles, and upgrading helicopters. In 2001 the Social Democrat-led government of Miloš Zeman approved a deal to buy 24 Gripen aircraft from the British–Swedish consortium of BAE Systems and Saab, but the Czech Senate blocked the 60-billion-korunas (\$1.8 billion) deal because the budget was strained due to the costs associated with the devastating floods that the country had suffered in 2002. However, in 2004 the Czech Government signed a contract to lease 14 Gripen aircraft for 10 years at a reduced cost of 20 billion korunas (\$778 million).⁷⁴

In 2006 Tatra obtained an order to deliver 556 trucks worth 2.6 billion korunas (\$115 000) to the Czech Army in 2009. The contract was awarded without a tender. Despite heated discussions in the media about the quality and the share of domestic input in the final product, the MOD was satisfied with the trucks and in April 2008 announced that it would buy several hundred more trucks from Tatra in 2014 or 2015. In late 2007 the media reported that Tatra's vehicles were too heavy for their planned function. Another controversy broke out concerning domestic subcontractors. According to the contract, the majority of parts were to come from domestic companies. Tatra's management confirmed that of 162 truck component suppliers, 143 were domestic firms that delivered 79 per cent of the components, although some of these parts might have come from foreign subcontractors. In 2007, citing problems related to quality, Tatra replaced one domestic supplier; the firm went to court but lost its case.⁷⁵

In June 2006, shortly before a new cabinet was formed, the outgoing Defence Minister, Karel Kühnl, signed a contract for 23.6 billion korunas (\$1 billion) with Steyr-Daimler-Puch (SDP), an Austria-based company that is owned by the US company General Dynamics, to supply 199 Pandur II 8x8 APCs to the Czech Army by 2012. The deal was the biggest military procurement thus far in the Czech Republic. The APCs and other equipment were to be manufactured by VOP 025 and VOP 026, and more than 15 other domestic suppliers were to be involved in the project, including Meopta-Optika and Mesit, two major privatized arms producers. SDP also promised to invest 9 billion korunas (\$398 million) into the military industry in the following 10 years. Other competitors and Czech industry analysts contested the tender and the decision, arguing that the decision had been taken hastily; the equipment that had been selected was unable to meet the MOD's needs; and the US-made Mk44 cannons, manufactured by

⁷⁴ Gardner, B., 'Kavan sacked due to Saab scandal', *Czech Business Weekly*, 5 Mar. 2007, p. 5.

⁷⁵ Heitmann, M., 'Tatra truck has weight problem', *Prague Post*, 10 Oct. 2007; '10 questions with Ronald Adams', *Prague Post*, 26 Mar. 2008; Gardner, B., 'Head on', *Czech Business Weekly*, 14 May 2007, pp. 1, 12; Handl, E., 'Court dismissed accusation of Tatra', *Czech Business Weekly*, 24 Mar. 2008; and 'Military to buy more Tatra trucks', *Czech Business Weekly*, 5 May 2008.

Alliant Techsystems and bought with the APCs, were incompatible with the Pandur and Czech weapons. After a series of difficulties, including late delivery and major technical problems, the Czech Government cancelled the deal in December 2007.

The Prime Minister, Topolánek, declared that the contract was cancelled because the equipment had failed to meet 25 of 93 technical parameters. However, he confirmed that negotiations were continuing with the US company Defendia, which was acting on behalf of General Dynamics. In March 2008 the MOD announced that, provided the vehicles passed tests, it would probably buy an additional 107 APCs from SDP in six versions, but that contract was cancelled the following month. Nevertheless, in June the Czech Army was said to be about to test the first batch of APCs. In March 2009, despite the impending financial crisis, the Czech cabinet decided to order Pandur APCs for \$1 billion.⁷⁶ After having been specially modified for tens of millions of korunas to serve in NATO operations, in August 2010 the first four Pandur APCs were sent to PRT Logar in Afghanistan.⁷⁷

Iveco, an Italian company, was one of the failed competitors of the APC tender that was won by SDP in 2006. However, in late 2007 Iveco received a contract (without a tender) worth approximately 100 million korunas (\$4.9 million) to deliver four APCs to the Czech contingent in Afghanistan. Originally, the MOD had announced a tender that Omnipol had won—despite allegations that the bid had been tailor-made for the company. That deal was cancelled because the vehicles had proved too expensive and the date of delivery too late.⁷⁸ In early September 2008 the MOD signed a contract to buy 15 Iveco multipurpose (or multi-role) light armoured vehicles and 15 armoured Dingo-2 transport vehicles. The deals had been made without competitive bidding, and price comparisons showed that the military would be paying unusually high prices.⁷⁹ Opposition politicians questioned whether the vehicles were even suitable for conditions in Afghanistan.⁸⁰ In the summer of 2008 the Czech Government decided to spend 1 billion korunas (more than \$66 million) on 30 heavily armoured

⁷⁶ Zapletnyuk, K., 'Armored vehicle contract signed: after months of delays, SDP of Austria taken on to supply Pandur IIs', *Prague Post*, 14 June 2006; Bouc, F., 'Fast action: legal analysis gives state the go ahead to conclude one of its biggest military deals in years, but it's got to act soon', *Prague Post*, 7 June 2006; Englund, T. B., 'Seven questions for Wulf Hessulf: Patria fighting for a new chance', Nordic Chamber of Commerce in the Czech Republic, *Nordic News*, no. 1/2008 (2008); and 'Czechs choose, cancel, then come back to Pandur II APCs', *Defense Industry Daily*, 22 May 2011, <<https://www.defenseindustrydaily.com/czechs-to-buy-199-pandur-ii-apcs-for-1-billion-01810/>>.

⁷⁷ 'Czech army to send first Pandurs to Afghanistan in autumn', *Prague Daily Monitor*, 19 Aug. 2010, <<http://www.praguemonitor.com/2010/08/19/czech-army-send-first-pandurs-afghanistan-autumn>>.

⁷⁸ Baroch, P., 'Czech army to go for yet another no-bid contract', *Aktáalně.cz*, 21 Nov. 2007, <<https://aktualne.centrum.cz/czechnews/clanek.phtml?id=514547>>.

⁷⁹ Cunningham, B. T., 'Defense spending raises questions: tender-free purchase of army vehicles prompts complaint', *Prague Post*, 17 Sep. 2008.

⁸⁰ Cunningham (note 79).

trucks for its troops in Logar province to replace Humvees that the Czech soldiers had borrowed from the US military. A Humvee had also hit a land mine that killed one Czech soldier and wounded four others.⁸¹ The ‘mine-proof’ Dingo-2 was considered to offer better protection. The purchase was made without a public tender, the absence of which was explained by the need to get the vehicles to the troops as soon as possible.

In some key procurement programmes the choice of equipment was justified by the government’s desire to support domestic arms production. However, at the time that Aero signed its contract with the MOD it had already entered into a joint venture with Boeing and many components of the L-159 aircraft were imported.⁸² Tatra was owned by predominantly US-based financial groups. Some important Czech firms were involved in the production of the Pandur II, while more sophisticated equipment came from US, West European and Israeli producers.

Facing budget constraints, the Czech Republic reverted to the use of non-typical procurement arrangements, such as barter. When the Czech military wanted to replace its aged Ukrainian-made Antonov An-26 military transport aircraft in 2008 the government signed a memorandum of understanding with EADS CASA to trade five redundant Czech L-159 aircraft for one newly manufactured C-295M military transport aircraft that was built by EADS CASA. The Italian company Alenia Aeronautica lodged a complaint with the EU about the deal.⁸³

A 2011 white paper on defence stressed that budget cuts and poor management had made the armed forces’ situation precarious. The MOD’s deficit of 80–90 billion korunas (\$4.5–5.1 billion) made it unlikely that it would be able to finance its planned modernization projects, however urgent, in the foreseeable future.⁸⁴ In July 2011 Vondra warned that further cuts in the defence budget would affect the capabilities of the Czech military and its ability to meet its NATO commitments.⁸⁵

⁸¹ Richter, J., ‘Czech Army rejects NATO criticism of insufficient support for Afghanistan’, Radio Prague, 29 July 2008, <<http://www.radio.cz/en/section/curraffrs/czech-army-rejects-nato-criticism-of-insufficient-support-for-afghanistan>>.

⁸² Apparently only 10% of the input was produced domestically. Schmitt, B. (ed), *EU Enlargement and Armaments: Defense Industries and Markets of the Visegrad Countries*, European Union Institute for Security Studies (EUISS) Occasional Paper no. 54 (EUISS: Paris, Sep. 2004), p. 20fn.

⁸³ ‘MO may swap planes’, *Czech Business Weekly*, 28 Apr. 2008; and ‘Italian aircraft maker complains to EC’, *Czech Business Weekly*, 16 June 2008.

⁸⁴ Czech Ministry of Defence and Armed Forces, ‘White Paper on Defence 2011 introduced to journalists’, Press release, 20 May 2011, <<http://www.army.cz/ministry-of-defence/newsroom/news/the-white-paper-on-defence-2011--55474/>>.

⁸⁵ ‘Defense minister: further cuts in defense budget would impact army’, Prague Daily Monitor, 18 July 2011, <<http://praguemonitor.com/2011/07/18/defense-minister-further-cuts-defense-budget-would-impact-army>>.

Opaque procurement practices

Corruption had been a prominent aspect of Czech political life since the early 1990s and public procurement, particularly military procurement, was a fertile ground for opaque deals. Procurement procedures have been regularly criticized by independent experts, including Transparency International, and at regular intervals scandals have made public the extent of the corruption.⁸⁶ Procurement choices have often proved to be wrong for reasons that include an inappropriate scale of acquisition (Aero's L-159 aircraft), an unusually high price (Iveco's APC) or the failure of the equipment to meet expectations (VOP 025's Pandur II APC). These poor decisions have further increased the cost of expensive imported equipment.

In September 2010 the newspaper *Mladá fronta Dnes* accused the deputy defence minister in charge of armament purchases, Jaroslav Kopřiva, of corruption in relation to a procurement contract with Patria.⁸⁷ Kopřiva was dismissed from his job and within days the MOD property director, security director, personnel director and head of communications were all replaced and an audit of the MOD's management was ordered.⁸⁸ The Supreme Audit Office's results were released in June 2011 and confirmed that misspending and lack of transparency in procurement practices had contributed to the MOD's financial difficulties. The audit revealed that the MOD's financial strategy had failed to identify equipment needs, to assign tasks to personnel, to justify the purchase of certain equipment and to maintain proper accounting. Six MOD acquisitions amounting to 18.2 billion korunas (\$1.0 billion) were evaluated and the audit determined that the MOD had spent more than the budget approved by the Finance Ministry, had avoided using tenders and, on several occasions, had bought equipment that was redundant or unnecessary and, in some cases, impossible to use. The audit covered 2005–2009, but earlier procurement decisions, such as the purchase of 72 L-159 aircraft when only 28 were needed, were also scrutinized.

In other investigations, the police examined the 2008 purchase of 107 Pandur II APCs at a cost of 14.4 billion korunas (\$844 million), and the European Commission filed a lawsuit related to the purchase of four EADS CASA transport aircraft in 2009 (without tender) that cost 3.5 billion korunas (\$180 million). In addition the European Commission examined the purchase of 90 Iveco armoured vehicles in December 2009 for 3.6 bil-

⁸⁶ See e.g. Ondráčka, D., 'Quantifying public procurement losses in the Czech Republic', Transparency International, *Global Corruption Report 2007: Corruption in Judicial Systems* (Cambridge University Press: Cambridge, 2007), pp. 349–51.

⁸⁷ 'Defence minister signs agreement with Czech arms dealers', Prague Daily Monitor, 14 Sep. 2010, <<http://www.praguemonitor.com/2010/09/14/defence-minister-signs-agreement-czech-arms-dealers>>.

⁸⁸ Lehane, B., 'Defense minister overhauls staff', *Prague Post*, 8 Sep. 2010.

lion korunas (\$190 million). The 2006 acquisition of 556 Tatra all-terrain trucks for 2.7 billion korunas (\$120 million) without a tender and the 2007–2008 purchase of 19 German-made Dingo-2 armoured vehicles, also without a tender, for 750 million korunas (\$44 million) were also reviewed.⁸⁹ In August 2012 Ronald Adams, Tatra's CEO, was questioned in connection with the 20 million korunas mentioned in the negotiations that had led to the large-scale state order of Tatra vehicles.⁹⁰

Offsets

Each procurement project was complemented with an important offset package. Offset legislation was first introduced in 1998 and revised in 2005, 2010 and again in 2011, after the country signed the European Defence Agency's Code of Conduct on Offsets.⁹¹ In 2011 the contract threshold was raised to 1 billion korunas (\$57 million) and to 500 million korunas (\$28 million) for subcontracting; offset obligations must amount to at least 100 per cent of the total contract price, with 20 per cent as direct offset; and projects must be completed within 10 years after signing contacts.⁹²

Although corruption allegations cast a shadow on the first round of negotiations on the Gripen combat aircraft and the contract, decision makers apparently opted for the product because the accompanying offset offer from BAE Systems and Saab was extremely generous. (This also had a major impact on the aircraft acquisition negotiations in Poland.) Saab had committed itself to a 130 per cent offset obligation, 20 per cent of which would be allocated to support and develop the Czech aerospace and arms industry. In 2008 Saab reported that 28 companies with mixed profiles were participating in offset programmes.⁹³ As of December 2010 the cumulative offset value had reached 23.74 billion korunas (\$1.24 billion), 93 per cent of total offset obligations, and 48 registered offset transactions had taken place.⁹⁴ The total value of offsets was 25.5 billion korunas (\$1.34 billion), which represented 130 per cent of the original contract value.

⁸⁹ Contiguglia, C., 'Audit exposes Defense Ministry', *Prague Post*, 1 June 2011.

⁹⁰ LN: Tatra US head admits offering CZK 20 million to Czechs', *Prague Daily Monitor*, 24 Aug. 2012, <<http://praguemonitor.com/2012/08/24/ln-tatra-us-head-admits-offering-czk-20-million-czechs/>>.

⁹¹ A Code of Conduct on Offsets agreed by the EU member states participating in the European Defence Agency, approved 3 May 2011, <<http://www.eda.europa.eu/offsets/>>.

⁹² Czech Ministry of Industry and Trade, Directive for the Implementation of Industrial Cooperation Programmes, Annex 1 of Order no. 3/2005, 5 Jan. 2005, <<http://download.mpo.cz/get/27560/29857/320686/priloha001.doc>>; and Czech Ministry of Industry and Trade, 'Offset programmes', 10 Mar. 2011, <<http://www.mpo.cz/dokument84995.html>>.

⁹³ Gripen International, 'Gripen success story', *Gripen News*, Mar. 2008, p. 2.

⁹⁴ Saab Group, 'Gripen offset program delivers 23.74 billion CZK to the Czech Republic', Press release, 15 June 2011, <<http://www.saabgroup.com/en/about-saab/newsroom/press-releases--news/2011--6/gripen-offset-program-delivers-2374-billion-czk-to-the-czech-republic/>>.

Exports

In 1987, according to SIPRI figures, Czechoslovakia was the world's sixth-largest arms exporter. In the late 1980s it sold approximately \$700 million worth of weapons annually to its Warsaw Pact allies and to developing countries, such as Iran, Iraq and Libya. When President Havel took office in 1990 he announced that the country would stop its arms sales, but less than a year later it was still selling arms to Afghanistan, India, Iran, Libya and other countries. In July 1993 the Czech Government officially announced that it would resume weapon sales. By 1994, also according to SIPRI figures, the Czech Republic was still the world's sixth-largest exporter of arms.⁹⁵ However, the accumulating problems of the arms producers led to a substantial drop in sales during the second half of the 1990s, and in 2001 the country exported \$68.3 million worth of weapons, ammunition and explosives, representing nearly 6 per cent of total exports.⁹⁶ Although the arms industry's output had diminished significantly, the army's depots were full because of the restructuring of the Czech armed forces. The majority of these stocks were to be sold by specialized agencies of the Ministry of Industry and Trade.

During the late 1990s and early 2000s Czech arms exports were rather indiscriminate, and lax arms trade regulations, coupled with the pressing economic need to sell weapons, led to unscrupulous deals. In 2003 Amnesty International published a list of arms sales to dubious destinations that had been approved by the Czech Republic, including Algeria, during its 'dirty war'; Angola; Colombia, a state in civil war; India, at the height of its nuclear race with Pakistan; Sri Lanka, which was mired in a decades-long civil war; Yemen; and Zimbabwe, in a period when its president, Robert Mugabe, had started to physically eliminate the opposition.⁹⁷ President Klaus dismissed Amnesty International's report, and Czech media stressed that many European countries sold weapons to these same hot spots, with the only difference being that the Czech Republic had not reported its arms sales and had no efficient civil control over the deals.⁹⁸ A European Commission report urged the Czech Republic to adopt the EU Code of Conduct on Arms Exports, which provides criteria for denying and issuing licences and includes requirements to report to other EU member states.⁹⁹ To

⁹⁵ SIPRI Arms Transfers Database, <<http://www.sipri.org/databases/armstransfers/>>.

⁹⁶ Kiss, Y., *Small Arms and Light Weapons Production in East Central and Southeast Europe* (Small Arms Survey: Geneva, Oct. 2004), p. 11.

⁹⁷ Spritzer, D. A., 'Arms' length', *Prague Post*, 20 Nov. 2003.

⁹⁸ Kononczuk, P., 'Arms-trade plan under fire', *Prague Post*, 20 Jan. 2005.

⁹⁹ The politically binding EU Code of Conduct on Arms Exports of 1998 was replaced in 2008 by the EU Common Position; both include a set of operative provisions related to information exchange and consultation that are aimed at harmonizing EU member states' interpretation of the criteria. Council Common Position 2008/944/CFSP of 8 Dec. 2008 defining common rules governing control of exports of military technology and equipment, *Official Journal of the European Union*, L335,

demonstrate its goodwill, in 2004 the Ministry of Foreign Affairs (MFA) published a report on its arms exports in 2003, a presentation of regulations and information about small-arms trade in the Czech Republic. Its preface promised that a similar document would be published annually. By 2011 it had published eight annual reports.¹⁰⁰

Liberalization of the arms trade led to an upsurge in the number of arms merchants in the Czech Republic and, by 2005, 150 firms were licensed to trade arms. While some of these were established large-scale arms manufacturers and trading companies, like Omnipol, the majority of these firms were small-scale, many set up with an initial capital of less than 100 000 korunas (\$4000). They were also difficult to control because they continually moved in and out of the market. According to Jiří Hynek, chairman of the AOBP, 'we find some dealers getting involved in controversial trades; then [when they get caught] they cancel the firm and temporarily withdraw from the market. Later they establish a new enterprise and get a new license'.¹⁰¹ In 2005 the Ministry of Industry and Trade, which was in charge of issuing licences and controlling the arms trade, pledged to change legislation in order to better regulate the arms trade.¹⁰²

In 2005 Amnesty International again protested against arms sales to Colombia. In response, MFA spokesman Vít Kolář stated that the Czech Republic respected the EU Code of Conduct on Arms Exports and observed embargoes.¹⁰³ Later in the 2000s, when the economy was slowing down, government agencies became more active, visiting would-be buyer countries, such as China, India and Indonesia, to offer Czech military products. After the Aero-Boeing joint venture ended, the Czech Government made considerable effort to sell the L-159 aircraft, including the 47 aircraft that it had bought for the armed forces but decided to sell in the summer of 2004. (To support the joint venture the MOD had originally bought 72 L-159s, but this proved to be too much both in military and economic terms.) Despite interest in the aircraft, few were sold.¹⁰⁴ In 2006 President Klaus travelled to Nigeria to promote the sale of 10 L-159 aircraft. Following attempts to sell the L-159 to Afghanistan, Bolivia, Colombia, Georgia, Indonesia and Nigeria, in 2011 the MOD attempted to sell its surplus L-159 aircraft to the Iraqi armed forces, going so far as to enlist the aid of President Obama.¹⁰⁵

13 Dec. 2008; and Council of the European Union, EU Code of Conduct on Arms Exports, 8675/2/98 Rev. 2, Brussels, 5 June 1998.

¹⁰⁰ Czech Ministry of Foreign Affairs, 'Kontrola exportu zbraní' [Control of arms exports], 13 Dec. 2008, <<http://www.mzv.cz/kontrolaexportu>>.

¹⁰¹ Bouc, F., 'Bublan: new security rules needed', *Prague Post*, 3 Aug. 2005.

¹⁰² See the text on 'Chaotic arms trading' in Bouc (note 101).

¹⁰³ Bouc, F., 'Sevendays: news and notes', *Prague Post*, 22 June 2005.

¹⁰⁴ Alda, K., 'Czech jets could head to Nigeria: African nation could buy more than 10 L-159s from ministry', *Prague Post*, 13 Dec. 2006.

¹⁰⁵ Contiguglia (note 89).

In early 2007 a scandal occurred involving the Technoex company's proposed delivery of a large quantity of weapons to the Democratic Republic of the Congo, which was under a United Nations arms embargo. The company had been given the green light by the Foreign Minister, Jan Kavan, a Social Democrat and once a respected member of the political opposition.¹⁰⁶ Following the release of the MFA's annual report in 2007, Amnesty International again criticized Czech arms export practices, claiming that the Czech Republic had continued to sell weapons to countries that violated human rights and that Czech arms had been re-exported to countries under a UN arms embargo. The MFA dismissed the criticism, stating that the Czech arms trade was open and transparent and that, in the cases of Ethiopia and Nigeria, only spare parts for trainer aircraft had been supplied.¹⁰⁷

In May 2009 the Czech Parliament approved an amendment, which had been proposed by the government, to a 1994 law on the export of military materials. The amendment aimed to reduce bureaucracy and synchronize Czech legislation with EU law, but domestic NGOs and representatives of Amnesty International claimed that the new legislation contained loopholes that would permit uncontrolled activities.¹⁰⁸ In October 2011 an Amnesty International report criticized countries that had supplied weapons used to suppress protests during the Arab Spring. Bulgaria and the Czech Republic were among the countries that had sold arms to Bahrain, Egypt, Libya, Syria and Yemen since 2005.¹⁰⁹ The Czech MFA responded that the officially published data had been misinterpreted by Amnesty International, that most exported items were spare parts and components, and that Czech sales represented only a fraction of imports of the respective countries.¹¹⁰

Czech arms exports have increased dynamically since the mid-2000s, in 2006 reaching 2.6 billion korunas (\$1.9 million), the highest in nine years and a 6 per cent increase over 2005. Half of these exports went to Europe, 15 per cent to North America and the rest were spread equally around the globe.¹¹¹ According to the Ministry of Industry and Trade, in 2007 arms

¹⁰⁶ Czech News Agency (ČTK), 'Czech arms trader accused of illegal sales to Slovakia', BBC Worldwide Monitoring, 9 Mar. 2007.

¹⁰⁷ Lazarová, D., 'Czech arms exports under fire from Amnesty International', Radio Prague, 29 Aug. 2007, <<http://www.radio.cz/en/article/94910>>.

¹⁰⁸ Hulpachová, M., 'Arms export law raises concern', *Prague Post*, 21 May 2009.

¹⁰⁹ 'Amnesty criticizes suppliers of weapons used against "Arab Spring" protesters', Radio Free Europe/Radio Liberty, 19 Oct. 2011, <http://www.rferl.org/content/amnesy_slams_arms_exports_against_arab_spring_/24363891.html>.

¹¹⁰ Czech Ministry of Foreign Affairs, 'Comments by the Ministry of Foreign Affairs of the Czech Republic on Amnesty International report', 21 Oct. 2011, <http://www.mzv.cz/jnp/en/issues_and_press/statements/x2011_10_21_comments_by_mfa_on_amnesty_international_report.html>.

¹¹¹ 'Brief news: arms', *Prague Post*, 18 July 2007.

exports generated €174 million (\$238 million), reaching a 14-year high.¹¹² The Czech Republic was among the countries that contributed to the arming of Georgia and whose weapons were used in the 2008 conflict between Georgia and Russia.¹¹³ According to the 2009 annual report on arms trade, weapon sales had increased further to €189.6 million (\$278 million) in 2008 but had dropped to €175.1 million (\$243 million) by 2009.¹¹⁴ According to Ministry of Industry and Trade figures, in 2010 arms sales reached a record €217 million (\$287 million), an increase from €175 million (\$243 million) the previous year. Austria had been the largest buyer of Czech arms, worth €31.3 million (\$41.5 million), followed by Slovakia, Spain and Italy. Exports included tanks, missiles, guns, pistols, rifles, carbines, howitzers, and machine guns.¹¹⁵ In 2011 exports dropped to €180 million (\$250 million). According to the Czech arms companies, the decrease was caused by the strict transit licences required for shipping items through neighbouring Germany and Poland. The key purchasers of Czech arms were Algeria, the USA and India.¹¹⁶

¹¹² 'Czech firms generate record profits from arms exports in 2007', Radio Prague, 8 Oct. 2008, <<http://www.radio.cz/en/news/109097>>.

¹¹³ Beneš, S., 'Whose weapons are being used in Georgia?', *Czech Business Weekly*, 18 Aug. 2008, p. 7; and 'ČR to take part in Georgia peace mission', *Prague Post*, 6 Aug. 2008.

¹¹⁴ Czech Ministry of Industry and Trade, *2009 Annual Report on the Czech Republic's Control of Exports of Military Equipment, Small Arms for Civilian Use and Dual-use Items and Technologies* (Ministry of Industry and Trade: Prague, 2010).

¹¹⁵ 'Thursday news briefing', *Prague Post*, 13 Oct. 2011.

¹¹⁶ Baroch, P., 'Czech arms exports drop, stifled by transit licenses', *Aktualne.cz*, 14 Aug. 2012, <<http://aktualne.centrum.cz/czechnews/clanek.phtml?id=754450>>.

Appendix 6A. Czech company case studies

I. Aero Vodochody: out of the zone of turbulence

Aero Vodochody was established in 1919 to produce aircraft for the newly independent Czechoslovakia. After World War II it became a key supplier to the Warsaw Pact countries and the largest producer of jet combat training aircraft in the world. Following the end of the cold war, amid political uncertainties and a major economic slump, the company's markets collapsed.¹ Aero's management designed an ambitious restructuring programme that was based on improving efficiency, extending civil production (partly in cooperation with leading Western aircraft producers) and, also together with foreign companies, concentrating military-related activity on converting the L-59 training aircraft into a multi-role combat aircraft. Some of these changes were accomplished despite serious obstacles, but others failed to be realized owing to incompetent management at the company's owner, Aero Holding and its subcontractors, political constraints, lack of funds and problems stemming from the immaturity of the general economic environment.²

In 1997 the company found a strategic partner in the US company Boeing. Together with Czech Airlines, Boeing created Boeing Česká, which then formed a joint venture with Aero in 1998. Boeing invested \$33 million in the new enterprise. As a precondition for its involvement, Boeing required the Czech Government to buy the first set of the new training aircraft produced by the joint venture, and in 1998 it did so, purchasing 72 L-159 aircraft for \$1 billion. Aero's marketing director, Martin Paloda, declared that the company had 'identified a market for at least 300' L-159 aircraft and was in 'serious negotiations' with more than five countries, including Chile and South Africa.³ Boeing was exempted from liability for any environmental damage caused by Aero before 1998, and the Czech Government guaranteed a loan to the company of 8 billion korunas (\$248 million). In 1999 and 2000 Aero's financial situation improved, but it remained unable to locate export markets.⁴ Boeing also competed to win the bid to supply combat aircraft to the Czech Air Force and to obtain significant offset contracts if it succeeded. However, in 2001 the combat aircraft tender was awarded to the British-Swedish consortium of BAE Systems and Saab for its Gripen combat aircraft.

¹ Zapletnyuk, K., 'Ground check: questions remain about Aero Vodochody's ultimate future as further steps are taken toward privatization', *Prague Post*, 16 Aug. 2006.

² Kiss, Y., SIPRI, *The Defence Industry in East-Central Europe: Restructuring and Conversion* (Oxford University Press: Oxford, 1997).

³ 'Industry faces testing time of opportunity', *Jane's Defence Weekly*, 20 May 1998, p. 25.

⁴ Tigner, B., 'Boeing invests in struggling Aero Vodochody', *Defense News*, 6-12 Apr. 1998, p. 3; Morrocco, J. D., 'Aero Vodochody pins future hopes on L-159', *Aviation Week and Space Technology*, 22 Mar. 1999, pp. 67-69; Hoyle, C., 'Losses decrease at Aero Vodochody', *Jane's Defence Weekly*, 29 Sep. 1999, p. 19; and Kominek, J., 'Czechs look to extend L-159 payments', *Jane's Defence Weekly*, 3 May 2000, p. 4.

The joint venture between Aero and Boeing lasted six years, during which Boeing took responsibility for marketing. However, Boeing was unable to sell a single L-159 aircraft. Boeing was also supposed to market another Aero product, the Ae 270 Ibis general utility aircraft but failed to do so.⁵ In 2004 the company posted a 295 million korunas (\$11 million) profit but, in order to finance production, it had to issue 5.5 billion korunas (\$26 million) of Eurobonds that were scheduled to mature in November 2005. In 2005 Aero employed 1600 people, working in three production programmes; its president, Petr Klimeš, assessed the company's worth to be 5 billion korunas (\$209 million), with debts of 10 billion korunas (\$417 million).⁶

The state repeatedly helped the Aero–Boeing joint venture, which struggled with financial difficulties due to the problems experienced by the aviation industry after the terrorist attacks on the USA of 11 September 2001, the large-scale loans that the Aero–Boeing joint venture had taken to complete development of the L-159 and poor management.⁷ In February 2004, dissatisfied with the management of the joint venture and Boeing's attitude, the Czech Government refused a request from the Aero–Boeing joint venture for additional state aid for restructuring and announced its desire to buy back Boeing's share in the company. Boeing owned 35.29 per cent of the joint venture's assets, while the rest was owned by two Czech state entities, Letka a.s. and the Czech Consolidation Agency. Boeing initially demanded €30 million (\$37 million) for its share, but after months of negotiations it agreed to accept a symbolic payment of 2 korunas (8 cents) from its Czech partners, which was widely interpreted as admission of its responsibility for the failure of the joint venture.⁸ Aero's 2011 financial statement stated that by the end of 2006 the Czech Consolidation Agency owned almost 100 per cent of its shares.

The Czech Government sought new strategic investors and negotiated with Airbus and the BAE Systems–Saab consortium.⁹ The government hoped to find an investor from the international aerospace community that would pay Aero's debts, honour its existing contracts and continue to service and provide parts for the L-39 and L-159 aircraft used by the armed forces. The MOD was particularly eager to retain Aero's military division and suggested that some of the company's assets could be transferred to it.¹⁰

Facing mounting financial difficulties and aware that the company's survival was in question, management called for fast-tracked privatization. However,

⁵ The Czech Army also tried in vain to sell 47 L-159 jet aircraft that had become redundant and which it had ordered in too large a quantity. See Zapletnyuk (note 1).

⁶ The government planned to transfer the claim, together with another debt, to the state-owned bail-out agency, the Czech Consolidation Agency. See Zapletnyuk, K., 'Airtight package: government decides to sell Aero Vodochody without breaking up the business', *Prague Post*, 27 July 2005; and Komínek, J., 'Aviation giant awaits fate: Aero Vodochody hopes for a bidder that will revitalize it, not kill it', *Prague Post*, 14 Dec. 2005.

⁷ Komínek (note 6).

⁸ Rosenzweig, A., 'Boeing quitte Aero par la petite porte' [Boeing Aero leaves through the back door], *Radio Praha*, 8 Oct. 2004, <<http://www.radio.cz/fr/rubrique/faits/boeing-quitte-aero-par-la-petite-porte>>; and Bennett, M., 'Boeing preparing for departure', *Prague Post*, 19 Feb. 2004, <<http://www.praguepost.com/archivescontent/38692-boeing-preparing-for-departure.html>>.

⁹ Rosenzweig (note 8).

¹⁰ Zapletnyuk (note 6).

speculation arose that potential investors—financial groups in particular—were more interested in transforming the company's runway into a commercial airport to rival Prague's Ruzyně International Airport than in continuing production at Aero.¹¹ The government intended to preserve the company's profile but also declared that price would be the determining factor in its choice of a buyer. Financial investment companies were in the majority among the bidders that passed the initial screening, in addition to the Czech defence company Zeveta Bojkovice and two aircraft manufacturers—the Italian company Piaggio Aero Industries and Český Letecký Průmysl (Czech Aerospace Industries). The major Western aerospace companies did not place bids.

Despite its dire financial state, Aero demonstrated promising potential. In 2006, after a wait of more than five years, the Czech civil aviation authorities certified its new Ae-270 light commercial transport aircraft for which Aero had more than 70 orders in the USA alone. One of the positive side-effects of the failed joint venture with Boeing was that Aero had entered into a number of subcontracting deals with leading Western companies, including Alenia Aeronautica, Boeing itself, EADS and Sikorsky Corporation.¹² In 2004 Aero also signed service contracts with countries using its training aircraft, including Algeria, Hungary and Thailand, and established a joint venture with a Taiwanese aerospace company, Aerospace Industrial Development Corporation, to develop and produce the Ae-270 aircraft.¹³ That joint venture ended in 2007.

In 2007 a powerful Czech–Slovak private equity fund, Penta Investments (see below), bought Aero for 2.9 billion korunas (\$143 million). Penta increased Aero's capital to 8 billion korunas (\$394 million) and announced major changes in marketing and production in order to focus on cooperating with leading global aircraft manufacturers, constructing a new airport in Vodochody and supplying the Czech MOD. Marek Dospiva, Penta's representative, stated: 'We are convinced that the rich experience and high technology know-how of Aero's employees, combined with Penta's significant financial means and our company's experience in restructuring, will bring Aero back to the ranks of major aircraft producers'.¹⁴

After Penta's takeover, Aero was quickly and thoroughly restructured from the highest level of management to the shop floor. Penta dismissed Aero's president and the nine-member board and appointed new management.¹⁵ The production process was streamlined to focus on the L-159 and Ae-270 aircraft and to make more assets available for subcontracting work, the volume of which Penta sought to increase. In order to cut costs and increase efficiency, the plant's activities were optimized and Penta reduced energy and service costs as well as indirect, material and personnel costs. Penta dismissed

¹¹ Zapletnyuk (note 1).

¹² Komínek, J., 'Ten suitors to compete for Aero Vodochody', *Prague Post*, 4 Jan. 2006.

¹³ Komínek (note 6).

¹⁴ 'AERO Vodochody prépare son retour parmi les constructeurs aéronautiques de pointe' [AERO Vodochody is preparing its return among leading aircraft manufacturers], CzechInvest, 28 Nov. 2006, <<http://www.czechinvest.org/fr/aero-vodochody-prepare-son-retour-parmi-les-constructeurs-aeronautiques-de-pointe>> (author's translation).

¹⁵ 'Business news', *Prague Post*, 10 Jan. 2007.

450 employees (mostly from executive-level positions), who received severance payments and were offered retraining and job-seeking assistance. Aero's losses decreased from \$64 million in 2005 to \$43 million in 2006. In 2006 Penta invested 58 million korunas (\$2.6 million) and in 2007 another 150 million korunas (\$7.4 million).¹⁶ In 2007 Aero realized a profit of 236 million korunas (\$11.6 million) and has since continued to be profitable. Radical restructuring and diversification have enabled Aero to weather the global economic crisis that began in 2008 and to continually increase its earnings.¹⁷

Aero has maintained its own defence production while increasing the share of its cooperation with the world's leading aerospace manufacturers. In late 2011 the company's activities included cooperation with Alenia Aeronautica (C-27J Spartan centre wing box), EADS (A320 and A340 subassemblies), Latécoère (Embraer 170 and 190 subassemblies), Saab (JAS 39 Gripen pylons), Sikorsky (S-76C helicopter), Sonaca (development and production of the Bombardier C-series fixed leading edge) and Spirit AeroSystems (Boeing 767 fixed leading edge kits). As of late 2012 the company employed 1500 people, including about 100 engineers in the military-related division.

Aero's largest aerostructure cooperation programme, its cooperation with Sikorsky on the airframe for the S-76 helicopter, started in 2000. By 2005 subcontracting for Sikorsky accounted for 40 per cent of Aero's turnover of 2 billion korunas (\$83 million). Bankruptcy continued to threaten and uncertainty about privatization complicated the situation; however, although Aero feared that Sikorsky would cancel its contracts if it were to be sold to a competitor, cooperation continued and deepened.¹⁸ Aero's contribution to Sikorsky included manufacturing; airframe assembly; installation of hydraulic, electronic and fuel systems and avionics; ground tests of systems; and management of more than 200 suppliers. Sikorsky continued to explore business opportunities with other European partners related to the manufacture of components and service centres for the entire Sikorsky product line. In 2007 it chose the Polish company PZL-Mielec as the affiliate responsible for manufacture of the S-70 Black Hawk helicopter.¹⁹ Subsequently, in January 2010 Sikorsky signed an agreement with Aero for joint production of the cockpit for its UH-60M Black Hawk helicopter. By June 2011 the first cockpit was completed and Aero had manufactured more than 300 S-76 Black Hawk helicopter airframes.²⁰ In April 2009 the two companies signed a memorandum of understanding to jointly explore aerospace industry cooperation in Central and East-

¹⁶ 'Aero Vodochody aims for profitability by early 2008', Aero-News Network, 2 Feb. 2007, <<http://www.aero-news.net/index.cfm?do=main.textpost&id=b6d75d20-fa5b-4a78-b939-768e91a91dff>>; and Aero Vodochody, 'Aero will show profit from January 2008', 30 Jan. 2007, <<http://www.aero.cz/news/7/en>>.

¹⁷ Aero Vodochody, 'AERO Vodochody surpassed its last year profit already in the middle of 2012', 17 July 2012, <<http://www.aero.cz/news/98/en>>.

¹⁸ Zapletnyuk (note 6).

¹⁹ Sarsfield, K., 'Aero Vodochody and Sikorsky unite to explore European co-operation', Flightglobal, 9 Apr. 2009, <<http://www.flightglobal.com/news/articles/aero-vodochody-and-sikorsky-unite-to-explore-european-324914/>>.

²⁰ Sikorsky, 'AERO Vodochody completes its first Black Hawk helicopter cockpit for Sikorsky', News release, 17 June 2011, <<http://www.aero.cz/news/86/en>>.

ern Europe.²¹ In January 2010 Sikorsky awarded Aero a UTC Supplier Gold award, the highest Sikorsky accolade for customer-focused service, on-time delivery and high-quality products. In September 2012 Aero signed a new contract for delivery of at least 50 cockpit structural assemblies for Sikorsky's S-70i Black Hawk helicopter.²²

In 2007 Aero began to participate in production of the Embraer 170 and 190 aircraft for the Brazilian company Embraer (Empresa Brasileira de Aeronáutica), the third-largest aircraft manufacturer in the world and Brazil's third-largest exporter. In April 2011 Aero and Embraer signed a contract worth 1 billion korunas (\$56.5 million) to produce a military transport aircraft, with the first prototype expected in 2013.²³ Aero began its participation in production of the C-27J Spartan military transport aircraft for the Italian company Alenia Aeronautica in 2006. Since October 2008 Aero has delivered pylons for Saab's JAS 39 Gripen aircraft, and since 2009 it has cooperated with the Belgian company Sonaca to design, develop and manufacture wing fixed leading edges for a new C-series aircraft for the Canadian aerospace manufacturer Bombardier. Other minor aerostructure subcontracts include production of Boeing 767 fixed leading edge kits (since 2000), the Boeing F/A-18 Super Hornet multi-role combat aircraft (since 2001), Airbus A320 and 340 for EADS Augsburg (since 2005), and parts for the British company Spirit AeroSystems and for the French company Latécoère.

A 2008 agreement with Gripen International and Saab Czech to cooperate in the sale, marketing and further development of the L-159 aircraft led nowhere. In 2009 Bolivia ordered six L-159 aircraft, a flight simulator, pilot and maintenance training, spare parts, and other standard support totalling \$57.9 million, but the contract was cancelled when the USA 'reportedly blocked' the deal.²⁴ In 2011 the Czech authorities sought to sell 25 used L-159 aircraft to Iraq, and 16 of the aircraft to Poland.²⁵ In October 2012 Iraq signed a \$1 billion-contract with Aero to buy 28 L-159 training and light attack aircraft along with pilot-training. The Czech Republic also allegedly committed itself to set up a T-72 tank upgrade facility in Iraq, which may have been the decisive factor that sealed the deal.²⁶ As of late 2012, despite interest expressed by many countries—including Austria, Bangladesh, Indonesia, Israel, Jordan and Spain—no other deal for the sale of Aero's L-159 aircraft had been concluded.

²¹ Sikorsky, 'Sikorsky Aircraft and Aero Vodochody a.s. sign MOU for cooperation in Central & Eastern Europe', Press release, 7 Apr. 2009, <<http://www.sikorsky.com/About+Sikorsky/News/Press+Details?pressvcmid=db0fe85de5c60210VgnVCM1000004f62529fRCRD>>.

²² Aero Vodochody, 'AERO Vodochody will deliver dozens of cockpits for Black Hawk helicopters', 11 Sep. 2012, <<http://www.aero.cz/news/99/en>>.

²³ CzechTrade, Czech National Trade Promotion Agency, 'Aero Vodochody lifting off', 26 Apr. 2011, <<http://www.czechtrade-eg.com/en/news/aero-vodochody-lifting-off-19156/>>.

²⁴ 'Czech L-159s: cheap to good home', Defense Industry Daily, 14 Oct. 2012, <<http://www.defenseindustrydaily.com/czech-l-159s-cheap-to-good-home-03494/>>.

²⁵ Morrison, M., 'Aero Vodochody boss optimistic about Iraq L-159 decision', Flightglobal, 18 Aug. 2011, <<http://www.flightglobal.com/news/articles/aero-vodochody-boss-optimistic-about-iraq-l-159-decision-360960/>>.

²⁶ Iraq to buy Czech L-159 fighter jets', České Noviny, 12 Oct. 2012, <<http://www.ceskenoviny.cz/news/zpravy/iraq-to-buy-czech-l-159-fighter-jets/851776>>; and 'Czech L-159s: cheap to good home' (note 24).

A profile of Penta Investments, Aero Vodochody's owner

In 1994 a group of former schoolmates established Penta Investments in Bratislava, Slovakia, with five employees. By 2010 it had become a large holding company with assets worth €2.7 billion (\$3.6 billion), 200 employees in Amsterdam, Bratislava, Limassol, Prague and Warsaw, and with more than 25 000 employees in its portfolio of companies. The company invested in the energy, entertainment, health care, machine engineering, metallurgy, private banking, real estate, retail, telecommunications and transport sectors.²⁷ Penta sought to create a new aerospace holding company in East Central Europe via mergers and acquisitions. After its acquisition of Aero, it added other companies to its aviation portfolio, including Clarex Investments in Považská Bystrica, Slovakia (engines), Rotortech Aero Composites in Cambridge, UK (composites), Technometra Radotín in Prague (landing gears) and Vodochody Airport in Prague. Penta had plans to transform the latter into an international airport specializing in low-cost and charter flights. It also tried to acquire other airports. Penta and Aero attempted and failed to purchase the Romanian companies Avione Craiova and IAR Braşov and the Polish company PZL-Swidnik.²⁸ In the early 2010s Penta continued its expansion, primarily in the retail trade and health care sectors, increasing its capital value to more than €1 billion (\$1.3 billion) by 2012.²⁹

II. The VERA surveillance system: endogenous research and development

As in other post-Soviet bloc countries, state-backed and company-led research diminished drastically in the Czech Republic with the beginning of the systemic transition. The military-related sphere, which had benefited from lavish state support during the cold war, was no exception to radical cuts in R&D. The low level of domestic R&D and innovation in the Czech Republic, a country of relatively advanced scientific and industrial traditions, helped to make the establishment of a US radar base in the country appear irresistible to many defence actors.³⁰ In 2005 the government's industrial strategy document

²⁷ 'Penta Investments purchases Okna Rąbień', *Rzeczpospolita*, 8 Oct. 2008; Mlčochová, J., 'Penta fights on for Vítkovice Steel', *Czech Business Weekly*, 4–17 July 2005, pp. 12–13; 'Aero wins army order', *Czech Business Weekly*, 24 Nov. 2008, p. 43; 'Saab, Aero sign contract on racks production for Gripen', Czech News Agency (ČTK), 9 Oct. 2008; and Penta, 'Profile', <<http://www.pentainvestments.com/about-us/profile/profile>>.

²⁸ 'Aero in fight for Polish helicopter maker', *Czech Business Weekly*, 6 Oct. 2008, p. 45; 'Aero taking over Romanian firm', *Czech Business Weekly*, 21 July 2008, p. 42; 'Aero Vodochody seul en lice pour le rachat du roumain IAR Brasov' [Aero Vodochody sole candidate for the takeover of Romanian IAR Brasov], *Les Echos*, 4 Nov. 2008; Gagiú, F., 'Aero Vodochody to take over IAR', *Income Magazine*, 19 Nov. 2008, <<http://incomemagazine.ro/articles/aero-vodochody-to-take-over-iar>>; and 'Aero Vodochody to include Avioane Craiova into regional holding', *Financiarul*, 16 Sep. 2008, <<http://www.financiarul.ro/2008/09/16/aero-vodochody-to-include-avioane-craiova-into-regional-holding/>>.

²⁹ Penta, 'Penta's equity exceeds EUR 1 billion', Press release, 28 June 2012, <<http://www.pentainvestments.com/press-releases/2012/penta-s-equity-exceeds-eur-1-billion>>.

³⁰ See the discussion in chapter 6, section II, in this volume.

declared that the goal of increasing R&D to 1 per cent of GDP by 2010 would not be met, which helps to explain the determined efforts to channel US funds into military-related R&D.³¹ Most of the scarce funding for R&D received by the military sector during the 1990s was spent on the Tamara passive surveillance system, which had been produced at a Tesla subsidiary in Pardubice.

In November 1997 US and other officials reacted to a report that disclosed a four-month effort to sell the Tamara system to Iraq by a group of former Bulgarian military and intelligence officials—in secret collaboration with Czech Government and military officials.³² A US Department of Defense spokesman, Kenneth Bacon, challenged claims that the Tamara system could thwart radar-evasion technology, used by some US military aircraft to evade radar detection, and said that newspaper reports calling the system ‘radar’ were wrong. According to Bacon, Tamara was instead ‘a family of devices that collect a variety of signals that, theoretically, can be analyzed electronically and used to pinpoint the location of an aircraft’.³³

Initially, HTT-Tesla in Pardubice produced the Tamara system. During the 1990s the company was privatized and suffered major economic difficulties. Following a complicated decentralization and privatization process, ERA, a private Czech firm also located in Pardubice, took over development and production of the system. Several years later ERA presented a more sophisticated version of Tamara: the VERA radar system, which used ‘passive location’—a unique way of identifying a target without sending out a signal. This technology allowed the radar system to remain unidentifiable and thus impossible to jam. VERA could simultaneously monitor up to 200 aircraft and precisely determine their distance and altitude. ERA developed other sophisticated products, such as its Multilateration Surveillance System (MSS) for tracking civil aircraft and another advanced wide-range, multi-altitude radar.³⁴

In 2003 the Czech Republic had been about to conclude a deal to sell six VERA passive surveillance radar systems for several million dollars to China, but high-level pressure from the USA led to its abandonment in May 2004.³⁵ In September 2004 the US Deputy Secretary of State, Richard Armitage, visited the Czech Republic and, after discussing various issues, including the ‘global war on terrorism’ and the situation in Iraq, he confirmed that the USA had purchased a VERA system that the USA intended to test before helping the Czech Republic export it.³⁶ In October 2006 a US surveillance- and flight-tracking

³¹ Czech Research, Development and Innovation Council, ‘National innovation policy of the Czech Republic for 2005–2010’, 29 June 2005, <<http://www.vyzkum.cz/FrontClanek.aspx?idsekce=14438>>.

³² ‘Iraq set to buy air-defense’, *Washington Times*, 11 Nov. 1997.

³³ ‘Iraq set to buy air-defense’ (note 32); Foley, K., ‘Czech Republic: U.S. says Tamara system overrated’, Radio Free Europe/Radio Liberty, 9 Nov. 1997, <<http://www.rferl.org/content/article/1087400.html>>; and Kopp, C., ‘Warsaw Pact/Russian/PLA emitter locating systems/ELINT systems’, Technical Report APA-TR-2008-0503, May 2008, updated Apr. 2012, <<http://www.airspacepower.net/APA-Warpac-Rus-PLA-ESM.html>>.

³⁴ ERA, ‘Vera-NG by ERA’ and ‘MSS by ERA’, <<http://era.aero/products/>>. At one point the French company Thomson-CSF (now called Thales) held a 35% stake in ERA.

³⁵ Bennett, M., ‘Radar system won’t go to China’, *Prague Post*, 27 May 2004.

³⁶ ‘L’Irak, la lutte contre le terrorisme et le radar Vera au programme de la visite en République tchèque du ministre délégué américain des Affaires étrangères’ [Iraq, the fight against terrorism and

developer, Rannoch Corporation, took over ERA, and *The Prague Post* wrote that “The most formidable Czech military defensive tool—the Vera surveillance radar, which is the only system that can detect the “invisible” U.S. Stealth bomber—is now owned by Americans.”³⁷ Notably, representatives of the Czech MOD and regional officials had not been informed of the sale. The US Government repeatedly expressed concern about the sale of VERA to countries it deemed unfriendly. Before the takeover, China, Egypt, Malaysia and Pakistan had placed orders for the VERA system, but those transactions were cancelled; the system was sold only to Estonia and the USA, and leased to Pakistan. After the purchase of ERA, Marshall Billingsley, director of NATO’s investment department, declared that the system was expected to become a ‘key tool in NATO’s new air control system’.³⁸

In December 2006 Rannoch acquired BAE System’s TAMIS group, which also specialized in flight-tracking data. In 2007, after completing a series of strategic acquisitions, Rannoch changed its name to Era Corporation. By 2008 the company employed nearly 300 people and was considered a market leader in multilateration, automatic dependent surveillance-broadcast (ADS-B) and other technologies. It delivered systems to more than 100 customers in Africa, Asia, Europe, the Middle East, and North and South America. The company was headquartered in Reston, Virginia, USA, with production facilities and R&D centres in the Czech Republic and the USA.³⁹ In July 2008 the US company SRA International Inc., a leading provider of technology and strategic consulting services to government organizations, bought Era Corporation.⁴⁰ The company presented a new version of the VERA system, the VERA-NG, at the 2009 International Exhibition of Defence and Security Technologies. In 2011 Omnipol acquired the former Era Corporation from SRA International.⁴¹ In March 2012 ERA announced that VERA-NG had been listed as available equipment by the Czech armed forces, which meant that it had become available to all NATO member countries. Earlier reports said that NATO representatives were considering the purchase of the system for NATO’s Air Command-and-Control System (ACCS) project.⁴²

the Vera radar on the agenda for the American minister of foreign affairs’ visit to the Czech Republic], Radio Praha, 15 Sep. 2004, <<http://www.radio.cz/fr/rubrique/infos/infos-2004-09-15>>; and Armitage, R. L., US Deputy Secretary of State, Press conference with Czech Defense Minister Karel Kuehn, Prague, 15 Sep. 2004, <<http://2001-2009.state.gov/s/d/former/armitage/remarks/36205.htm>>.

³⁷ Bouc, F., ‘Czech radar company sold’, *Prague Post*, 15 Nov. 2006.

³⁸ Bouc (note 37).

³⁹ Era Corporation, ‘Rannoch Corporation changes company name to Era Corporation: new corporate brand reflects vision for next-generation surveillance’, Press release, 6 Feb. 2007, <<http://www.sra.com/news/press-releases/2007/phoenix7b6d.php>>.

⁴⁰ SRA International, ‘SRA completes acquisition of Era Corporation’, 30 July 2008, <<http://news.sra.com/press-release/sra-completes-acquisition-era-corporation>>.

⁴¹ ERA, ‘OMNIPOL a.s. acquires ERA a.s.’, 21 Nov. 2011, <<http://era.aero/news/51/59/OMNIPOL-a-s-Acquires-ERA-a-s/>>; and Johnstone, C., ‘Omnipol buys Czech hi-tech air surveillance firm ERA’, Czech Position, 12 Nov. 2011, <<http://www.ceskapozice.cz/www.ceskapozice.cz/en/business/companies/omnipol-buys-czech-hi-tech-air-surveillance-firm-era>>.

⁴² Omnipol, ‘The future of VERA-NG passive radar systems?’, *Omnipol News*, 24 May 2011; ERA, ‘VERA-NG passive surveillance available to NATO’, 1 Mar. 2012, <<http://era.aero/news/58/82/VERA-NG-Passive-Surveillance-Available-to-NATO/>>; and ERA, ‘ERA has introduced its newest

III. Tatra: success via foreign ownership

Tatra, a manufacturer of civil and military vehicles, located in Kopřivnice, is one of the oldest and largest Czech defence-related firms. During the cold war it produced 13 000 trucks a year. Between the early 1990s and the mid-2000s, the company changed hands four times; each purchaser was a US firm. In 1993 the management team of Gerald Greenwald, David Shelby and Jack Rutherford (known as GSR) took over, but they failed to make the company profitable.⁴³ Tatra remained on the brink of bankruptcy throughout the 1990s. In 2001 SDC International (SDCI) bought the company and launched an ambitious restructuring programme that had begun to bear fruit when SDCI decided to sell the company. Despite some positive internal changes, SDCI had failed to increase exports to new markets. In 2003 another US company, the truck manufacturer Terex Corporation, acquired a controlling interest in Tatra. Tatra's output and profits started to increase, but in July 2006 Terex divested itself of the company because 'it did not fit in its portfolio'.⁴⁴ Changing regulations about foreigners on a company's board of directors or supervisory board may have convinced Terex to seek a buyer for its majority stake in Tatra.⁴⁵

Despite ownership changes, Tatra's staff and the company's years of experience enabled it to survive and develop. In 2006 its net profit was 261 million korunas (\$11.6 million), an increase from 5 million korunas (\$209 000) in 2005. In the autumn of 2006 a group of international private equity investors—from Belgium, the Czech Republic, the UK and the USA—bought Tatra. The company's general manager, Ronald Adams, who had moved to the Czech Republic in 2002 to manage Tatra on behalf of Terex, headed the group. In 2006 Tatra was also awarded the title 'military technology company of the year' by *Czech Defence Industry and Security Review*.⁴⁶

In the first half of 2007 the company manufactured 1073 vehicles and its sales rose by 76 per cent, compared to 2006. According to the company's website, in 2007 Tatra's revenue was 5.9 billion korunas (\$291 million), with 84 per cent from export. The parent company's net profit reached 859 million korunas (\$42 million). In 2007 Tatra planned to produce 2300–2500 vehicles and, in contrast to previous years, it began to hire personnel. By 2008 it employed 3470 people. In addition to its subsidiary companies, Tafonco and Taforge, which were also located in Kopřivnice, Tatra had a truck-building joint venture in India, Tatra Vectra Motors Ltd, which had been created by Tatra and the British company Vectra Group, one of Tatra's British shareholders. Tatra's military products included trucks for APCs and MRAP vehicles.

system to public', 3 Oct. 2012, <<http://era.aero/news/66/59/ERA-has-introduced-its-newest-system-to-public/>>.

⁴³ On GSR's efforts see McNally, B., 'Tatra's U.S. team holds on, for now', *Prague Post*, 6 July 1994.

⁴⁴ Bouc, F., 'Next in line: American-led investment group is fourth Tatra owner in 12 years', *Prague Post*, 9 Aug. 2006.

⁴⁵ Bouc, F., 'Rules worry defense investors: amendment forbids foreigners from holding seats on boards of firms', *Prague Post*, 8 Mar. 2006.

⁴⁶ Kavečková, L., 'Tatra wins 2006 military company of the year award', *Czech Business Weekly*, 22–28 Jan. 2007, p. 26.

In 2008 the company opened a US office in the hope of increasing sales and taking advantage of its expertise in particular niches, such as off-road capabilities. The Tatra suspension and chassis system—developed in 1923, but continuously updated and modernized—was deemed ‘the only one of its kind’ and ‘proven to be a real champion for heavy-duty off-road trucks’.⁴⁷ In February 2008 Tatra introduced the world’s first (and, so far, only) air-cooled engine, which considerably reduces emissions of greenhouse gases. All Tatra vehicles produced after February 2008 were expected to be fitted with the new engine, making Tatra one of the few companies already meeting the EU’s Euro 5 emission standards.⁴⁸

In 2010 Tatra’s revenues exceeded 2.5 billion korunas (\$131 million). In August 2011 the company announced a cooperation agreement with DAF Trucks N.V., a subsidiary of the US corporation PACCAR, headquartered in the Netherlands, for the supply and distribution of DAF engines and cabs for a new range of Tatra vehicles. DAF also acquired 19 per cent ownership in Tatra.⁴⁹ In September 2011 Tatra’s new military products, the Phoenix 8 x 8 S1 truck, a CAS 30 water tender and a special military truck, the T815-7, were displayed at the 2011 NATO Days in Ostrava. On a negative note, in August 2012 Adams was accused of offering bribes to Czech Government officials to secure the contract to supply 588 off-road vehicles for 2.7 billion korunas (\$142 million).⁵⁰

IV. The Sellier & Bellot ammunition company: a typical Czech company

Sellier & Bellot, located in Vlašim, was established in 1825 by two French businessmen, Nicolas Bellot and Louis Sellier to supply the Austro-Hungarian Army with percussion caps. It is the largest small-arms manufacturer in Europe, producing both military and civil (sporting and hunting) ammunition, and the oldest continuously trading under the same name. Until 1989 the company’s main profile was military cartridges for the Czechoslovak armed forces. The company’s products include military small-arms ammunition, shells for competitive shooting and hunting, centre-fire rifle cartridges, handgun ammunition, rim-fire cartridges, blasting products and cartridge components. The company is one of few that managed to handle the difficult post-

⁴⁷ ‘10 questions with Ronald Adams’, *Prague Post*, 26 Mar. 2008.

⁴⁸ See the interviews with Adams in Bouc (note 44) and ‘10 questions with Ronald Adams’ (note 47); Gardner, B., ‘Head on’, *Czech Business Weekly*, 14 May 2007; and Heitmann, M., ‘Tatra truck has weight problem’, *Prague Post*, 10 Oct. 2007. See also Europa, ‘Reduction of pollutant emissions from light vehicles’, 29 Mar. 2013, <http://europa.eu/legislation_summaries/environment/air_pollution/l28186_en.htm>.

⁴⁹ Tatra, ‘TATRA and DAF Trucks sign cooperation agreements’, 2 Aug. 2011, <<http://www.tatra-trucks.com/about-the-company/press-and-media/press-releases/tatra-and-daf-trucks-sign-cooperation-agreements/>>; and Mlcochova, J., ‘Paccar’s DAF to gain stake in Czech Tatra’, Reuters, 2 Aug. 2011.

⁵⁰ ‘LN: Tatra US head admits offering CZK 20 million to Czechs’, *Prague Daily Monitor*, 24 Aug. 2012, <<http://praguemonitor.com/2012/08/24/ln-tatra-us-head-admits-offering-czk-20-million-czechs/>>; ‘U.S. chief of Czech truckmaker faces bribery charges’, Reuters, 21 Aug. 2012; and Crane, J., ‘A diplomatic backlash: arrest of Tatra CEO threatens bilateral relations between ČR and U.S.’, *Prague Post*, 29 Aug. 2012.

cold war transition years relatively smoothly. Soon after the systemic changes started Sellier & Bellot introduced alternative civil production lines, including packaging machines, special purpose machinery for the company's own production needs, and sport and hunting ammunition.

In the early 1990s production dropped and serious disturbances occurred due to ownership changes and poor management. In 1993 the company was privatized through voucher privatization, but the new ownership structure proved profoundly inadequate. The level of abuse of this system was such that in 1998 the former chairman of its board, Jiří Dvořák, was arrested and charged with fraud. Various sources, including an international audit, reported losses for the company of almost 35 million korunas (\$1.1 million) in 1997, while Dvořák served as chairman of the board. Sellier & Bellot's employees had long warned of so-called tunnelling, the illegal transfer of a company's assets to another company.⁵¹ After a new Czech institutional investor took over the company and introduced significant reorganization measures, the situation stabilized and output began to increase in the late 1990s. The company became profitable in 1999 and in 2000 it managed to nearly double its net profit, which increased from 48 million korunas (\$1.4 million) in 1999 to 85 million korunas (\$2.2 million) in 2000. By this time the firm's internal restructuring had been accomplished, production costs had been reduced, and the production profile had been reoriented towards the most profitable areas. In 2001 output reached 1.2 billion korunas (\$32 million). In 2002 the company used approximately 75 per cent of its production capacity. In the mid-1980s Sellier & Bellot had employed approximately 4000 people; by 2002 it had 1400 workers, and some of the company's shares were held by its employees.

Sellier & Bellot's production structure changed fundamentally from that of the 1980s: the company diversified and became able to produce a large range of products. In 2002, 85 per cent of the company's production was exported, principally to Germany and other West European countries and the USA. The majority of the buyers were new partners found by the company's extensive marketing activities, which were carried out by Sellier & Bellot's trading company in Prague. The company sold 20 per cent of its output on military markets and the rest on civil markets.⁵² In some instances, however, independent trading companies resold Sellier & Bellot's civil products for military purposes. For example, between 1998 and 2006 Paraguay imported 40 million Sellier & Bellot rounds of various calibre. However, Paraguay's weak regulations and porous borders led to many of these items ending up in illicit use in Brazil and other neighbouring countries. Sales to Paraguay were interrupted in 2004, the year that the Czech Republic joined the EU and had to comply with its stricter export control requirements.⁵³

⁵¹ 'Police arrest former arms company chairman: TV NOVA', Radio Praha, 15 Dec. 1998, <<http://www.radio.cz/en/section/news/news-tuesday-december-15th-1998>>.

⁵² Musil, R., Managing director of Sellier & Bellot, Interview with author, Vlasim, 24 Apr. 2002.

⁵³ Dreyfus, P., 'CBC international expansion: with its growth, social responsibility and commitment with international security must increase', Comunidade Segura, 20 May 2009, <<http://www.comunidadesegura.org/en/node/42395>>.

In 1998 the company was granted an ISO 9001 quality certificate, and in 1999 the readers of *Deutsches Waffenzjournal* voted it a bronze medal for its pistol and revolver cartridges. Both the Czech and Slovak Olympic teams chose Sellier & Bellot cartridges for use in competition. Sellier & Bellot also cooperated on projects with US and West European companies and, among other products, it manufactured the headstamp for revolvers for the US company Winchester. After having received a NATO supplier certificate from the Czech Ministry of Industry and Trade, Sellier & Bellot intended to participate in NATO tenders for special calibre ammunition. The company possessed its own R&D department and continued to carry out military-related R&D, even during the years of low military demand, which enabled it to introduce new products on a regular basis. In 2001 the company launched such a product—a non-toxic primer that does not contain heavy metal and is thus more environmentally friendly than standard ammunition. In a project run and financed by the Czech Ministry of Industry and Trade, Sellier & Bellot participated in the development of ammunition for weapons that can be mounted on L-159 aircraft.

During the 2000s the company continued to perform well, with a 2008 revenue of €55 million (\$81 million). In April 2009 Sellier & Bellot was bought by the Brazilian company Companhia Brasileira de Cartuchos, a privately owned international ammunition producer group based in Ribeirão Pires, São Paulo, and employing 1230 people. CBC produces civil and military ammunition up to 30-mm calibre and also owns the US company Magtech, an ammunition producer, and the German company Metallwerk Elisenhütte GmbH. Founded in 1926, CBC is an emerging regional giant, selling ammunition in more than 70 countries worldwide. In a letter announcing its acquisition of Sellier & Bellot, CBC stressed that both Sellier & Bellot and Magtech would retain their management teams and operate under their well-known brand names and via their current sales channels.⁵⁴ Sellier & Bellot was presented as one of the leading ammunition companies in the world, with exports to more than 50 countries, and also as a leader in various market segments.

A study prepared by Pablo Dreyfus, a researcher on the weapon control project of Viva Rio—an NGO based in Rio de Janeiro, Brazil, that aims to combat growing violence in the city—stressed that CBC's acquisition of Sellier & Bellot might increase the risk of ammunition proliferation in Latin America, a region in which 42 per cent of all firearms-related homicides in the world were concentrated in the 2000s. CBC's sales were limited by a June 2001 resolution of the Brazilian Ministry of Development, Industry and Foreign Commerce that restricted the export of SALW in Latin America, but that limitation did not apply to Sellier & Bellot because it is headquartered in the EU.⁵⁵

⁵⁴ Companhia Brasileira de Cartuchos, 'Letter to the Shooting Sports Industry', 1 Apr. 2009, <<http://www.magtechammunition.com/Introductory-Letter.pdf>>.

⁵⁵ Dreyfus (note 53).

7. Slovakia: from a nationalist backwater to a Slavic tiger

Slovakia's post-independence political and economic life has been marked by sharp changes. After the dissolution of Czechoslovakia in January 1993, Vladimír Mečiar, the authoritarian nationalist leader of the *Ludová strana–Hnutie za demokratické Slovensko* (LS-HZDS or HZDS, People's Party–Movement for a Democratic Slovakia), became prime minister of Slovakia. However, fierce political disputes both inside and outside his own party forced him to resign in early 1994. An interim government, led by Jozef Moravčík of the *Demokratická únia* (DU, Democratic Union), introduced economic liberalization measures and took steps to achieve political consensus, but in the autumn 1994 elections Mečiar regained power. He continued his previous policies, without major modifications.

After independence the Slovak economy grew steadily, although public and private debt and trade deficits rose. Political and economic power concentrated around the HZDS and its business sphere, while privatization efforts were erratic. In the second half of the 1990s economic growth slowed and the economy's unresolved problems—unaccomplished structural changes, deep economic and social disparities, high unemployment, and disproportionate government spending—surfaced.

In 1998 a new government, headed by Mikuláš Dzurinda of the *Slovenská demokratická koalícia* (SDK, Slovak Democratic Coalition), took office and launched a sweeping reform programme. Dzurinda aimed to accelerate economic restructuring, attract foreign investment and pave the way for Slovakia's admission into the European Union and NATO. The Dzurinda government introduced a radical economic reform package, including a 19 per cent flat tax for corporations and individuals, no dividend taxes and a revised, liberalized labour code to attract foreign investors. These incentives—coupled with Slovakia's favourable geographical location, abundant, cheap and relatively skilled labour force, and a welcoming political and economic elite—led to a massive inflow of foreign capital and a spectacular economic recovery, the 'Slovak miracle'.¹ The 2002 elections confirmed the power of the governing coalition and made continuation of reforms possible. On 29 March 2004 Slovakia became a NATO member and it joined the EU on 1 May that year.

¹ Foreign direct investment grew by 600% from 2000 to around \$13.6 billion or \$2540 per capita by the end of 2004. US Department of State, Bureau of European and Eurasian Affairs, 'Country profile: Slovakia', July 2006, <<http://www.state.gov/outofdate/bgn/slovakia/74249.htm>>.

In 2006 the SDK lost the election and Robert Fico, the leader of the Smer-sociálna demokracia (Smer-SD, Direction-Social Democracy), a coalition of leftist parties, formed a leftist–populist–nationalist coalition government with Mečiar’s HZDS and the extremist Slovenská národná strana (SNS, Slovak National Party). Fico pledged to follow the previous austere financial policy, but his cabinet gradually modified the policy’s direction. In July 2010 Ivetta Radičová, the deputy head of the Slovenská demokratická a kresťanská únia–Demokratická strana (SDKÚ-DS, Slovak Democratic and Christian Union–Democratic Party), formed a new coalition government of four conservative parties. The first woman prime minister of Slovakia declared that her priority was to stabilize the economy by reducing the budget deficit and public debt. On 11 October 2011 Radičová lost a vote of confidence in the National Council (the parliament) and in the March 2012 election Smer-SD won an absolute majority and formed a one-party government, headed by Fico as prime minister.

The establishment of a wide range of transnational corporations, particularly in industry (car making, electrical engineering, IT technologies and mechanical engineering) helped to change Slovakia’s economic structure. The Slovak economy has experienced a major transformation, shifting from dependence on a costly and obsolete state-run heavy arms industry to a dynamic and diversified production base. A new domestic SME sector also emerged and occupied some segments of the economy, often cooperating with large-scale foreign firms. In 2007 Slovakia was the fastest growing country in the EU and in January 2009 it was the first among the countries of East Central Europe to join the eurozone.² Despite spectacular changes, some basic problems remained unresolved, including high unemployment, major regional disequilibrium, increasing economic differentiation and social tensions, not least the worsening problems of the Roma minority.

I. Defence industrial policy

New foreign policy orientation and international peace operations

Once the nationalist and confrontational foreign policy that characterized Mečiar’s administrations changed, Slovakia was eager to find its role in the new international institutional environment. Post-Mečiar governments had a markedly Atlanticist orientation, although they intended to balance their transatlantic and European commitments. Slovakia undertook a significant arms force reduction and modernization programme that absorbed most of its defence budget. However, it actively participated both in NATO military missions and the EU’s military-related activities, including in the EU Mili-

² Slovak Investment and Trade Development Agency (SARIO), *Invest in Slovakia* (SARIO: Bratislava, Aug. 2012).

tary Operation in Bosnia and Herzegovina (EUFOR ALTHEA) and, financially, in EUFOR RD Congo in the Democratic Republic of the Congo. The country also took part in EU civil crisis management projects, including in the EU Rule of Law Mission in Kosovo (EULEX Kosovo), the EU's largest and most complex operation.

Slovakia took part in the US-led 'global war on terrorism' even before it became a NATO member and, in August 2003, sent a military engineering brigade to Iraq, with additional troops deployed later. In 2007 the Slovak National Council voted to withdraw troops from Iraq, some of whom the government redeployed to ISAF in Afghanistan. Slovakia also deployed soldiers to the NATO Kosovo Force and contributed troops to two international battle groups under NATO's aegis. At the end of 2006 it deployed 642 service personnel in 12 military operations and in peace operations in nine countries on three continents. This number represented 7.9 per cent of the Slovak land forces, close to Slovakia's NATO commitment to permanently station 8 per cent of its land forces abroad.³ Compared to the size of its population and its army, Slovakia was one of NATO's most active contributors from the ECE countries. Due to its economic difficulties, the country decided to diminish its forces deployed abroad; at the beginning of May 2011, 556 Slovak soldiers served abroad: 313 in Afghanistan, 198 in Cyprus and 45 in Bosnia and Herzegovina.⁴ In March 2011 the Minister of Defence, Lubomír Galko, proposed Slovakia's withdrawal from the UN Peacekeeping Force in Cyprus (UNFICYP) due to financial constraints and because 'UN missions, when compared to those run by NATO and the EU, barely develop military capabilities'.⁵

In 2005 Slovakia set itself the goal of becoming a leading nation in explosive ordinance disposal (EOD) in order to combat terrorism, modelling its activities on the Czech CBRN defence battalion.⁶ In 2006 a chemical, biological and radiological (CBR) training and testing centre opened in Zemianske Kostolány.⁷ In October 2007 NATO's EOD Centre of Excellence (EOD COE) opened in Trenčín and Nováky to serve the needs of all member states.⁸ During a May 2011 visit the NATO Secretary General, Anders Fogh Rasmussen, cited the EOD COE, Slovakia's membership in the

³ Nicolini, M., 'Slovakia in NATO, EU, and UNSC: change and continuity', L. Lupták et al., *Panorama of Global Security Environment 2006–2007* (Slovak Ministry of Defence, Department of Security and Defence Policy: Bratislava, 2007), p. 125.

⁴ Terenzani-Stanková, M., 'Region: Slovak armed forces struggling, financial woes may force military to end some deployments', *Prague Post*, 11 May 2011.

⁵ 'Defence Ministry proposes Slovak pull-out from Cyprus UN mission', *Slovak Spectator*, 17 Mar. 2011.

⁶ Nicolini, M., Slovak Ministry of Defence, Adviser to the State Secretary, Interview with author, Bratislava, 21 Mar. 2005.

⁷ Nicolini (note 3), p. 123.

⁸ International Defence Exhibition Bratislava (IDEB), *IDEB 2008 Catalogue* (Ministry of Defence and Association of the Defence Industry: Bratislava, 2008), p. 11.

Allied Ground Surveillance initiative and the Multinational Logistics Coordination Centre in Prague as ‘good examples’ of Smart Defence, NATO’s new strategic initiative.⁹

Slovakia also played an active role in regional politics, assisting Poland in its efforts to promote democratic changes in Ukraine and making efforts to revive the Visegrád Four (Czech Republic, Hungary, Poland and Slovakia). After an initial period of tension following the dissolution of Czechoslovakia, Slovakia’s relationship with the Czech Republic improved significantly, and the two countries undertook common projects, ranging from energy safety to cultural events. One of the first areas where cooperation resumed after dissolution was military-related activity, both at government and company levels, with numerous joint military projects and products. Several companies had branches in both countries and an annual arms exhibition took place alternately in Slovakia (International Defence Exhibition Bratislava, IDEB) and the Czech Republic (International Exhibition of Defence and Security Technologies, IDET). Paradoxically, the defence-related issues that had played a key role in pushing the two countries apart were later crucial in pulling them together.

Pre-dissolution Czechoslovak defence industrial policy

Before 1990 traditional heavy weapon production was one of the pillars of the Czechoslovak economy. At its peak, in 1989, it had an output of 19.3 billion korunas (\$613 million), representing approximately 24 per cent of the country’s machinery and electronic industry production. The sector directly employed about 80 000 people and nearly as many indirectly. Large-scale traditional state-owned conglomerates dominated arms making and their regional concentration was high. The centre-north of the country, the famous Slovak military triangle of the towns of Martin, Dubnica and Detva, was entirely dependent on the employment and services provided by large-scale arms producers.

From 1989 Václav Havel, the leader of the Civic Forum party who became president of Czechoslovakia and the first president of the Czech Republic, eloquently argued for a policy of ‘tanks into ploughshares’. Nevertheless, from 1993 his government silently and gradually abandoned the policy of conversion. The transformation of defence industrial companies was no longer treated as an urgent national economic and political problem, but rather as a specific challenge concerning only the enterprises affected. Issues related to the arms industry, the arms trade and conversion had played a key role in the escalation of economic and political tensions that

⁹ North Atlantic Treaty Organization, ‘NATO Secretary General talks smart defence in Slovakia’, 19 May 2011, <http://www.nato.int/cps/en/natolive/news_74489.htm>.

led to the break-up of Czechoslovakia. The Czech Republic considered conversion a historical mistake, while in Slovakia it became the scapegoat for the country's ills. After the dissolution of Czechoslovakia, both successor countries resumed arms exports and developed their own arms industries.

Development of the Slovak defence industrial policy

In 1993 Mečiar declared that 'arms production will be resurrected wherever it was possible'.¹⁰ Nevertheless, the Slovak arms industry was in a critical state, facing the double challenge of regime change and post-separation adjustment. After the demise of the Warsaw Pact and the split of Czechoslovakia, Slovak external markets collapsed, and government orders and subsidies dropped significantly. The Mečiar government resumed regular financial subsidies, promoted exports and, in 1995, assisted in setting-up an umbrella organization, the DMD Group, whose purpose was to retain and promote the key weapon factories. Slovakia abandoned the coupon privatization programme launched in Czechoslovakia in the 1990s that included defence-related facilities. On 1 May 1997 all arms industry enterprises that had not been privatized previously became 100 per cent state-owned shareholder companies. The Ministry of Economy represented the state and controlled the five largest companies: ZTS TEES Martin, ZTS Dubnica nad Váhom, ZVS Dubnica nad Váhom, Konštrukta-Defence R&D Institute and Konštrukta Industry Trenčín. The National Property Fund (NPF) assumed responsibility for PPS Detva, another traditional flagship company, while the Ministry of Defence took charge of other firms. The second Mečiar government sold some firms to businesses close to the governing elite. Gradually, a complicated system of cross-ownership emerged in which predominantly state-owned banks and companies and other state institutions became majority owners of defence companies.

Short-term economic and political interests motivated renewed state intervention, which, however, did not stimulate genuine restructuring and could not stop the gradual decline of the companies. In 1997, in a last act of nationalist protectionism, Mečiar's government attempted to save several ailing arms producers by including them in a large-scale 'revitalization project' intended to stabilize the finances of key state-owned companies. This policy led arms producers, reassured by the continuous government backing, to wait for the authorities to solve their problems.

The Dzurinda government that came to power in 1998 analysed the arms industry and concluded that it was futile to invest further resources in a

¹⁰ *Rudé Právo*, 6 Jan. 1993.

sector with such weak development potential. Thus, it decided to modernize the armed forces with principally imported weapons. While specialized niche functions and products with export potential could anticipate eventually being promoted by the state with well-targeted financial resources, the government expected the rest of the industry to prove its viability in free market competition.¹¹ By the end of 2000 the government lifted the ban on privatization of strategic companies and by 2002 the bulk of firms had become privately owned.¹² The nationalist-protectionist defence industrial policy had become radically liberal.

The message to the industrial actors was clear: restructure and find new export markets or exit the sector. Some managers still hoped that NATO membership would open up important new markets, but a number of factors limited export opportunities, including the inadequacy of what they had to offer, the lack of domestic references, fierce international competition and, most importantly, the introduction of strict arms export regulations mandated by the EU and NATO. By the mid-2000s the Slovak arms industry had shrunk to a minimal but functional size. According to the MOE, in 2005 it produced approximately one-tenth of its 1988 peak output and employed 776 people.¹³ Several companies, among them such strongholds of traditional arms making as ZTS TEES Martin, closed down or split into several smaller successor companies. Many of the companies that continued to function teetered at the edge of bankruptcy.

Nonetheless, the impressive growth that followed economic stabilization and Slovakia's entry into the EU and NATO offered new opportunities both for genuine conversion and for a partial resurrection of arms production. As a new member, Slovakia sought to carve out a niche position for itself in NATO. In order to meet Slovakia's new military commitments and to make its presence felt in the international market, the country's decision makers selected a few products with good export potential for promotion in both emerging and NATO-related markets: the Bozena mine-clearance system, the Zuzana self-propelled howitzer, the Tatravan 6x6 armoured terrain multipurpose vehicle, the differential absorption light detection and ranging (DIAL) chemical detection system, the Talet 30 aircraft-towing tractor and the Aligator 4x4 light armoured reconnaissance vehicle. Stable companies that had emerged as key players—Konštrukta-Defence in Trenčín, Vývoj Martin in Martin, and EVPÚ in Nová Dubnica—produced these products.

¹¹ Nicolini (note 6).

¹² Velebny, J., Director, Dudák, P., Slovak Ministry of Economy, State counselor, Plancar, S., Slovak Ministry of Economy, Counselor of the Department of Industrial Policy, and Gazak, L., Vice-President of the Association of the Defence Industry of the Slovak Republic, Interview with author, Bratislava, 21 Mar. 2005.

¹³ Velebny et al. (note 12).

The development of the Aligator demonstrates that the process leading to the manufacture of these products could be complex. In 1993 a private company, Transmisie in Martin, carried out initial R&D for the vehicle. In the mid-1990s the MOE financed the project but that funding proved insufficient, and in 1996 Kerametal, a private trade company, also invested in the project. ZTS TEES Martin (then called DMD Mobiltec) manufactured the first eight vehicles for the Slovak armed forces. When DMD Mobiltec closed in 2003, the owners of the licensing documentation (Transmisie) contracted with the Military Repair Enterprise VOP 027 Trenčín to manufacture the Aligator and specialty versions of the vehicle. In 2006 a special CBR version, tailored to the specific needs of Slovakia's NBC military units, won the Grand Prix at the IDEB.¹⁴ At the IDEB 2012 exhibition in Bratislava, Kerametal presented a new variant of the Aligator 4x4 Master with a new chassis to increase mobility and payload.¹⁵ Concentrating on prospective products instead of trying to save troublesome companies had proved to be a sensible choice.

Fico's coalition government that came to power in 2006 tilted defence industry policy towards promotion. It placed increased emphasis on exports, simultaneously linking foreign procurement deals with domestic production and domestic military-related R&D. In his opening speech at the 2008 IDEB, the Minister of Defence, Jaroslav Baška, noted that the government plan for a new modernization project for the Slovak armed forces would 'induce an increasing need for advanced military equipment, attracting a wide variety of international commercial companies'.¹⁶ The Minister of Economy, Lubomír Jahnátek, stressed that the arms industry was an indispensable part of the country's industrial base as in 'each and every "healthy and standard" economy'. In an interview Jahnátek said that 'the ambition of this government is to put the defence industry back on its feet'.¹⁷

Instead of advancing nationalistic arguments, the government justified 'rehabilitation' of the arms industry by the need to meet EU and NATO requirements. It promised to facilitate the sector's development and gave the MOE and the MOD the task of drafting a defence R&D proposal for 2008–10.¹⁸ According to Jahnátek, in order to revive Slovakia's arms industry the government had to take control of key firms, such as DMD Holding

¹⁴ Gyürösi, M., 'Aligator 4 x 4 CBR mobile workstation', Slovak Ministry of Defence, *Slovakia in NATO*, Dec. 2006, pp. 28–29.

¹⁵ 'Slovak company Kerametal presents the new Aligator 4x4 master armoured vehicle at IDEB 2012', 3 May 2012, <http://www.armyrecognition.com/ideb_2012_show_daily_news_pictures_video_uk/slovak_company_kerametal_presents_the_new_aligator_4x4_master_armoured_vehicle_at_ideb_2012_0305121.html>.

¹⁶ Baška, J., Opening speech at IDEB, Bratislava, 5–7 Apr. 2008.

¹⁷ Nicholson, T., 'Minister: state should bribe to secure arms deals', *Slovak Spectator*, 26 Mar. 2007.

¹⁸ International Defence Exhibition Bratislava (note 8), p. 8.

(discussed below), and use non-traditional methods in the competition for export deals. He termed bribes ‘nontraditional forms of sale that really work’ and suggested that state-owned firms follow the practice of private ones by officially accounting for bribes to facilitate the sale of Slovak arms to developing countries where corruption in arms trade was unavoidable.¹⁹ Jahnátek’s remarks caused quite a stir. Some observers interpreted his words as a sign that the state wanted to regain control of arms production and trade, and several opposition politicians and civil groups called for his resignation, albeit in vain.²⁰

In his contribution to the 2008 IDEB, Jozef Mihok, president of the Združenie bezpečnostného a obranného priemyslu Slovenskej republiky (ZBOP, Association of the Defence Industry of the Slovak Republic), stressed that the gradually decreasing domestic demand for the products of the Slovak arms industry deprived companies of vital revenues and references that were crucial for arms exports. The ZBOP proposed that the MOD test these products, even if it could not afford to purchase them. Mihok described an ambitious basic research plan, sponsored by the US Department of Defense, with the aim of ‘speeding up the application of the latest innovative solutions of civilian and military research into realistic defence technologies and equipment, thus achieving strategic supremacy’.²¹ Under the plan, 12 fields of military-related research would receive financial assistance, with approximately half of the resources directed to colleges and universities that agreed to cooperate with military organizations, institutes and specialized laboratories. As of mid-2012 there was no indication that the project had been launched.

After the change of government in 2010 the Minister of Defence, Galko, promised to continue fulfilling Slovakia’s EU and NATO military commitments, to fight against corruption, to introduce transparency and to increase the efficiency of the MOD. In a February 2011 visit, Frank Boland, a representative of the Directorate of NATO, criticized Slovakia for not spending enough on the modernization of its armed forces.²² In his speech at the Globsec 2011 Conference, Galko pleaded for more resources for defence, noting that, although the previous government had reduced the MOD’s funds, ‘investing in defence pays off. . . . Having more security for less money is very close to wishful thinking. We can pool and share capabilities with our allies and friends . . . We can do it with the existing

¹⁹ Skyring, K., ‘Insight Central Europe news’, Radio Praha, 23 Mar. 2007, <http://www.radio.cz/en/section/ice_news/insight-central-europe-news-192>; and Nicholson (note 17).

²⁰ It is not completely clear what Jahnátek meant by competition between state and private arms firms since by this time all Slovak arms manufacturers were in private hands, except the MOD-owned firms.

²¹ International Defence Exhibition Bratislava (note 8), p. 13.

²² ‘NATO dissatisfied with Slovak defence spending’, The Daily, 14 Feb. 2011, <<http://www.the-daily.sk/nato-dissatisfied-with-slovak-defence-spending/>>.

capabilities, but to build new ones, we need additional resources.²³ Nevertheless, from the beginning of her mandate as prime minister, Radičová made it clear that defence was ‘not a priority’ and her government would concentrate on improving the country’s competitiveness and on reducing unemployment and poverty.²⁴ In November 2011 Galko was dismissed because he fought corruption by the use of illegal wiretaps.²⁵

During the two decades of systemic changes, the place and importance of arms production in Slovakia changed fundamentally. By the late 2000s the combined impact of the efforts of the Havel government, motivated by moral values in the early 1990s, and the measures taken by the Dzurinda governments, based on economic considerations, led to a radical change of both the Warsaw Pact patterns and post-Communist national ambitions. Arms production lost its privileged position and other, more prosperous, economic activities took its place. The current, significantly reduced and modernized, defence sector appears to correspond to Slovakia’s security needs. By the late 2000s Slovakia faced the slow erosion of the comparative advantages that had laid the foundation for the Slovak miracle and needed to shift towards a more high-tech, knowledge-based economy with long-term development potential.²⁶ Governmental priorities and policy and the allocation of Slovakia’s scarce resources, which are particularly limited because of the current global economic crisis, will have a long-lasting impact on the country’s future development.

II. The arms industry

According to Peter Dudak, head of the Department of Special Production of the MOE, in 1997 the Slovak arms industry’s output was a tenth of the peak production levels at the end of the 1980s. The sector used 20–30 per cent of its production capacity, with repair and production of spare parts making up the bulk of its activity. Domestic demand absorbed only 5 per cent of the arms industry’s output. The tanks that Slovakia sold to Syria in 1993 represented the country’s last major export deal, although through UN tenders it sold additional tanks to India and the Bozena mine-clearance

²³ Slovak Atlantic Commission, ‘Speech by Minister of Defence of the SR—Lubomir Galko at GLOBSEC 2011’, Bratislava, 7 Mar. 2011, <<http://www.ata-sac.org/article-86-551-Speech-by-Minister-of-Defence-of-the-SR-Lubomir-Galko-at-GLOBSEC-2011>>.

²⁴ Defence spending in Eastern Europe: scars, scares and scarcity, East Europeans whinge about security, but few want to pay for it’, *The Economist*, 12 May 2011.

²⁵ Šimečka, M. M., ‘La chute de l’incorruptible Lubomir Galko’ [The fall of the incorruptible Lubomir Galko], *Presseurop.eu*, 30 Nov. 2011, <<http://www.presseurop.eu/fr/content/article/1234061-la-chute-de-l-incorruptible-kubomir-galko>>.

²⁶ See e.g. Kureková, L. and Kolesar, P., ‘Foreign direct investment in Slovakia, the economic security perspective’, Lupták et al. (note 3).

system to Bosnia and Herzegovina. Nonetheless, the sector's difficulties led to the loss of approximately 50 000–60 000 jobs.²⁷

By the early 2000s the sector's situation improved slightly. In 2001 arms sales reached 1.89 billion korunas (\$39 million), a 30 per cent increase compared to the previous year. Exports accounted for 69 per cent of the output: 1.31 billion korunas (\$27 million). In December 2001, 1574 people worked in the sector.²⁸ Burkard Schmitt estimates \$29 million output for 2000 (produced by 40 defence-related companies, employing 6000) and \$31 million worth of exports by 2002.²⁹ In 2004, according to MOE officials, 107 companies produced and traded with defence-related products, employing 776 people. Since the late 1990s the state has not protected and promoted arms making, no major investments have been made, no joint ventures have taken place, and no foreign capital participation has occurred in the sector.³⁰

The MOD envisaged only a minimal share of domestic procurement—some ammunition and other auxiliary systems—in addition to allocating modest sums for domestic defence-related R&D. While one of the key development projects of the 1990s, the modernization of the T-72 main battle tank, did take place, the armed forces did not purchase it. The MOD did not order the ballistic computer and integration system developed for the tank's sight either, although it was exported and used in Bumar-Łabędy's modernized PT-91 Twardy main battle tanks. By 2004 military exports—mostly large-calibre ammunition to some NATO member countries—equalled imports.³¹ In the late 2000s defence industrial output and exports increased modestly due to the stabilization of some major companies and because of important export deals.

Even though both the Czech and Slovak governments abandoned conversion in the early 1990s, the advance of market economy and liberalization led to an organic conversion process. The erosion of the traditional arms industry continued, while new increasingly attractive alternatives emerged, both for individuals and companies. Foreign direct investment was substantial, particularly in car assembly plants, which attracted a large number of workers, many from former defence firms. After the dissolution of Czechoslovakia, the most entrepreneurial workers left the military-related companies, choosing either to commute to the Czech Republic,

²⁷ Dudak, P., Slovak Ministry of Economy, Director of the Department of Special Production, Interview with author, Bratislava, 28 Oct. 1997.

²⁸ SITA, Slovak News Agency, 15 May 2002.

²⁹ Schmitt, B. (ed.), *EU Enlargement and Armaments: Defense Industries and Markets of the Visegrad Countries*, European Union Institute for Security Studies (EUISS) Occasional Paper no. 54 (EUISS: Paris, Sep. 2004), p. 43.

³⁰ Slovak Ministry of Economy, Department for Industrial Policy, 'Impact of NATO and European Union adhesion on the defence industry of the Slovak Republic: summary', Written answers to questions from author, 17 Mar. 2005.

³¹ Velebny et al. (note 12).

where salaries were higher, or to set up private businesses. The large-scale defence companies split into several successor firms, most of which shifted to civil production. EU membership represented new potential for regional development. After years of decay and stagnation, the former defence industrial triangle gradually transformed into a prosperous industrial zone, based mostly on car making (see appendix 7A, section I).³²

Compared to the cold war period, the structure of arms production changed significantly; heavy weapons no longer dominated and production became more diversified and modernized. The industry produced ammunition and artillery systems, armoured combat and transport vehicles, short- and long-range radar and navigation systems, and mine-clearing equipment. Partially military-related private SMEs specializing in IT proliferated. A modest aerospace sector also emerged, with 4 aircraft component producer companies and 11 firms dedicated to aircraft services, including repair and upgrade. Some of these companies, such as the engine-maker Považské Strojárne in Považská Bystrica, were former state-owned enterprises that had been restructured, while others, such as Willing in Zvolen, were newcomers, including a handful of small firms that manufactured light and ultralight aircraft.³³ According to a report on the 2010 IDEB, the Development, Services, Security, Innovations (DSSI, Bratislava) and Aviatech companies had developed a Slovak mini UAV.³⁴

The manufacturers

Three different types of defence-related company existed in Slovakia after the end of the cold war: (a) privatized successor firms of traditional defence industrial giants, the largest and most important group; (b) MOD-owned enterprises; and (c) private new start-up companies.

Privatized successor firms of traditional defence companies

Most firms in the first group emerged through the decentralization and privatization of the two former arms making giants, ZTS and ZVS, whose subsidiary companies had been spread throughout Czechoslovakia. Some of these companies, such as PPS Detva and VSS Kosice, switched to civil production but preserved some military-related assets and remained listed

³² On the dynamic of economic transformation and regional change that paved the way for the breakthrough in the region see Smith, A., *Reconstructing the Regional Economy: Industrial Transformation and Regional Development in Slovakia*, Studies of Communism in Transition (Edward Elgar: Cheltenham, 1998); and Kiss, Y., *Regional and Employment Consequences of the Defence Industry Transformation in East Central Europe*, International Labour Office (ILO) Employment and Training Papers no. 32 (ILO: Geneva, 1999).

³³ Slovak Investment and Trade Development Agency (SARIO), *The Aerospace Industry in the Slovak Republic* (SARIO: Bratislava, June 2010).

³⁴ 'IDEB 2010: Industria militar en el centro de Europa' [IDEB 2010: the military industry in Central Europe], *FAM—Fuerzas Militares del Mundo*, 2010.

among the defence-related firms. Other companies, including Vývoj Martin, located in Martin, and EVPÚ, located in Nová Dubnica, in the military triangle, continued to produce arms. While these firms were private, through a complicated network of cross-ownership, some of their shareholders, like the DMD Group, were majority state-owned.

The companies adopted different strategies to cope with the weighty heritage of the Warsaw Pact. ZTS Špeciál in Dubnica nad Váhom attempted to preserve its heritage in a way that slowed down transformation of the company and made it vulnerable to external economic and political factors. In contrast, ZTS's sister firm ZVS, also in Dubnica nad Váhom, embraced an active restructuring policy that led to relatively early stabilization and later to prosperity. EVPÚ became successful by continuing its previous R&D activity and further developing its ballistic computers, firing control systems, simulators for ground forces, surveillance and reconnaissance systems, and optoelectronic systems. Way Industry in Krupina, which produced special recovery and loading equipment, chose a similar path combined with a radical change of profile (see appendix 7A, section III).

In 1995 the MOE, the National Property Fund, other ministries, state-owned enterprises and banks established DMD Holding, which initially united 26 defence-related enterprises with over 25 000 employees. DMD coordinated its members' exports, development, financing, R&D and innovation activities, assisted them with restructuring and lobbied in their interest. In the late 1990s DMD Holding appeared to be emerging as a key actor in the Slovak arms industry, similar to Bumar and ARP in Poland or the RDP Group in the Czech Republic. However, DMD's importance and assets diminished and by the late 2000s it was just one of many actors in the field, without specific coordination or representative functions. In the early 2000s the holding company restructured and changed its name to the DMD Group, with the same major shareholder, the National Property Fund. In 2012 the DMD Group had three defence companies in its portfolio: ZTS Špeciál in Dubnica nad Váhom (see appendix 7A, section II), ZVS Holding in Dubnica nad Váhom (see appendix 7A, section IV) and Konštrukta-Defence in Trenčín. Konštrukta-Defence was a successful former SOE whose products included the Zuzana 2 155-mm self-propelled artillery system, the 'queen of the battlefield', which was presented at the IDEB 2011 exhibition in Bratislava. In addition to producing weapons, DMD produces and assembles cars; construction, forestry and mechanical machinery; and equipment for railways and crude oil exploitation.³⁵

In 2000 a new player, Sitno Holding, appeared in the sector. The former Minister of Economy, Ludovít Černák, and a rich Slovak businessman,

³⁵ Dudak (note 27); Dorotková, J., 'Arms industry has painful conversion', *Slovak Spectator*, 28 Aug. 1996; and Danko, S., 'State retakes control of heavy manufacturer ZTS', *Slovak Spectator*, 8 Feb. 1999.

Milan Filo, set up Sitno, an emerging home-grown business empire that united successor firms of the former defence industrial giants, profitable real estate agencies and investment companies, and potential future growth engines, including alternative energy providers. Its industrial portfolio regrouped Way Industry; Vývoj Martin; Elka, a producer of electric heating systems; Stredoslovenské strojárne Sitno, a machinery plant; and the PPS Group in Detva, the successor of PPS Detva with a branch company, PPS Vehicle, that specialized in weapon production.³⁶ At the 2008 IDEB the PPS Group and Vývoj Martin presented a new product, the Tatrapan 6x6 armoured terrain multipurpose vehicle that they also offered for export. Sitno was active in the Czech Republic and Hungary and hoped to extend its activities to Russia and Uzbekistan, particularly in the privatization of engineering plants and in banking, rubber, gas and other industrial sectors. In 2008 Sitno employed over 2500 and its total annual revenue exceeded €100 million (\$146 million).³⁷ After some difficulties at the end of the 2000s it succeeded in stabilizing its position despite the unfolding economic crisis. In May 2012 PPS Vehicles teamed with South Africa-based BAE Systems Land Systems to offer a tactical remote turret for sale to armed forces in the region. This upgrade project might open significant new markets for the holding company. As Černák, a member of the Sitno board, put it, ‘This project not only delivers a competitive and modern product to our customers, but also demonstrates the shift in the market in modernisation of ex-[S]oviet combat systems.’³⁸ In June 2012 the Czech company ČZUB and Sitno Holding announced their plan to open a new plant in Kremnické Bane, Slovakia, to supply the Slovak armed forces with firearms.³⁹

MOD-owned enterprises

The principal activity of the second group remained military and civil equipment repair for the MOD. However, in order to generate revenues, from the early 2000s these companies also became involved in production activities. Each company had a foreign trade licence and some exported products. As of June 2005 the six military-related repair and production enterprises—the military repair companies in Nováky, Moldava nad Boudvou, Trenčín and Prešov, and the aviation repair companies in Trenčín

³⁶ Sitno’s other ventures included EOLICA Slovensko, a Slovak–Spanish joint venture for producing alternative energy; PRAMAC Slovensko, a Slovak–Italian joint venture; a central warehouse in Bratislava; a hotel in a ski resort in eastern Slovakia; and the ŠK Slovan Bratislava football club. See Sitno Holding, <<http://www.sitnobusiness.com>>.

³⁷ Research Service for the Ministry of Foreign Affairs of the Slovak Republic, ‘Sitno Holding to invest in new sectors’, *Trend Watch*, no. 9 (6 Oct. 2008), p. 6.

³⁸ ‘SITNO teams with BAE Systems to offer remote turret for tactical vehicles’, Business Wire, 1 May 2012, <<http://www.businesswire.com/news/home/20120501006396/en>>.

³⁹ Adamowski, J., ‘Czech, Slovak companies to open new firearms plant’, *Defense News*, 25 June 2012.

and Banská Bystrica—employed 1714 people and could count on 2 billion korunas (\$64 million) in orders from the MOD. The companies, whose economic performance varied, had been transformed into shareholder companies, and the government hoped to find strategic investors willing to update the companies' technology and help them enter new markets. According to Milan Balaz, director of the MOD's armaments division, the MOD intended to retain the majority of the shares in these firms even after partial privatization.⁴⁰

In January 2006 the MOD sold the Prešov repair company, which became Delta Defence. Its profile remained unchanged: repair of military equipment, principally Tatra platform vehicles. Since 2005 Delta Defence and a German partner have modernized the RM-70 multiple rocket launcher (and its variations) and related recovery vehicles.⁴¹ Delta Defence also produces containers and conducts some civil repairs and production. At the 2008 IDEB, Delta Defence presented a new product, the DEL-KA armoured cabin, which was the product of its development activities.

In 2009 the government transferred the Military Repair Company at Moldava nad Bodvou, which specialized in the repair of guns, weapon systems and other army machinery, from the MOD to the Ministry of Environment. The company expected to increase the share of its civil production. As of late 2012 all of the other MOD firms remained in state ownership. A scandal that broke out in January 2012 revealed that some of the MOD's firms were in poor shape. In late 2011, in order to be able to pay its employees' salaries, the Nováky Military Maintenance Company took a €70 000 (\$97 000) loan from Sitno Holding, pledging to transfer some of its property to Sitno in the event it could not pay its debt. When the case became public, the company's entire management was dismissed and, simultaneously, state orders were increased to give the firm some financial leverage.⁴²

Private companies

The third, relatively small group of small- and medium-sized private companies tended to occupy the periphery of the military-related sector, providing some niche products, particularly in electronics and IT.

Virtual Reality Media (VRM) in Trenčín, established in 1992, specialized in research on and development of virtual reality products and computer graphics and rapidly became one of the most successful emerging firms. Its

⁴⁰ Balaz, M., Slovak Ministry of Defence, Director of Armaments Division, Interview with author, Bratislava, 25 Oct. 2005.

⁴¹ The RM-70 is a remodelled version of the Soviet Grad multiple rocket launcher that was developed by Czechoslovakia.

⁴² 'New board chairman chosen for state-run VOP Nováky military firm', *Slovak Spectator*, 17 Jan. 2012; and 'Sme reports Radičová will clean house at the VOP Nováky state-run company', *Slovak Spectator*, 10 Jan. 2012.

main products included flight, anti-aircraft defence and ground-unit simulators with interactive training programs for pilots, crew and technical personnel. The company signed its first contract with the Slovak Air Force in 1995 and has supplied the MOD ever since. In 2010 the firm had 75 employees. In March 2011 VRM delivered a special anti-terrorist version of the Mi-17 transport helicopter simulator to the US Army that was worth more than €4 million (\$5.6 million). An international consortium of VRM and US-based Fidelity Technologies Incorporated and Aeronautical Systems Engineering produced the Mi-17 simulator for training the Iraqi military with financing by the US Government.⁴³

ALES (Trenčín), founded in Czechoslovakia in 1992, developed and produced advanced computer-aided systems for air traffic management and control systems (ATM/ATC) and air defence applications, and radars and consoles for both civil and military purposes. Former radar and computer staff from the Czechoslovak Air Force, who had been involved in upgrading programs for radar data-processing systems since the mid-1980s, set up the company. After the dissolution of Czechoslovakia, ALES established companies that maintained close cooperation in both the Czech Republic and Slovakia.

Spinea (Prešov), another successful private company, specialized in high-precision gearboxes for defence and domestic security and became a technology leader in the area. The company, established in 1994, developed and produced patented high-precision bearing reducers. In the spring of 2010 Spinea participated as one of the founders of an automation technology and robotics (AT+R) cluster in Košice that united six high-tech companies (including EVPÚ at Nová Dubnica) and two universities in order to coordinate activities and jointly participate in EU and other international projects. The project was supported by the Prešov and Košice self-governing regions.⁴⁴

Foreign participation in the Slovak arms industry was minimal, with no foreign investments or joint ventures in the sector as of 2005, according to MOE officials.⁴⁵ Neways Slovakia, the Slovak branch of a Dutch-based electronics company that also had companies in China and Germany, was a rare exception. The company, which specializes in electronics assembly of printed circuit boards, and cable and cable system production, employed 499 people at the end of 2010.

Corinex Group, a specialist in professional IT and communications system solutions established in 1995, was a typical amphibian-like com-

⁴³ US-Slovak consortium supplies US Army with new helicopter simulator Mi-17, *Slovak Spectator*, 17 Mar. 2011.

⁴⁴ Cluster for Automation and Robotics (Cluster AT+R), *AT+R Cluster: Basic Information* (Cluster AT+R: Košice, June 2010).

⁴⁵ Velebny et al. (note 12).

pany. In 1998 it became the most profitable Slovak IT company, and in 2001 it became part of Corinex, a Canadian supranational network. The company provided information and communications systems to corporate clients—trading and utility companies in the energy and arms industry—and to the public administration and government sectors. Corinex was a principally civil producer that, through an offset project, participated in the integration of the MOKYS military mobile communications system. By late 2010 it employed over 80 highly qualified experts.

Arms industry organizations

The Association of the Defence Industry of the Slovak Republic was set up in 2000, uniting 40 major producers. Initially, it was a passive, formal representative body whose main activity was to request assistance for its crisis-stricken members. However, later in the decade it was reorganized, renamed the Security and Defence Industry Association of the Slovak Republic (Združenie bezpečnostného a obranného priemyslu Slovenskej republiky, ZBOP) and gradually became an active promoter of arms companies, aspiring to play a role similar to that of the influential Polish Chamber of National Defence Manufacturers.

In May 2010, at the 2010 IDEB, the MOD and the association signed a cooperation agreement that aimed to strengthen Slovakia's defence capabilities, support the government's policies and integrate Slovakia into joint EU and NATO projects. As of 2012 the association had 43 members, both private and state-owned. Despite the ZBOP's increasing importance, several important military-related companies did not belong to it, including Metrodat in Bratislava, the co-producer of one of the most successful Slovak military products, the CO2 DIAL system to remotely detect and identify chemical warfare agents and various other security devices based on laser, radar and thermal technology.

III. Military procurement and exports

Procurement and offsets

In order to modernize its armed forces and fulfil its new military missions Slovakia needed up-to-date, NATO-compatible equipment. When the country joined NATO in 2004 it pledged to maintain its defence budget at 2 per cent of its GDP, but the contribution from the state budget has fallen from 1.87 per cent of GDP in 2002 to an anticipated 1.08 per cent in 2011.⁴⁶ The budget for 2010 was €823 million (\$1.09 billion).⁴⁷ Most of the MOD budget

⁴⁶ Terenzani-Stanková (note 4).

⁴⁷ Slovak Investment and Trade Development Agency (note 33).

was absorbed by the costs associated with professionalization of the armed forces and related investments. In 2005 the MOD had hoped that in the long term it would be able to spend 70 per cent on personnel costs and 30 per cent on modernization.⁴⁸ However, in 2011, 86 per cent of the defence budget was spent on salaries, payroll taxes, energy and similar outlays, with 14 per cent available for all other expenses, including operations abroad—which absorbed about 5 per cent of the budget.⁴⁹

Due to the inefficiency of budget planning and use of allocated funds, improper use was made of the scarce available resources. As an MOD document noted, in 2007, 'defence planning ... has been reduced to one-year procurement cycles ... armaments and modernization suffer most from budget cuts and transfers'.⁵⁰ In the autumn of 2010 the MOD launched a strategic defence review in order to assess the state, needs and the capability of the MOD and the armed forces. The review found 70 per cent of the Slovak military's ground technology to be obsolete with its helicopters and MiG-29 combat aircraft also about to become obsolete.⁵¹ Slovakia planned to purchase tactical transport aircraft, wheeled armoured vehicles, small off-road vehicles, radio locators and multipurpose combat aircraft, but budgetary constraints led to postponing of the tenders. In August 2008 the MOD finally launched a tender for transport aircraft that Alenia Aeronautica won with its C-27J Spartan aircraft, and in early 2011 the MOD confirmed that it would buy the aircraft if funding could be found.⁵² In 2009 Slovakia also bought two Skylark I LE mini UAVs from Elbit Systems.

Due to economic difficulties and a careful and lengthy decision-making process, Slovakia had a relatively strict procurement policy. The country had also observed the difficulties that the Czech Republic, Hungary and Poland had experienced with their first large-scale procurement projects—heavy economic burdens, large-scale additional investments and compatibility problems—and learned lessons from them. Slovakia's selective procurement policy combined acquiring new equipment with the procurement of updates and purchasing equipment capable of integration with existing systems.

In 2005 Slovakia signed a contract with BAE Systems for acquisition of the MOKYS system to provide the Slovak Army with state-of-the-art communications equipment and networks that would be fully interoperable with NATO and US systems. The contract, valued at \$150–200 million,

⁴⁸ Nicolini (note 6).

⁴⁹ Terenzani-Stanková, M., 'Minister sounds alarm over state of the army', *Slovak Spectator*, 9 May 2011.

⁵⁰ Nicolini (note 3), p. 121.

⁵¹ Terenzani-Stanková (note 4).

⁵² 'MoD could buy cargo planes from Alenia Aeronautica', *The Daily*, 23 Feb. 2011, <<http://www.thedaily.sk/mod-could-buy-cargo-planes-from-alenia-aeronautica/>>.

was the largest ever awarded by the Slovak Government. MOKYS, partially based on existing infrastructure, could be used both for civil and military purposes. Domestic firms provided approximately 30 per cent of the inputs. A BAE representative stressed the importance of adjusting the offer to the buyers' needs and economic situation: 'Involving local industry to the extent that we have and deconstructing the requirement so that it is the best fit for that particular customer are fairly novel approaches for some of these countries. In the past I think there's been a tendency where they've been oversold a capability, rather than getting something that fits their requirement exactly but still gives them room to expand in the future.'⁵³

The MOKYS deal may represent a new approach to procurement in East Central Europe that considers the needs of the buyer as well as the ability of the seller to meet those needs. In 2007 the MOD contracted with BAE Systems for the second phase of the MOKYS programme, worth \$30 million and covering the development and delivery of seven prototype systems.⁵⁴ In January 2008 BAE delivered the first seven MOKYS prototypes on time and within the planned budget, and they were mounted on Slovak Tatrapan and BAE Systems RG-32M utility vehicles.⁵⁵ In July 2010 the government signed a €57 million (\$75 million) production contract with BAE Systems for a new design of the MOKYS system and an upgrade of the prototypes that had been delivered in 2007 to make them interoperable with new equipment. It also signed an industrial offset package equal to 100 per cent of the MOKYS programme value. The Corinex Group and Vývoj Martin were the key Slovak subcontractor participants in the project.⁵⁶ In 2009 EADS Defence and Security won a contract to upgrade the IFF systems of the Slovak armed forces to NATO Mode 4 standard.⁵⁷

The MOD also sought procurement and upgrades through foreign cooperation deals, particularly with Czech firms, but also with Western partners. Since the early 2000s military-related cooperation has been perceived as an efficient tool for facilitating technology transfer and opening access to new markets. In December 2000 the MOD signed a contract with the German company Diehl Munitionssysteme (DMS) for modernization of the RM-70 (122-mm) multiple rocket launcher system. This was Slovakia's first cooperative project with a NATO member state; the domestic partner

⁵³ Kenyon, H. S., 'Advanced network aids new NATO state', *Signal*, Sep. 2006.

⁵⁴ 'Slovak MoD chooses BAE Systems for second phase of MOKYS programme', *Jane's Defence Industry*, 1 Mar. 2007.

⁵⁵ 'BAE Systems delivers MOKYS prototypes to Slovak MoD', UPI, 29 Jan. 2008.

⁵⁶ BAE Systems, 'BAE Systems to provide mobile military communications systems to Slovak Ministry of Defence', News Release 151/2010, 19 July 2010, <http://www.baesystems.com/MOBILE/news/BAES_028155>.

⁵⁷ 'EADS to modernize identification systems of Slovakian aircraft', *Defense World*, 10 July 2009, <<http://www.defenseworld.net/news/3293>>.

was Konštrukta-Defence in Trenčín.⁵⁸ In the spring of 2012 representatives of the Czech and Slovak armed forces agreed to launch some joint acquisition and training projects and to increase their cooperation in foreign missions.⁵⁹

In December 2003, preparing for NATO membership, the government had issued offset regulations to support the development of domestic arms production, although at the time they were recommendations more than requirements.⁶⁰ In January 2008 new offset regulations—inspired by those of the Czech Republic and Poland—entered into force. These regulations stipulated at least 100 per cent offset for deals over €6 million (\$8.8 million), 20 per cent of which was to be direct offset. Likewise, sub-deliveries over €3 million (\$4.4 million) required at least 100 per cent offset, with 30 per cent as direct offset. The government introduced a complicated multiplier system to evaluate offset proposals and to channel funds towards non-direct offset projects and set up an inter-ministerial commission to manage and supervise offset agreements.⁶¹

Exports

Traditional ECE arms production aimed to supply large-scale markets in the Warsaw Pact, allied developing countries and other countries, like Iran and Iraq, whose war contributed to the blossoming of many defence companies in the region. In the late 1980s Czechoslovakia was the second largest arms producer in the Warsaw Pact and the sixth largest arms exporter in the world. Companies in what became Slovakia produced 65 per cent of these weapons. After the collapse of the Warsaw Pact, the Slovak arms industry lost its major civil and military markets. Some of the remaining customers, particularly in Asia and the Middle East, provided precious revenues in a cash-stripped economy that was passing through a difficult period of transformation and post-separation adjustment.

Hoping to export its weapons, both newly produced and from its large stocks, during the late 1990s and early 2000s Slovakia became involved in

⁵⁸ Kogan, E., *Southeastern European Defence Industry: International Cooperation and Market Opportunities*, Conflict Studies Research Centre, Balkans Series 05/06 (Defence Academy of the UK: Camberley, Feb. 2005).

⁵⁹ Czech Ministry of Defence and Armed Forces, 'Czechs and Slovaks: joint acquisition programmes and participation in foreign operations', 4 Mar. 2012, <<http://www.army.cz/en/ministry-of-defence/newsroom/news/czechs-and-slovaks-joint-acquisition-programmes-and-participation-in-foreign-operations-65852/>>.

⁶⁰ Velebny et al. (note 12).

⁶¹ Siviček, T., 'New rise of offsets in the context of economic boom in Slovakia', Paper presented at 'Offsets in Slovakia: future of defence and security industry cooperation' conference, International Defence Exhibition Bratislava, 28 Apr. 2008; and Slovak Ministry of Economy, 'Rules of the Government of the Slovak Republic on the performance of offset transactions', [n.d.], <http://www.economy.gov.sk/index/open_file.php?ext_dok=119536>.

several dubious arms deals. In 2004 shortly before the country was admitted to the EU, a Human Rights Watch report highlighted the dire state of control of the sale of arms.⁶² According to the report, in 2001 and 2002 Slovakia illegally exported repaired combat helicopters to Liberia, which was under UN embargo; exported surplus fighter aircraft to Angola, despite the European Defence Agency's Code of Conduct on Defence Procurement; and served as a transit country for several hundred Iranian rocket-propelled grenades. Slovakia sold 205 tanks to Angola in 2002; 26 remote controlled missiles to Algeria, also in 2002; 1000 125-mm missiles to Uganda in 2004; and 10 Su-25 fighters to Armenia in 2005.⁶³ EU and NATO integration, however, required a speedy strengthening of control over the weapon trade. According to news sources, one of the reasons why shady deals kept taking place was that state officials had direct business connections with arms makers.⁶⁴ Eager to regulate its arms exports, Slovakia pledged to eliminate personal interference and declared its intention to keep its reputation clean.

Arms sales did not suffer dramatically after these changes. In 2005 the country exported 1.85 billion korunas (\$59.6 million) worth of military products, an amount that domestic defence industrial actors considered low and that led to demand for more active state promotion.⁶⁵ The Fico government intended to revive arms production and promote sales more intensely. In one of his first interviews after taking office, Fico declared that even after the military's withdrawal from Iraq, the government intended to maintain a presence in the country via arms contracts. In Afghanistan Slovakia also aimed to use its military involvement to facilitate weapon deals. Fico stated 'The whole world is involved in the arms trade. I don't see why Slovakia shouldn't be involved in it too. We are prepared to give Afghanistan arms and ammunition from the army's redundant supplies. However, there are also arms that Slovakia wants to sell in Afghanistan.'⁶⁶

Under Fico's government the links between the defence industrial and the political elites apparently strengthened. Jahnátek's scandal-provoking interview about openly using bribes in business negotiations appeared during the week when Fico visited Israel with five entrepreneurs, four of whom were involved in arms sales.⁶⁷ After the visit a representative of the

⁶² Misol, L., Human Rights Watch (HRW), *Ripe for Reform: Stemming Slovakia's Arms Trade with Human Rights Abusers* (HRW: New York, Feb. 2004).

⁶³ The Code of Conduct on Defence Procurement of the EU Member States participating in the European Defence Agency, Adopted by the EDA Steering Board 21 Nov. 2005, <<http://www.eda.europa.eu/docs/documents/code-of-conduct-on-defence-procurement.pdf>>; and Lesná, L., 'Is the arms trade corrupt?', *Slovak Spectator*, 2 Apr. 2007.

⁶⁴ Lesná (note 63).

⁶⁵ Nicholson (note 17).

⁶⁶ Dragu, A., 'Revitalising Slovakia's arms trade', Radio Praha, Insight Central Europe, 29 Dec. 2006, <<http://incentraleurope.radio.cz/ice/issue/86731>>.

⁶⁷ Skyring (note 19).

Slovak–Israeli Chamber of Commerce announced a deal with the Israeli company Rabintex for 238 million korunas (\$9.6 million) to sell helmets to the Slovak MOD through the Willing company, which was alleged to be close to the Slovak Government.⁶⁸ The general manager of the firm also accompanied Fico on his February 2007 visit to Libya, together with a representative of the MOD’s repair company at Trenčín, and came back with a promise to repair 20 of Libya’s Aero L-39 Albatross jet trainer aircraft. During a 2008 trip to China, Fico promoted the products produced by Konštrukta Industry and the aircraft engines built at Považská Bystrica.⁶⁹

In April 2008 Slovakia sold 10 000 122-mm rockets, which can be fired from the RM-70 multiple rocket launcher, to Sri Lanka. The Slovak MOE approved the deal despite the fact that the EU’s Code of Conduct on Arms Exports forbids sales to countries such as Sri Lanka, where weapons could be used in its decades-long civil war or for human rights abuses. Way Industry, the producer of the Bozena mine-clearance system and a company that was previously active in reconstruction and peace operations rather than in combat-related activities, conducted the deal.⁷⁰

⁶⁸ Nicholson (note 17).

⁶⁹ ‘Slovak rockets head to Sri Lanka’, *Slovak Spectator*, 23 June 2008.

⁷⁰ ‘Slovak rockets head to Sri Lanka’ (note 69); and Nicholson, T., ‘Slovak rockets sold to war-torn Sri Lanka: arms control bureaucrats deny breaking EU code on weapons exports’, *Slovak Spectator*, 7 Apr. 2008.

Appendix 7A. Slovak company case studies

I. The spectacular conversion of the Slovak military triangle

The Slovak military triangle consisted of the towns of Martin, Dubnica nad Váhom and Detva, each with an impressive group of military-related firms. Martin was a typical company town, built around ZTS TEES Martin, one of the largest arms producers in the former Czechoslovakia. In the mid-1980s the company employed nearly 16 000 workers and possessed the capacity to produce 250–300 tanks per year. Heavy weapons remained the backbone of the company's activities but, in the light of decreasing arms exports, from the late 1980s ZTS TEES Martin introduced large-scale civil projects in cooperation with Western firms.

After the 1989 Velvet Revolution ZTS TEES Martin became a laboratory for conversion policy, with the participation of the government, regional authorities and foreign experts. However, after several years of enthusiasm and some successful pilot projects, including a labour office and a business development centre, by the early 1990s the large-scale, state-sponsored projects were abandoned. ZTS TEES Martin had difficulty adjusting to the post-cold war situation. The management continued to focus on military projects, although state orders had practically ceased and export possibilities were limited. Financial difficulties grew and the company's unresolved ownership status complicated its problems. By the late 1990s the number of employees had dropped to just over 4000. By 2003 ZTS TEES Martin had split into several successor companies, most of which carried out civil production. Vývoj Martin took over military production.¹

In the meantime, the town of Martin had become one of the most prosperous regional centres in Slovakia and no longer depended on a state-run monoculture of heavy weapon production. A diversified economy had emerged that was largely based on foreign direct investment and domestic SMEs. Many former ZTS TEES Martin employees set up private companies, and some of the companies established under the initial conversion projects managed to survive (and still exist). The process of change began with painful conversion efforts and the initiatives conducted by the management of the region and the city. It accelerated under the sweeping reform programme launched by the government of Mikuláš Dzurinda, which took office in 1998. By the mid-2000s the

¹ Magvasi, P., Financial director, Fillo, J., Director of strategic management, Kovacik, J., Head of the engine division and other members of the management, ZTS TEES Martin, Roundtable discussions with author, Martin, 29–30 Mar. 1993; Hanzel, J., Communications manager, ZTS TEES Martin, Interview with author, Martin, 16 Feb. 1994; Minar, J., Public relations officer, and Sutora, K., Head of personnel, ZTS TEES Martin, Interview with author, Martin, 30 Oct. 1997; and Velebny, J., Director, Dudák, P., Slovak Ministry of Economy, State counsellor, Plancar, S., Slovak Ministry of Economy, Counselor of the Department of Industrial Policy, and Gazak, L., Vice-President of the Association of the Defence Industry of the Slovak Republic, Interview with author, Bratislava, 21 Mar. 2005.

major employers in the city of Martin comprised the German company Volkswagen (cars), the French company Ecco (shoes), the US company Glacier Garlock Bearings (bearings), the Japanese-US company Trim Leader (car parts), the Belgian company Francesca Creation (paper) and the Slovak company Printing House Neografia. Two industrial parks and a 'business incubator', a development centre specialized in assisting SMEs, had also been created.² In May 2011 the city received the United Nations Public Service Award for its anti-corruption reforms, introduced in late 2008 by the newly elected mayor and based on guidelines proposed by the Slovak chapter of Transparency International.³

Similar impressive changes took place in Dubnica nad Váhom, the other former stronghold of the traditional arms industry. In the 1990s, facing the decay of the city's two principal arms-making companies—ZTS Dubnica nad Váhom and ZVS Dubnica nad Váhom—and encouraged by the business-friendly policy of the 1994 interim government of Jozef Moravčík, the most highly skilled managers and workers left the sector. They either commuted to the Czech Republic, where wages were higher, or set up businesses in the civil sector. The authorities of Dubnica nad Váhom actively encouraged and assisted in the transformation of the local economy, and three major international retail firms built centres on the outskirts of the city. Banks, service industries, new assembly plants and SMEs were established to serve these commercial centres. The public transport system, which had previously focused on ZTS, was redesigned to meet the city's changed needs and connections to other areas, including the local ski resort, also improved. ZTS and ZVS survived but, as in Martin, their place in the city's economy changed completely.⁴

In Detva, the PPS Group (the successor of PPS Detva, the former military enterprise and the city's main employer) remained at the centre of changes. PPS Detva had become insolvent in 1997 and had been reorganized as a holding company, which also went bankrupt. In 2003 a consortium of Swiss and Slovak businesses, including Sitno Investment Holding, bought PPS Detva, renamed it the PPS Group and began to produce heavy machinery equipment for agriculture, construction, mining and the like. One of the group's plants, PPS Vehicles, continued with military production and specialized in the manufacture of armoured combat vehicles, with the Tatravan 6x6 armoured terrain multipurpose vehicle as a key product.⁵ The PPS Group became a successful enterprise, with a stable financial situation and almost 93 per cent of its output exported to customers such as Atlas Copco, Caterpillar, Komatsu Hanomag and

² Bernat, S., Mayor of Martin, Interviews with author, Martin, 30 Oct. 1997 and 21 Mar. 2005.

³ Sipos, G., 'How Martin became transparent & won a UN public service award', Transparency International, 18 May 2011, <<http://blog.transparency.org/2011/05/18/how-martin-became-transparent-won-a-un-public-service-award/>>.

⁴ Cervinka, J., Mayor of Dubnica nad Váhom, Interviews with author, Dubnica nad Váhom, 29 Oct. 1997 and 22 Mar. 2005.

⁵ PPS Group a.s. and PPS Vehicles s.r.o., 'PPS Vehicles & PP Group', Presentation, Oct. 2005, <<http://www.authorstream.com/Presentation/Heather-53382-PPS-as-Entertainment-ppt-power-point/>>.

Volvo.⁶ In 2008, the first year of the global economic crisis, the PPS Group employed 1500 workers, increased its sales by 7 per cent and realized a net profit of 95.6 million korunas (\$4.5 million), more than a 50 per cent increase compared to the previous year.⁷

The PPS Group was one of the founders of the 1st Slovak Engineering Cluster, which unites regional authorities, 10 companies and vocational schools. Located at the PPS Group's industrial park, the cluster aims not only to establish a high-tech engineering base and a centre for R&D, but also to develop new technologies and innovation for the production of machinery for construction, transport, the power industry, forestry and agriculture, with a focus on renewable energy resources.⁸ The PPS Group is also a pioneer in using alternative fuel sources for heat production—nearly 80 per cent of the heat used for its production processes is provided by wood biomass, using a system created by a Slovak company.⁹

The spectacular transformation of the Slovak military triangle illustrates that regional development can offer solutions to the problems of industrial restructuring. The changes that occurred at the companies and in the key industrial towns in the Slovak military triangle served as a catalyst for the entire region. Even the local geography was altered as greenfield investment sites expanded the boundaries of the cities, public transport systems were reorganized, intercity links and infrastructure were developed, and a positive synergy was generated. In turn, the dynamism of the region stimulated company development and offered development alternatives that differed radically from those of the past. Government officials, regional authorities and company managers were also eager to seize the opportunities offered by EU membership and to follow new paths of economic development, in hope of converting the region into a prosperous industrial zone.

II. ZTS-Špeciál and ZTS-Metalurgia: dealing with the legacy of the Warsaw Pact

The predecessor of ZTS-Špeciál, ZTS Dubnica nad Váhom, was established in 1937 as part of the Škoda Plzeň concern. A long period of decay after the political transition led to financial deadlock by the late 1990s and in 2003 a bankruptcy process was initiated. ZTS Dubnica nad Váhom was divided into ZTS-Špeciál, which continued with military production, and several other civil companies. In February 2005, 100 per cent of ZTS-Špeciál's shares were sold to the DMD Group, a state-owned umbrella organization whose purpose was to retain and promote the key weapon factories. In the late 1980s ZTS Dubnica nad Váhom had employed 13 000 workers. By 2005 its successor firms

⁶ European Monitoring Centre on Change, 'PPS Group', 18 July 2005, Eurofond, <http://www.eurofound.europa.eu/emcc/erm/static/factsheet_7277.htm>.

⁷ 'PPS Group Detva raises profit to Sk95.6m in 2008', Czech News Agency (ČTK), 6 Apr. 2009.

⁸ Bódi, L., '1st Slovak Engineering Cluster', <http://www.issk.sk/_zakladne_dokumenty/presentation-of-issk-in-english.pdf>.

⁹ Energy Centre Bratislava, 'Biomass in mechanical industry in PPS group, Inc. Detva', EUBIONET III-IEE/07/777/SI2.499477, 2010, <<http://www.eubionet.net/default.asp?sivuID=25485>>.

employed around 2000 workers (including 250 at ZTS-Špeciál), and well-trained, experienced workers were in short supply.¹⁰ At the end of 2010 ZTS-Špeciál employed 110 people and had a turnover of over €3 million (\$4 million).¹¹

During the cold war, weapons had represented 85 per cent of the output of ZTS Dubnica nad Váhom, and its civil production served almost as ‘camouflage’ for its activities. By the early 2000s the proportions had reversed, with military output at 15 per cent. ZTS-Špeciál produced the BVP-2 armoured infantry fighting vehicle, the Cobra weapon station, the M77 Dana self-propelled howitzer, the PRAM-S self-propelled mortar, the RM-70 multiple rocket launcher and the Zuzana self-propelled howitzer, one of the most sought-after products of the Slovak arms industry.

Due to the change of Slovakia’s military doctrine, which envisaged a shift away from heavy weapons, the Slovak armed forces ordered only a modest amount of ZTS-Špeciál’s products. Even the need for spare parts was low, because the armed forces had liquidated large amounts of traditional equipment and could find replacements in their own stocks. The company needed to produce for export but found entering export markets to be difficult. ZTS-Špeciál’s main customers included the Slovak MOD, BAE Systems, Royal Ordnance, Siemens, the European Organization for Nuclear Research (CERN), Omnipol and Skoda Trading in Prague, US Steel Košice and Tatra in Kopřivnice. The company possessed large unused, temporarily sealed production facilities, while those in use worked at only 20–25 per cent of their capacity. Despite its financial difficulties, ZTS-Špeciál continued its technological development activities, and its Turret 2A42-COBRA won an award at the 2008 International Defence Exhibition Bratislava. The company management hoped to become a subcontractor to the large transnational corporations that had recently been established in the region. Several civil companies operated at a new industrial park on the premises of the former ZTS Dubnica nad Váhom, including the German–Slovak joint venture Continental Matador Rubber, a tyre company.¹²

ZTS-Metalurgia, one of the firms created through the division of ZTS Dubnica nad Váhom, specialized in iron and steel forging, metal coating and related services, and power-driven hand tools.¹³ In 2000 a young businessman, Juraj Mác (together with a group of local investors, including senior managers of DMD Holding and former ZTS companies) bought the company for 90 million korunas (\$2 million). Renamed Metalurg Steel, the company manufactured semi-finished metal products. Mác restructured it by reducing the size of the

¹⁰ Macko, M., Marketing manager, and Cyprian, R., Public relations officer, ZTS Dubnica nad Váhom, Interview with author, Dubnica nad Váhom, 17 Feb. 1994; Strapko, M., Head of personnel and other members of management, ZTS Dubnica nad Váhom, Interview with author, Dubnica nad Váhom, 29 Oct. 1997; and Kristin, L., Production and technical director, ZTS Špeciál, Interview with author, Dubnica nad Váhom, 22 Mar. 2005.

¹¹ ‘Engineering 2011’, International Engineering Co-operation Day, 26 May 2011, Nitra, <<http://www.een.sk/engineering2011/index.php?file=show.php&ref=56>>.

¹² Kristin (note 10).

¹³ ZTS-Metalurgia, As’, MetalWeb.info, <<http://www.metalweb.info/companies/1798.html>>.

administrative department, significantly upgrading IT services (from 5 antiquated computers in 2000 to 150 computers in 2008 as well as an optical fibre cable that connected the different production lines and provided constant information on energy usage), thoroughly changing technology, replacing all furnaces and metal presses, and modernizing infrastructure. The new management invested approximately 1 billion korunas (\$22 million) in the restructuring. In 2009 the company employed 550 people, exported 65 per cent of its output and had become profitable. Mác, a newcomer to the arms and heavy industry, expressed the view that the Slovak arms industry had collapsed due to lack of investment and owing to managerial inadequacy: ‘I’m still not convinced that the decision taken by President Havel to convert from arms production was the reason these factories crashed. I think it’s more that the wrong people were assigned to lead them, political nominees who were more interested in doing their own personal deals than in developing the company.’¹⁴

III. Way Industry: a successful conversion

A predecessor of the company that became Way Industry was established in 1968, as part of the PPS Detva complex, to manufacture construction equipment. The plant was located at Krupina and became independent in 1988 because of organizational changes. Since the company’s products were principally of a civil nature it navigated the early 1990s with relative ease, using its revenue to develop new products. Nevertheless, in 1998 the company went bankrupt and in 1999 Way Industry, which had been set up by Slovak private investors and the firm’s management, purchased it. The latter group became the majority shareholder.

Way Industry’s products include the Locust skid steer loader, the Talet aircraft hauler and the Bozena mine-clearance system. Management perceived the company as a humanitarian enterprise that specialized in demining equipment. In reality, Way Industry operated on the boundary between civil and military production. Its oldest product, the highly successful Locust loader, was purely civil, although the Talet aircraft hauler was developed for the Slovak MOD and can be used to move either civil or military aircraft (up to the size of a Boeing 767).

The company’s leading product, the Bozena mine-clearance system, was developed in 1995. By the late 2000s various models existed—from a ‘mini-machine’ to a 6-tonne version. The Bozena is remotely controlled and can be used in hilly terrain, unlike most demining machines, which are suited only to open fields. Thanks to its technical features and competitive price, the Bozena mine-clearance system is a world leader in its class. In 2005 the Bozena 5 version received the ‘Grand Prix Slovak Gold’ award for the machine product of the year. Bozena was first used in the Balkans. Before deploying Slovak armed forces to peace operations in the Balkans, the Slovak MOD asked Way Industry to develop a demining device. It has since been used successfully in Afghani-

¹⁴ Nicholson, T., ‘“Willingness to learn” Mác’s business edge’, *Slovak Spectator*, 18 Mar. 2008; and Nicholson, T., ‘Metalurg fulfilling Havel’s vision’, *Slovak Spectator*, 18 Mar. 2008.

stan, Bosnia and Herzegovina, Croatia, Iraq, Kosovo, Lebanon, Sri Lanka and Thailand. Angola, Eritrea, Ethiopia, Kenya and Sudan also ordered the Bozena after adjustments were made so that it could operate in hot climates. Since Slovakia became a member of NATO, Bozena has been used in NATO's Kosovo Force, Stabilization Force in Bosnia and Herzegovina, and International Security Assistance Force in Afghanistan missions. In 2006 the Slovak armed forces possessed approximately 20 Bozena units, thereby enabling Slovakia to choose demining as one of its NATO tasks.¹⁵

As of mid-2010, more than 150 units of the Bozena 4 and Bozena 5 had been sold to demining and humanitarian organizations operating in Afghanistan, Albania, Angola, Azerbaijan, Bangladesh, Bosnia and Herzegovina, Cambodia, Colombia, Croatia, Eritrea, Ethiopia, Iraq, Kenya, Kosovo, Lebanon, Niger, Sri Lanka, Sudan and Thailand. The equipment had also been sold to the armed forces of Canada, Chile, the Czech Republic, the Netherlands, Poland and Slovakia. Slovak armed forces have used Bozena systems in Afghanistan.¹⁶ The Geneva International Centre for Humanitarian Demining also lists it in its catalogue of demining equipment.

Way Industry initially relied on indigenous technology, including engines from the Zetor Group, but gradually it began to use high-tech products, such as engines from the Japanese company Yanmar, hydraulic components from the German company Bosch-Rexroth and, in some instances, engines from the Czech company Tatra. In 2006 Way Industry possessed its own R&D department, with a staff of 20, and invested extensively in new designs and high-quality materials. In 2004 Way Industry received a 1001M NATO Commercial and Government Entity Code (NCAGE) certificate and NATO's Quality Assurance Certificate AQAP 2110:2003. In 2006 it was also awarded the ISO 14001:2004 quality certificate, which specifies requirements for an environmental management system. Way Industry's NATO supplier status has occasionally complicated business because it has required the company to use special security measures when shipping its demining equipment.

In 2006 nearly 80 per cent of Way Industry's output was exported. The sale of the Bozena mine-clearance system represented approximately 30 per cent of the company's revenue, the Talet aircraft hauler generated modest revenue and remaining revenue came from the civil Locust loader. The Bozena mine-clearance system was expected to remain a marginal product and the company aimed to develop its other profiles. In 1999 the firm had 320 employees; in 2006 it employed 530. The company provided training for its employees, including language training, so that they could participate in missions abroad.¹⁷ In late 2008, due to the developing economic crisis, Way Industry had to temporarily reduce its staff to 120 and dismiss 70 permanent employees.¹⁸ In February 2009

¹⁵ Repko, V., Director of Bozena department, Way Industry, Interview with author, Bratislava, 19 Apr. 2006.

¹⁶ King, C., 'Way Industry a.s. Slovakia', *Jane's Mines and Mine Clearance 2009-2010* (Jane's Information Group: London, 2010).

¹⁷ Repko (note 15).

¹⁸ Vilikovská, Z., 'Way Industry and PPS Group planning to make employees redundant', *Slovak Spectator*, 16 Dec. 2008.

Sitno Holding acquired 100 per cent of the company's shares, but it did not change the company's name.

At the 2010 IDEB, Way Industry presented its latest development, Bozena Riot, a remotely operated, armoured vehicle that is designed to handle riots and mobs in urban areas and follows the concept of the Bozena 4 mine-clearance system. The vehicle is equipped with a high-performance, low-noise and low-emission engine, and a three-dimensional software model has been developed for virtual training and simulation.¹⁹

IV. ZVS Holding: a typical Slovak company

ZVS Holding, previously ZVS Dubnica nad Váhom, was created as a subsidiary of the Škoda Plzeň factory in 1937. The company manufactured three main types of product: ammunition, engineering machinery, and transformers and industrial electronics. During the cold war, civil machinery, industrial products and transformers represented approximately 10 per cent of its output. Military production reached its peak in the 1980s and dropped to nearly nil after the end of the cold war, but by 2005 it accounted for 30–35 per cent of production. Two subsidiary companies and a joint venture, set up with German partners, specialized in completely civil production. ZVS Holding held minority shares in EVPÚ–ZVS, a joint venture of two joint stock companies, which is located in Nová Dubnica.

During most of the 1990s the company struggled owing to large unused assets, lack of state orders and bad debts that had originated from the massive loans it had taken to meet unrealized MOD orders. The break-up of Czechoslovakia also broke vital cooperation and supply links. ZVS Holding's negotiations with its creditors led to its privatization: the main creditor introduced a 'debt for equity swap' scheme. Since 1999 the DMD Group has owned 50 per cent of the company's shares, with the company's management owning the remaining 50 per cent. ZVS Holding has streamlined production, introduced new products and found new markets. By the end of the 1990s the company's financial situation had stabilized and since 2001 it has been profitable.

In 1989 the company had 3000 employees and a turnover of 1.6 billion Czechoslovak korunas (\$51 million). By 1996 the number of employees had dropped to 800 and the firm's turnover was 100 million Slovak korunas (\$3 million). The company had full order books and used approximately 90 per cent of its production capacity; employees worked in two or three (occasionally even four) non-stop shifts, which was rare in the region's arms industry. It made new investments practically every year and carried out a major technological overhaul in 2004. While ZVS Holding conducted its own R&D, for major projects it cooperated with the R&D institute in Trenčín. R&D projects were partially co-financed by the state. In the mid-2000s the company developed a new sub-machine gun for the police that was also manufactured in a civil version.

ZVS Holding cooperated with a number of Czech companies, including Selier & Bellot, Alliachem, Vlarské Strojírny and Poličské Strojírny, all of which

¹⁹ Bozena, 'News', <<http://www.bozena.eu/news/>>.

had belonged to ZVS Holding Brno before the division of Czechoslovakia. Ties were strong with Česká Zbrojovka, and in 2003 Česká Zbrojovka transferred its Slavia rifle production line to ZVS Holding, which planned to produce 40 000 rifles annually. Miroslav Solava, the CEO of ZVS Holding, greeted the agreement as an outstanding example of cooperation between Czech and Slovak arms producers.²⁰ In 2005 the two companies introduced new air guns for the civil market.

In 2005 ZVS Holding bought one of its former suppliers, a small company in eastern Slovakia that had serious financial difficulties and whose workforce had dropped from 6000 in the 1980s to 600 in 2005, so that access could be secured to needed supplies. ZVS Holding also outsourced the manufacturing of some projects in order to streamline production. To generate additional revenue, the firm sold or rented out some of its unused premises. Simultaneously, the company modernized its inefficient and costly heating system to diminish running expenses (starting in the production halls and then moving to the office building, reflecting the particular attention paid to the employees). In 2005 management predicted a future shortage of qualified workers and the company organized in-house training and sponsored apprenticeships at the local schools. The workers' average age at the time was 48 and most were recruited locally. The Slovak labour market was rigid and external factors, such as lack of housing, restricted recruitment efforts. The company's plans included development of a brownfield industrial park at ZVS Dubnica nad Váhom that has been established on the premises of the former state-owned enterprise.

In 2005 domestic demand accounted for approximately 25 per cent of the company's output. Even before Slovakia joined NATO, some of the company's products were used by NATO member states, although its main buyers were located in Asia. The company management chose not to compete with companies in Bulgaria and Romania that offered similar products at a lower price, but instead focused on more sophisticated products. ZVS Holding sought to expand its production profile in order to be able to offer a full range of military ammunition. To this end, from the late 2000s the company developed its capacity to produce small-arms ammunition. (Initially, small-arms ammunition had been assembled from commercially purchased components.)²¹ At the 2007 Czech International Exhibition of Defence and Security Technologies, held in Brno, ZVS Holding won a Prestige Award. By 2008 the aggregated revenue of ZVS Holding was over €20 million (\$29 million) and the staff numbered more than 750 employees.²²

²⁰ 'ZVS signs arms production deal with Ceska Zbrojovka', newnations.com, Update no. 073, 27 May 2003, <<http://www.newnations.com/Archive/2003/June/sk.html>>.

²¹ Duris, V., Member of the Board of directors, Commercial manager, ZVS Holding, a.s., Interview with author, Dubnica nad Váhom, 22 Mar. 2005.

²² In early 2011 the company planned to dismiss 65 workers due to a drop in orders. European Monitoring Centre on Change, 'ZVS Holding', Eurofond, 31 Jan. 2011, <http://www.eurofound.europa.eu/emcc/erm/static/factsheet_L17087.htm>.

8. Bulgaria: the challenge of catching up

Bulgaria struggled with economic and political difficulties in the 1990s. However, when the country's geopolitical situation changed radically in the early 2000s, the sluggish reform process accelerated significantly and included transformation of the arms industry and the military establishment. The settlement of the wars in the former Yugoslavia contributed to stabilizing South East Europe and to ending Bulgaria's geographical isolation from the rest of the continent. The international community sought to normalize the region and prevent new flare ups of violence. With its economic potential and relative stability Bulgaria, together with Romania, became instrumental in this process. The decisive thrust forward occurred after the terrorist attacks on the United States of 11 September 2001 when Bulgaria and Romania became important partners in the 'global war on terrorism', which catapulted both to the rank of NATO candidate countries.

In 1990, in Bulgaria's first multiparty post-World War II election, the *Bulgarska sotsialisticheska partiya* (BSP, Bulgarian Socialist Party) won by a small majority, although later that year popular unrest and a general strike forced the government to resign and a transitional coalition government took over. In 1992 another coalition—led by the liberal *Sayuz na demokratichnite sili* (SDS or UDF, Union of Democratic Forces) and the Turkish ethnic minority's party, the *Dvizhenie za prava i svobodi* (MRF, Movement for Rights and Freedoms)—assumed power. The SDS–MRF coalition broke up in late 1992 and a minority coalition put together by the MRF succeeded it. BSP regained power in the December 1994 election and remained in office until February 1997, when massive protests prompted by the country's disastrous economic situation forced it to resign.

In the April 1997 pre-term parliamentary election a pro-reform coalition led by the SDS, headed by Ivan Kostov, won a landslide victory. Kostov stabilized the political and economic situation and became the first post-1990 prime minister to serve a full four-year term. In June 2001 the *Nacionalno dvizhenie za stabilnost i vzhod* (National Movement for Stability and Progress, also known as the National Movement Simeon II), a hastily formed political movement led by Simeon Saksoburggotski, the former tsar of Bulgaria (1943–46), won the election with the promise of 'fixing Bulgaria in 800 days'. After the June 2005 elections and months of political wrangling, the BSP, the National Movement Simeon II and the MRF formed a relatively stable grand coalition headed by the leader of the BSP, Sergey Stanishev, as the new prime minister. In the 2009 parliamentary election the *Grazhdani za evropeysko razvitie na Balgariya* (GERB, Citi-

zens for the European Development of Bulgaria), led by Boyko Borisov, a former interior minister and mayor of Sofia, won a landslide victory with unexpectedly high voter turnout and formed a centre-right coalition. After nationwide protests against low living standards and general corruption, the government resigned in February 2013 and Plamen Oresharski of the BSP was named as prime minister in May.

Defence industrial and general developments exhibited a stop-go nature in Bulgaria. After long periods of inactivity, a sudden political shift would trigger the government to introduce radical changes. However, these measures usually failed to be properly implemented because of the inefficiency of the institutional system, the resistance of powerful actors and frequent political changes, although in some cases they succeeded in generating enough momentum to break the prevailing patterns. During most of the 1990s Bulgaria experienced a slow, tortuous transformation process in which consecutive governments were unable or unwilling to modify the existing economic structures. The government altered the ownership, production and organizational systems only slightly. State ownership remained dominant, while state regulation proved inefficient and the resources provided by the state continued to decrease. Members of both the new and old political and economic elites took advantage of loopholes in administrative and democratic control to enrich themselves and conduct large illicit transactions. Corruption was widespread and, for most Bulgarians, the standard of living decreased dramatically.

In 1997 Kostov's government introduced a radical economic stabilization and liberalization package that aimed to integrate Bulgaria into international institutions, primarily the European Union. During the conflict in Kosovo, Bulgaria permitted NATO to use its airspace, although it denied similar access to Russia. The government took measures to curtail illicit arms transactions and restructure the arms industry via wide-scale privatization. Bulgaria's new geopolitical position provided a major incentive to speed up economic and political reforms and modernize the military establishment. The prospect of NATO membership served to legitimize changes and provided an incentive to introduce additional ones. Bulgaria became a member of NATO in 2004 and of the EU in 2007.

During most of the 1990s, due to its uncertain geopolitical situation and internal difficulties, foreign direct investments were scarce in Bulgaria, but the economic stabilization package and the country's changing international status increased foreign investors' confidence. The inflow of FDI shot up significantly and accelerated economic development. FDI, which more than doubled from €2.7 billion (\$3.4 billion) in 2004 to €6.2 billion (\$7.8 billion) in 2006, continued to increase until 2007, when it reached €9 billion (\$12.3 billion) and then dropped significantly. In 2010 it amounted to a meagre €1.6 billion (\$2.1 billion), and by early 2011 there was

a net outflow of capital.¹ In addition, because the greatest amount of FDI concentrated in the real estate, financial and trade sectors, it had a limited impact on the country's production base.²

Searching for a new place on the international scene, Bulgaria eagerly participated both in international missions and regional activities, such as the Black Sea Initiative. Foreign policy was definitely Atlanticist, but the country also actively cultivated its European connections and, despite some conflicts of interest, followed a nuanced policy vis-à-vis Russia, its powerful former ally and mentor. In preparation for NATO membership Bulgaria received what the Minister of Defence, Vesselin Bliznakov, described as 'decisive' support from the USA. US experts actively contributed to the country's 2004 strategic defence review and played a key role in revamping the Ministry of Defence's internal organization and operational structure.³

Bulgaria was also active in EU, NATO and United Nations missions. In 2011 over 760 members of the armed forces participated in eight EU, NATO and UN led missions and operations, with 1739 people. A contingent of approximately 620 personnel was deployed in the International Security Assistance Force in Afghanistan, 109 in the EU Military Operation in Bosnia and Herzegovina (EUFOR ALTHEA), 49 in the EU Rule of Law Mission in Kosovo (EULEX Kosovo) and 11 military personnel in the EU Monitoring Mission (EUMM) in Georgia.⁴ Until the end of 2008 Bulgaria also participated in missions in Iraq, including non-combat projects, both under EU and NATO auspices; at its peak the country had 485 soldiers in the country. In coalition operations the Bulgarian forces used principally US military equipment, some of which the USA had donated to the country.⁵

¹ Bulgarian Investment and Business Network, 'FDI annual data', Aug. 2010, <<http://www.investnet.bg/bulgarian-economy/EconomicDashboard/KeyEconomicIndicators/ForeignDirectInvestment/FDIAnnualData.aspx>>; 'Drastic slump in FDI flows beckons more woes for Bulgaria', Sofia News Agency, 16 Sep. 2011; and Dikov, I., 'InvestBulgaria Agency director Borislav Stefanov: foreign investors' interest in Bulgaria growing regardless of FDI statistics', Sofia News Agency, 12 Oct. 2011.

² Bulgarian Ministry of Economy, Energy and Tourism, 'The Bulgarian economy: current situation and strategy for development', 2009, <<http://old.mee.government.bg/eng/bids.html?id=324764>>. See also European Commission, 'In-depth review for Bulgaria in accordance with Article 5 of Regulation (EU) no. 1176/2011 on the prevention and correction of macroeconomic imbalances', Commission Staff Working Document, SWD(2012) 151 final, 30 May 2012.

³ Interview with Dr Velizar Shalamanov, Bulgarian Deputy Minister of Defence, in Ackerman, R. K., 'Communications, information systems drive Bulgaria's military reform', *Signal*, Apr. 1999.

⁴ Bulgarian Ministry of Defence (MOD), *Annual Report on the Status of Defence and the Armed Forces of the Republic of Bulgaria: 2011* (MOD: Sofia, 2011); and Bulgarian Ministry of Defence, 'Participation of Bulgaria in civilian missions and military operations of the EU (2003–2010)', 2011, <http://www.mod.bg/en/cooperation_EC_participation.html>.

⁵ 'Defense Minister greets Bulgaria troops abroad through video connection', Sofia News Agency, 5 May 2008; 'Withdrawal of Bulgaria's troops from Iraq completed', Sofia News Agency, 17 Dec. 2008; and United States Central Command (CENTCOM), 'Bulgaria', <<http://www.centcom.mil/bulgaria/>>.

I. A stop-go defence industrial policy

A mix of delay, procrastination and spectacular catching up characterized Bulgaria's general economic development and also its defence industrial policy. External factors played a key role in accelerating change, and the impressive internal evolution that followed made the country attractive to foreign investors. During the process of preparing to join NATO the government revamped the military establishment in three areas: reform of both the MOD and the armed forces, and modernization of the equipment used by the armed forces. The first two projects led to major personnel reductions and institutional streamlining, including the changeover to a professional army, which was completed by 2008.⁶

Initially, transformation of the arms industry was not part of the modernization package. In the early 1990s the state of the industry was still relatively good and, because it focused on export, it primarily functioned as a source of revenue more than as a provider of sophisticated weapons for the revitalized armed forces. Most arms manufacturers employed thousands of workers, and these industrial giants were often the principal employers in their regions. In addition to producing arms, they usually provided economic, infrastructural and social services. The Ministry of Economy supervised the arms industry and treated the companies as special entities.⁷

In the 1990s Bulgaria's defence industrial policy was characterized by inertia. The government neither officially 'disowned' arms production, as in Hungary or Czechoslovakia, nor endorsed it, as in Poland. Politicians declared its importance, but apart from some gestures, such as writing off bad debts or eventual last minute bail outs of trouble-stricken companies, the government did not intervene in the management of the sector or provide sufficient financial support to it. This relatively hands-off attitude was not a conscious policy option, but rather due to the chaotic economic and political changes and the lack of resources.

Arms trade policy was lax. Throughout the 1990s Bulgaria continued selling large amounts of weapons, principally relatively cheap small arms, including handguns, assault rifles, anti-tank mines and ammunition. The

⁶ Tagarev, T., 'Bulgarian armed forces and national security policy: shaping the security environment in South Eastern Europe', ed. C. Krupnick, *Almost NATO: Partners and Players in Central and Eastern European Security* (Rowman & Littlefield: Lanham, MD, 2003); and Shalamanov, V., 'Bulgaria: analysis of the Stability Pact self-assessment studies', eds E. Cole, T. Donais and P. H. Fluri, *Defence and Security Sector Governance and Reform in South East Europe Self-Assessment Studies: Regional Perspectives* (Nomos: Baden-Baden, 2004).

⁷ The ministry was known as the Ministry of Economy from 2000 to 2005 (after merger of the Ministry of Industry and the Ministry of Trade and Tourism); from 2005 to 2009 as the Ministry of Economy and Energy (after the MOE's merger with the Ministry of Energy and Energy Resources); and from 2009 to the present as the Ministry of Economy, Energy and Tourism (after inclusion of the State Agency of Tourism in its scope).

destinations of these arms included many areas of conflict, such as several countries in Africa, Asia and Latin America and the former Yugoslavia. Human rights organizations and the world media regularly criticized Bulgaria as an unscrupulous ‘anything-goes weapons bazaar’.⁸ Nonetheless, sales went on because hard currency earnings helped companies survive and relieved some budgetary tension. However, they did not help to solve the deep-rooted problems of the industry.

After the September 2001 terrorist attacks Bulgaria took rapid steps to clean up its arms trade. In the early 2000s new export regulations and control mechanisms significantly improved the situation. In early 2002 the Deputy Minister of Economy, Milen Keremedchiev, declared that attempting to achieve the level of sales of the 1980s or even 1990s was unrealistic since Bulgaria’s main export markets—Iran, Iraq, Libya, Syria and Sudan—were under embargo or perceived to be undesirable commercial partners. ‘If we manage to sustain levels of \$200–300 million this year, we will consider that a quite good result.’⁹ By the mid-2000s the stricter regulations had their impact; in 2005 Bulgarian news sources reported that the country’s EU and NATO partners acknowledged the improvement of Bulgaria’s arms export control mechanisms.¹⁰ However, as reports by the Center for the Study of Democracy, Amnesty International, and South Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons suggested, much remained to be done.¹¹

The radical change of arms export policy from permissiveness to rigour came as a surprise to most company managers. They felt abruptly abandoned by their supervisory authorities, even more so because soon another unexpected decision followed concerning the privatization of defence-related facilities (see below). Throughout the 1990s the government had declared arms making to be a key economic branch in need of protection and promotion by the state. However, except for isolated measures, little was done to shelter it from economic and political turbulence. In July 2004 Lidia Shuleva, former Deputy Prime Minister and now Minister of Economy, declared that ‘the modernisation of the Bulgarian army will be a

⁸ Human Rights Watch, ‘Bulgaria: money talks, arms dealing with human rights abusers’, *Human Rights Watch Reports*, vol. 11. no. 4 (Apr. 1999), <<http://www.hrw.org/legacy/reports/1999/bulgaria/>>; and Human Rights Watch, ‘Arms trade, human rights and European Union enlargement: the record of candidate countries’, Human Rights Watch Briefing Paper, 8 Oct. 2002, <http://www.hrw.org/sites/default/files/reports/eu_briefing.pdf>.

⁹ ‘Bulgaria eyes Nato and Arab arms markets’, Reuters, 3 June 2002.

¹⁰ ‘Bulgaria’s arms export control appreciated by NATO, EU partners’, Sofia News Agency, 22 June 2005.

¹¹ Center for the Study of Democracy and Saferworld, *Weapons under Scrutiny: Implementing Arms Export Controls and Combating Small Arms Proliferation in Bulgaria* (Saferworld: Sofia, 2004); Amnesty International (AI), *Undermining Global Security: The European Union’s Arms Exports* (AI: London, 1 Feb. 2004); and South Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC), *Taming the Arsenal: Small Arms and Light Weapons in Bulgaria* (SEESAC: Belgrade, Mar. 2005).

locomotive to revive this country's defence industry'.¹² Defence expenditure soared, the government prioritized modernization of the armed forces, and defence industrial entrepreneurs began to feel optimistic about the future. However, in the early 2000s all of the major procurement deals in Bulgaria were with foreign contractors, and by the middle of the decade it became clear that the government's budget severely limited what the armed forces could purchase.

The modification of defence industrial guidelines reflected the changed situation. In 2006 the Prime Minister, Stanishev, called on domestic producers to concentrate on export markets as the state had to reduce its procurement projects: 'The modernization process will develop in accordance with the possibilities of the budget and never at the expense of other spheres where funds are needed. ... After all, economic development determines the army's capabilities and potential.'¹³ In a 2006 defence industrial policy document the government stated that the arms industry was 'one of the biggest opportunities and at the same time one of the biggest challenges for the economy'.¹⁴ The recognition of the primacy of economic constraints was an important step forward. Decision makers, however, did not disown the industry; they pledged to assist it within the limits of what was financially possible by increasing the budget, identifying extra-budgetary resources and providing targeted assistance in certain fields.

In 2006 Stanishev announced legislation changes to ease administrative procedures and facilitate the entry of the country's arms makers into NATO markets.¹⁵ The government also promised to increase military expenditure in the short to medium term (1–5 years), with the 2007 budget reaching 2.38 per cent of GDP. In a meeting with representatives of the Bulgarian Defence Industries Association (BDIA), Stanishev discussed the problems of the arms industry 'that cannot be settled without government support', namely, access to new technologies and markets, funding for R&D, and addressing weaknesses in the training system. He proposed several measures to improve cooperation among military-related institutions in order to strengthen the role of the domestic arms industry.¹⁶

No major changes took place until April 2010, when the Borisov government set up the Interdepartmental Council on the Issues of the Military

¹² Vatahov, I., 'Reading room: falling overboard', *Sofia Echo*, 18 Apr. 2005.

¹³ 'Bulgarian premier views future of arms industry, army modernization', Excerpt from report by Bulgarian Khristo Botev Radio on 20 Feb. 2006, BBC Monitoring International Reports, 20 Feb. 2006.

¹⁴ Bulgarian Ministry of Defence (MOD), Armaments and Equipment Policy Directorate, *Defence Industrial Policy of the Ministry of Defence of the Republic of Bulgaria* (MOD: Sofia, 2006).

¹⁵ 'Bulgarian premier views future of arms industry, army modernization' (note 13).

¹⁶ 'PM Stanishev proposes to organize conference on problems of Bulgarian defence industry in January 2006', *Bulgarian Economic Review*, 12–18 Nov. 2005.

Industrial Complex and the Mobilization Readiness, in order to establish the principles and improve the implementation of state policy on arms production and exports, including dual-use technologies. The council identified the low level of military-related R&D, 2.5 million leva (\$1.7 million), as a key problem and proposed collecting fees from producers to finance R&D. The low level of domestic orders was also a problem; despite repeated promises to buy more domestically produced weapons, in 2010 the MOD purchased only 5 per cent of the industry's output.¹⁷

In October 2010 a white paper on defence concluded that 'the defence industry retains its uniqueness among other economic sectors because of its special relationship with the state as its regulator, investor and primary consumer'. The government's new defence industrial policy aimed to increase the 'efficiency and effectiveness' of the arms industry through increased participation in international R&D projects and programmes in the EU and NATO that would enable the country to acquire high-tech know-how. 'Investing in new technologies will provide upgraded capabilities to businesses—a necessity for both the progress of the Armed Forces and the transformation of the Bulgarian defence industry into a competitive participant in the logistics chain of global manufacturers and suppliers of defence equipment.'¹⁸ The desired new priority target for the sector was its integration into the international production system—in addition to supplying the armed forces and generating export revenues.

In July 2011 the Minister of Economy, Energy and Tourism, Traicho Traikov, presented a new Bulgarian defence industrial strategy that had been drafted jointly by the MOE and the MOD. He noted that 'This strategy is the first real effort on the part of any government since the fall of communism to offer a long-term development vision for the defense industry'.¹⁹ It was 'related to our strategy for development of high-tech production and innovations in general' and aimed to create 'a versatile and modern defense industry that is to allow us to easily find our place in situations like the present in Libya'.²⁰ The new government strategy set a goal of increasing arms exports to EU and NATO countries, which represented 10 per cent of sales in 2011 and was expected to triple in coming years, while preserving traditional markets in Algeria, India and the Middle East. The strategy also encouraged joint ventures and R&D projects involving foreign partners, offered incentives to the army to buy more domestic equipment, and expected the industry to focus on priority areas, such as small arms and

¹⁷ 'Bulgaria moves to boost own military industrial complex', Sofia News Agency, 29 Apr. 2010.

¹⁸ Bulgarian Ministry of Defence (MOD), *White Paper on Defence and the Armed Forces of the Republic of Bulgaria* (MOD: Sofia, 28 Oct. 2010), pp. 56–58.

¹⁹ Agence France-Presse, 'Bulgaria to shift arms exports to EU, NATO markets', *Defense News*, 5 July 2011.

²⁰ Harizanova, T., 'Bulgarian defense industry marks growing export', Radio Bulgaria, 7 July 2011, <http://bnr.bg/sites/en/Economy/Pages/07072011_export.aspx>.

ammunition, missiles and software. To increase competitiveness the new strategy also suggested that at least 2 per cent of the defence budget should be used for development.²¹

Confirming the same policy guidelines, Avgustina Tzvetkova, Deputy Minister of Defence, declared in October 2012 that the government wished to implement a comprehensive policy for the development of a cutting-edge, competitive, new capabilities-oriented 'Bulgarian defence technological and industrial base' that 'can adequately participate in the delivery and enhancement of national and collective defence capabilities'. New partnerships and participation in joint projects are the key paths to achieving this goal.²²

Revamping the defence establishment was another key area of military reform and included a thorough reorganization to increase efficiency and transparency. In military economics a paradigm change was proposed to shift emphasis to life-cycle management of systems and combat platforms.²³ The government also instituted measures to improve the transparency of procurement procedures in order to fight and root out corruption, and in 2009–10 several high-ranking arms industry officials were charged with corruption.²⁴

Privatization

In the early 1990s some sections of the Bulgarian economy were privatized, but in the defence sector privatization occurred only sporadically. Between 1993 and 1997 there was a moratorium on the sale of military-related assets. The insecurity about ownership changes created a sense of suspense and often blocked restructuring projects at companies. The Kostov government took over in May 1997 and in March 1998 the Council of Ministers issued a special decree on restructuring and privatizing the arms industry.²⁵ By the early 2000s most arms manufacturers had become privatized via manager

²¹ 'Defence industry's new priorities', *Europost*, 9 July 2011, <<http://europost.bg/article?id=2285>>.

²² Tzvetkova, A., Bulgarian Deputy Minister of Defence, Address to the 'Bulgarian Defence Industry: Strategy for Market Opportunities Modernization' international conference, Sofia, 18 Oct. 2012, <http://www.mod.bg/en/doc/ministry/DeputyMinister1/20121018_IndustryConference.pdf>.

²³ Angelov, A., Bulgarian Minister of Defence, 'Relevant issues and challenges facing the defence policy of the Republic of Bulgaria', Lecture delivered at G. S. Rakovski National Defence Academy, Sofia, 1 Sep. 2011, <http://www.mod.bg/en/doc/minister/speeches/20110912_Lecture_Angelov_Rakovski.pdf>.

²⁴ Tzvetkova, A., Bulgarian Deputy Defence Minister, 'Countering corruption in the defence and security sectors', Lecture, Tirana, Sep. 2011, <http://www.mod.bg/en/doc/ministry/DeputyMinister1/20110907_Speech_CounteringCorruptionSecurity_Tirana.pdf>; 'Ex Bulgaria defense minister charged with subornation', *Sofia News Agency*, 2 Apr. 2010; and 'Bulgaria court releases weapon holding director', *Sofia News Agency*, 17 Sep. 2009.

²⁵ Mladenova, I. (ed.), *Privatization and Restructuring of Defense Industries, with a Particular Focus on the Progress Achieved in South Eastern Europe*, EAPC Seminar (NATO Economics Directorate/Economic Policy Institute: Brussels/Sofia, 25–26 Mar. 2002).

or employer buyouts. Sale conditions were extremely favourable: regulations allowed manager–employee teams to initially pay 10 per cent of the value of a company and the balance over a 5- to 10-year period.²⁶

Privatization, however, proved to be a complicated issue, even after government agencies gave it the green light. Hardly any domestic businessmen could afford to buy a large-scale defence-related facility that needed considerable new investments. In addition, the companies were not properly prepared for privatization; they had delayed or failed to carry out much-needed internal reorganizations and to develop new business profiles. The bulk of arms industry representatives also strongly resisted selling Bulgarian assets to foreigners. They argued that defence industrial firms should remain Bulgarian-owned for security reasons and the state should accept its responsibilities vis-à-vis the national defence flagships if Bulgarian companies were to have a chance to survive on international markets.²⁷

Privatization did not resolve fundamental problems such as the lack of financial resources. The new owners—in most cases the former management, employees, trade partners and local banks—usually could not make significant investments or stimulate radical company restructuring. The majority of the newly privatized companies suffered from lack of orders and capital and often could not service their debts or sometimes even pay salaries. Manager and employee buyouts succeeded only when the new owners obtained external assets. Companies with an affluent owner—such as Monbat in Sofia and Electron Progress, also in Sofia, both bought by wealthy Bulgarian businessmen—had better chances for survival than firms bought by former managers and employees with modest means. The banking system was not ready to deal with the problem by providing loans because of the poor financial state of many of the defence-related companies. Most privatized companies struggled with everyday cash-flow problems.

Privatization was also limited in scope. Under the 1998 restructuring programme the government retained a blocking quota in 25 military-related firms. In 2003, five of these companies—Dunarit in Ruse, Niti in Kazanlak, Trema in Tryavna, Vazovski Mashinostroitelni Zavodi (VMZ, Vazov Engineering Works) in Sopot and Terem (with its eight branch companies)—continued to be completely state-owned and supervised by the MOD, while 20 companies were under the MOE's supervision. Six of the latter were totally private and for the rest the share of state participation ranged from 5 per cent (Zebra in Tzarevo and Impuls in Gabrovo) to

²⁶ Konstantinova, E., 'Bulgaria doubled arms exports in late 2001', *Jane's Defence Weekly*, 10 Apr. 2002, p. 18.

²⁷ 'Bulgarian news agency review of the Bulgarian press for 31 March, 05', BBC quotes BTA website Sofia, BTA quotes *Trud*, 31 Mar. 2005.

35.8 per cent (Arsenal in Kazanlak).²⁸ However, in terms of output, employment and export, the state-owned companies were among the most important. Dunarit and Trema were eventually privatized and the government liquidated six key weapon makers during the following years. In 2010 the Minister of Defence, Anyu Angelov, hinted that previous governments' 'easy privatization' of defence-related assets had been a mistake. He noted that Poland had 'a very successful defense industry consolidated into one single holding', but since this option no longer existed for Bulgaria, at least individual companies could be revived through foreign direct investment.²⁹

However, the need to generate revenue and the unresolved structural problems of the companies that state agencies could not address motivated the urge to complete the privatization process. In March 2011 the government lifted the requirement for a minority state stake in arms industry plants in the hope of accelerating privatization procedures and attracting greater investment to the sector.³⁰ In August the executive director of the Privatization and Post-privatization Control Agency (formed in 2010 by unifying the former Privatization Agency and the Post-privatization Control Agency), Emil Karanikolov, expressed the hope that the sale of state assets would raise 450 million leva (\$320 million) in 2011, helping to fill gaps in the budget.³¹ The MOE's Traikov stated at the same time that Kintex in Sofia, an export company, and the Agency for Diplomatic Properties (ADIS) would remain 100 per cent state-owned.³²

In January 2011 the Privatization and Post-privatization Control Agency announced a public tender to sell 100 per cent of VMZ's stock. Potential buyers had to have previous experience in defence production and enough funds to cover VMZ's debts and would not be allowed to lay off workers in the first three years after acquisition of the company.³³ Since 2007 the agency had been selling some of the plant's assets to cover part of its debts, but now the whole company, still employing 3700 workers, was put up for sale. By 2012 VMZ's debts had reached 140 million leva (\$92 million) and it was unable to pay its employees or buy raw material for several months. The government sped up the privatization process as the 'cardinal solution' to the firm's woes and by November 2012 seemed to have found a potential

²⁸ Bulgarian Ministry of Defence (MOD), Armaments and Equipment Policy Directorate, *Defense Industrial Cooperation* (MOD: Sofia, 2003).

²⁹ 'Minister eager to have US revive Bulgaria's defense industry', Sofia News Agency, 19 Sep. 2010.

³⁰ 'Bulgarian Govt to opt out of minority stakes in military-industrial complex assets', Sofia News Agency, 8 Mar. 2011.

³¹ 'Bulgaria puts 2 more military plant stakes on privatization table', Sofia News Agency, 10 Aug. 2011.

³² 'Bulgarian state companies Kintex and ADIS not for sale—official', *Sofia Echo*, 16 Feb 2011.

³³ 'Bulgaria to sell off defense firm VMZ Sopot', Observatoire de l'Industrie de la Défense et de l'Armement, 22 Feb. 2011, <<https://observatoiredefense.wordpress.com/tag/vmz-sopot/>>; and 'Bulgaria's largest military plant set for "warning strike"', Sofia News Agency, 23 Oct. 2012.

buyer, Emko EOOD, an SALW manufacturer set up in 1992 and owned by a Bulgarian businessman.³⁴

In August 2011 the government announced a one-stage tender to sell the state's remaining 35.8 per cent minority stake in Arsenal and in October the company was sold for 15 million leva to its majority owner, Arsenal 2000.³⁵ In February 2012 the plant announced to lay off 900 workers.³⁶ In August 2011 the Privatization Agency announced another tender for the sale of its minority stakes in two military aviation repair plants: Terem-Georgi Benkovski in Plovdiv and Terem-Gen. Vladimir Zaimov in Bozhurishte. In November 2012 the agency announced the sale of the state's 34 per cent stake in Terem-Georgi Benkovski for 8.9 million leva (\$5.8 million).³⁷ (The difficult privatization of the Terem holding company is described in appendix 8A, section I.)

II. The arms industry

In the 1980s Bulgaria's military output reached \$800–1300 million, with approximately 95 per cent of exports, equal to a 10 per cent share of the country's exports.³⁸ In the early 1990s the arms industry employed more than 110 000 people directly and another 400 000 indirectly. In 2000 the main military enterprises comprised 88 companies, among them 30 core firms and 12 companies belonging to the Terem group.³⁹ By the early 2000s output fell to \$100 million per year, about 10 per cent of the record levels reached in 1984–85, while the number of arms industry employees was 30 000 and expected to be reduced further. The industry used only 10 per cent of the existing defence-related production capacity. The idle capacity in companies that produced dual-purpose items was much larger in their military production lines than in the civil ones. Bulgaria's armed forces bought approximately \$8–10 million worth of military equipment annually, and the rest of the arms industry's output was exported. Although the defence budget increased, costs for personnel and maintenance absorbed

³⁴ 'Bulgarian govt rushes to sell key military plant over social unrest', Sofia News Agency, 23 Oct. 2012; and '2 bidders DQd from privatization of troubled Bulgarian military plant', Sofia News Agency, 5 Nov. 2012.

³⁵ 'Bulgaria sells stake in arms maker Arsenal', *Defense News*, 26 Oct. 2011; and 'Bulgaria selects buyer for military factory stake', Sofia News Agency, 27 Oct. 2011.

³⁶ 'Bulgaria's "Arsenal" military plant braces for massive layoff', Sofia News Agency, 3 Feb. 2012.

³⁷ Konstantinova, E., 'Bulgaria may raise at least \$165 million from asset sales', Bloomberg, 3 Oct. 2012; and 'Bulgaria raises EUR 4.5mn from sale of minority stake in subsidiary of Terem', *Intelligence*, 15 Nov. 2012.

³⁸ Konstantinova (note 26).

³⁹ Stoykov, L., President of the Bulgarian Defence Industry Association, Interview with author, Sofia, 19 Mar. 2002.

most of the increase.⁴⁰ Employment dropped to 25 000 by 2006 and to 15 000 by 2010.⁴¹

Improvement of the country's economic situation and its changing international position led to higher military expenditure and more orders, benefiting the arms industry. Despite their precarious situation, most of the arms firms managed to maintain their positions on the international market. A small group of dynamic entrepreneurial firms benefited from the new opportunities and became successful on both the domestic and export markets. The industry stabilized its position by the first half of the 2000s, resulting in a gradual output increase. Defence industrial output reached \$240 million in 2006, with more than 95 per cent exported to Asia and Africa.⁴² The BDIA reported that in 2008 its member companies registered a turnover of \$400 million, of which 96 per cent was for exported products.⁴³ In 2009 total arms industry sales equalled 200 million leva (\$142 million). The most competitive products were small arms and light weapons, ammunition, communication systems and surveillance devices.⁴⁴ In 2011 the arms industry represented 0.5 per cent of industry's contribution to GDP. The July 2011 Bulgarian defence industrial strategy suggested that in order to increase the competitiveness of the sector, at least 2 per cent of the defence budget should be used for development.⁴⁵

Despite economic and political changes, arms production retained its position of special importance in Bulgaria. Although on a reduced scale and significantly transformed, the defence industrial base inherited from Warsaw Pact times survived. The Bulgarian arms industry preserved its traditional specialization in small arms and light weapons, ammunition and certain dual-use items, such as radio equipment and communications systems, while adding new branches like communications, radars, electronics and optic devices. The country's large-scale service and repair facilities also remained functional.

SALW remained the backbone of the Bulgarian arms industry.⁴⁶ The branch's composition represented the heterogeneity of the sector, with companies of different type, size and performance. Dynamic, efficient companies functioned side by side with sluggish giants. Some firms preserved

⁴⁰ Ivanov, T., University of National and World Economy, Head of Department of National and Regional Security, Interview with author, Sofia, 28 May 2001.

⁴¹ Bulgarian Ministry of Defence (note 14); and 'Bulgaria moves to boost own military industrial complex' (note 17).

⁴² 'Arms worth \$240 million produced in Bulgaria in 2006', *Sofia Echo*, 19 Mar 2007.

⁴³ Iliev, N., 'Bulgarian defence industry switches to energy—due to lack of government support', *Sofia Echo*, 11 Dec. 2008.

⁴⁴ 'Bulgaria's defense industry invests up to BGN 6 M annually in R&D', Sofia News Agency, 25 July 2010.

⁴⁵ 'Defence industry's new priorities' (note 21).

⁴⁶ Center for the Study of Democracy and Saferworld (note 11); and South Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (note 11).

their wide production profile; others produced small series of specialized products; some were successfully privatized state-owned enterprises; and others remained fully or partially state-owned. Certain companies exported nearly all of their output; others focused on the domestic market; some were high-level performers in healthy financial shape; others teetered at the edge of bankruptcy.

Serious structural problems troubled the arms industry and most Bulgarian arms producers struggled with fundamental problems, including the low level of domestic orders, cash-flow difficulties and large unused facilities that increased their overhead costs. The bulk of the companies were inefficient; one of the gravest problems of the Bulgarian economy was the low level of productivity, the lowest in the EU.⁴⁷ In 2007 the average number of employees at an industrial enterprise was 22, but the core defence industrial firms employed between 80 and 5798 people.⁴⁸ The two largest arms companies were former strongholds of the traditional arms industry: Arsenal, the largest company, with 5798 employees (1093 in administration alone) and VMZ with 4380 (1088 in administration). The share of the productive workforce in relation to the administrative personnel at Arsenal and VMZ recalled command economy times. Even at the largest firms, the sale of unused property and peripheral activities did not begin until the late 2000s.

Despite its generally poor state, the Bulgarian arms industry had some outstanding companies. During the 1990s some of the traditional producers thoroughly restructured, while a new group of well-performing firms emerged that cooperated with the core companies from the beginning. Several of the newcomers originated in the traditional arms industry and maintained formal or informal links with it. These companies were able to offer high-quality, endogenously developed products, principally in the IT and communications sector. They also produced conventional military equipment, such as a defence system for helicopters against handheld, anti-tank, rocket-propelled grenade launchers, developed in the framework of nine military defence projects in the NATO Counter-Terrorism Technology Development Programme (NCTDP).⁴⁹ Ongoing R&D activities characterized each of the well-performing companies even in the worst years, and all of these companies managed to secure the necessary capital to invest in promising projects. In the 1990s these successful companies were like

⁴⁷ Bulgarian Ministry of Economy and Energy (MEE), *Operational Programme: Development of the Competitiveness of the Bulgarian Economy, 2007–2013* (MEE: Sofia, Sep. 2007).

⁴⁸ Bulgarian Ministry of Economy and Energy (note 47); and Bulgarian Ministry of Defence (note 14).

⁴⁹ 'NATO: Bulgaria may have RPG protection solution for helicopters', *Defense Industry Daily*, 20 Oct. 2006, <<http://www.defenseindustrydaily.com/nato-bulgaria-may-have-rpg-protection-solution-for-helicopters-02732/>>; and NATO Counter-terrorism Technology Development Programme (NCTDP), 'NCTDP', <<http://nc3a.info/nctdp/>>.

islands in an ocean of stagnant companies struggling for survival. By the late-2000s their number had multiplied and their impact on the sector became significant. Their products were ordered by the MOD and became part of Bulgaria's export offers when the country began to integrate itself into the new international trade and production circuits.

The Bulgarian arms industry was a far less integrated sector than its counterpart in Poland; thus the impact of positive synergies was far more reduced. The links with the armed forces were often complicated, and international missions failed to generate sufficient demand to stimulate the whole sector. Industry representatives often complained that they exported arms of higher quality than those used by the Bulgarian armed forces.

Exports

Since the end of World War II the focus of the Bulgarian arms industry has been on export. After an initial major drop in the early 1990s, arms sales started to recover somewhat in the late-1990s. New customers, such as the UK and the USA, purchased Bulgarian products, in addition to such long-time trade partners as China, the Czech Republic, India, Pakistan and other countries in Asia and Latin America. Ivan Vatahov quoted an MOE estimate that Bulgarian arms manufacturers sold €33 million (\$30 million) worth of weapons in 2000 and over €100 million (\$94 million) in 2002.⁵⁰ The key arm companies' trade structure mirrored the strong export orientation of the Bulgarian defence industry. In 2003 the main exporters had a high share of military-related exports, ranging from 75% (Arcus) to 100% (Dunarit and Optico Electron).⁵¹

A classified US report released by WikiLeaks noted that the Bulgarian Government authorized €90 million (\$85 million) worth of arms exports in 2002 and €72 million (\$68 million) in 2003. Most were SALW, and 75 per cent were sold to Algeria and India.⁵² According to the Bulgarian MFA, in 2004 the country exported €230 million (\$280 million) worth of arms.⁵³ Arms exports diminished slightly in the second half of the 2000s, but picked up again by the end of the decade—to €259 million (\$343 million) in 2010. The main buyers were the Czech Republic, Egypt, India and the USA,

⁵⁰ Vatahov (note 12).

⁵¹ At the same time, of the 8 Terem companies, 6 worked exclusively for domestic customers; the Targovishte branch had 30% military-related export and Veliko Tirnovo had 20%. See Bulgarian Ministry of Defence (note 28), pp. 35–36.

⁵² US Embassy in Sofia, 'Classified Bulgarian arms export report reveals sales to sensitive areas', Cable to US Department of State, no. 05SOFIA1033, 9 June 2005, <<http://www.cablegatesearch.net/cable.php?id=05SOFIA1033>>.

⁵³ InvestBulgaria Agency, *Bulgaria Investment Guide 2006: Business Environment and Key Sectors* (InvestBulgaria Agency: Sofia, 2006).

but Yemen was the single largest client.⁵⁴ Arms exports reached yet another peak, \$380 million, in 2011.⁵⁵ At the Hemus 2012 exhibition Bulgaria signed some major contracts that included the sale of 500 light-armoured MT-LB personnel carriers to Iraq for 150 million leva (\$77 million). The vehicles were to be removed from service in the Bulgarian armed forces and overhauled and upgraded at the Terem-Khan Krum tank repair plant in Targovishte. Another contract was signed for the sale of military equipment for €36 million (\$46 million) to Algeria.⁵⁶

Most exported items were conventional arms and ammunition, although some outstanding companies, in particular the newly emerging amphibian-like firms, sold high-end, high-value-added specialized products. Presenting the new defence industrial strategy, Traikov claimed that Bulgarian arms producers could compete on the world market; 'hi-tech products made by highly qualified experts' represented the bulk of exports and their share doubled between 2010 and 2011, generating revenues comparable to those for export of electricity to neighbouring countries.⁵⁷ Data confirms the increase in more sophisticated defence export items, but a definitive shift has not yet taken place in the composition of Bulgaria's arms exports. In 2010 the most important export items included SALW, ammunition, communications systems and surveillance devices.⁵⁸

The manufacturers

In 2008 approximately 60 defence-related firms in four main groups existed in Bulgaria: 30 core producers and 30 major suppliers. The groups were (a) privatized former traditional arms makers that were now run by their managers and employees or owned by domestic buyers, the most numerous group; (b) three companies that were majority state-owned, Dunarit, Niti and VMZ, under MOE supervision, and the Terem companies, under the MOD; (c) well-established dual-purpose producers that supplied the sector with equipment but whose main profile remained civil; and (d) new private arms firms.

⁵⁴ 'Bulgaria's 2010 arms exports amounted to EUR 260 M', Sofia News Agency, 21 July 2011; and 'Yemen was Bulgaria's biggest arms export partner in 2010—UN', Sofia News Agency, 9 Aug. 2011.

⁵⁵ Agence France-Presse, 'Bulgaria 2011 arms sales total \$380M: report', *Defense News*, 12 Jan. 2012.

⁵⁶ 'Bulgarian PM seals arms deal worth BGN 150 M with Iraq', Sofia News Agency, 30 May 2012; and 'L'Algérie achète 36 millions d'euros d'armes à Kintex Bulgarie' [Algeria buys 36 million euros of arms from Kintex Bulgaria], Siwel, 31 May 2012, <http://www.siwel.info/L-Algerie-achete-36-mil-lions-d-euros-d-armes-a-Kintex-Bulgarie_a3603.html>.

⁵⁷ Quoted in Harizanova (note 20). Available data does not confirm a twofold increase of arms exports.

⁵⁸ 'Bulgaria's defense industry invests up to BGN 6 M annually in R&D', Sofia News Agency, 25 July 2010.

Privatized former traditional arms makers

The first group, privatized arms firms, was heterogeneous. Following several waves of decentralization and ‘profile cleaning’, the large-scale traditional arms producers broke up into numerous medium-sized firms, many of which left the sector. Those that stayed usually shed their civil production and became predominantly military-oriented. Depending on the type of privatization—management buyout (MBO) schemes, sales through open bids, joint ventures or the splitting of assets between private and state ownership—these companies displayed a wide variety of organizational and ownership structures.

Samel-90 (Samokov), a privatized former SOE specializing in portable anti-aircraft missile complexes, radio jammers and other telecommunications devices, was one of the most successful Bulgarian companies in terms of foreign cooperation. In 2012 the firm employed 400 people and exported 70 per cent of its output. Samel-90 was established in 1964 to produce military electronic communications equipment for the armed forces. After the political changes the firm started to produce a wide range of consumer electronics as well, while maintaining its range of special purpose products that were sold both to the Bulgarian armed forces and foreign partners. The company manufactured 50 per cent of Sperry Marine Northrop Grumman’s radar systems and also produced equipment for BAE Systems North America and Thales. Cooperation with Sperry Marine started in the late 1990s when the firm’s predecessor, British Litton Marine Systems, went to Bulgaria in search of partners to manufacture radars at more competitive prices.⁵⁹

Another rare success story with MBO-type privatization was Arcus, located in Lyaskovets, an ammunition and SALW producer (see appendix 8A, section II).

Electron Progress, one of the most outstanding Bulgarian arms firms was also a direct heir of a former state-owned research institute. It typified the Bulgarian firms that successfully adjusted to the new market economy without cutting the roots that linked them to the industrial traditions of the old system. It succeeded in establishing itself firmly on both the international and domestic military markets, including those related to NATO, and also had success on the civil market (see appendix 8A, section V).

State-owned firms

As of late 2012 the second group, majority state-owned firms, still included Niti, several Terem companies and VMZ—all large-scale and principally

⁵⁹ Samel-90, ‘About Samel-90’, <http://new.samel90.com/en/about/about_samel90/>; ‘UK in Bulgaria: Sperry Marine radars’, <<http://ukinbulgaria.fco.gov.uk/en/business/success-stories/sperry-marine-success-bulgaria/>>; and ‘A very British marriage’, *Sofia Echo*, 30 Mar. 2012.

defence-oriented companies. Despite considerable assets and potential, these companies experienced serious adjustment problems. State agencies regularly intervened to help them by placing orders, providing resources or promoting their projects, but their performance varied significantly depending on their management. Until October 2011, when the last state-owned shares in Arsenal were sold, Arsenal and VMZ were in a similar situation, had a similar production profile and comparable structural problems. Nevertheless, while Arsenal's management actively sought ways to improve its situation, VMZ's leadership was inactive, postponed painful decisions, relied heavily on state help and neared bankruptcy several times (see appendix 8A, sections III and IV).

Predominantly civil producers with occasional military output

In the third group, approximately a dozen primarily civil producers participated regularly in military-related projects and some official lists included them as 'defence companies'. Alucom in Pleven was a leading Bulgarian foundry for casting and machining aluminium parts that supplied alloy wheels to the arms industry. Drouzhba, located in Razgrad, provided pistons and segments. Another typical dual-purpose firm, Monbat, listed as one of the most successful defence-related companies, produced batteries that the MOD and military-related enterprises used extensively.⁶⁰

New private arms firms

The fourth group, a handful of new private arms firms, included two subgroups. The first of these united complete newcomers to the sector—firms primarily active in IT. They were typical amphibian-like companies with dynamic management and flexible production profiles that could easily be adjusted to the needs of their partners or markets. Unlike most of Bulgaria's arms industry, these companies had foreign funding, sometimes from the very beginning.

The Sirma Group in Sofia was typical of the first subgroup. The group was formed in 1992 by former classmates from the Sofia Mathematics Gymnasium and the mathematics faculty of the University of Sofia who had worked together on a research project at the Bulgarian Academy of Sciences in 1984–85. When the project ended, they stayed together and formed the enterprise, a Bulgarian–Canadian partnership. By the end of 2009 the Sirma Group had become a holding company with 10 subsidiaries; each specialized in specific software problems and solutions for different customers, including the MOD, Bulgarian private banks, the Canadian Government and Silicon Valley customers in the USA. The group's activities covered web-based systems for work management, various e-govern-

⁶⁰ Bliznakov, V., quoted in Bulgarian Ministry of Defence (note 14).

ment projects, IT consulting and system-integration services, educational portals and specialized computer-aided design and computer-aided manufacturing (CAD/CAM) systems. In 2004 the firm ranked among the top three software companies in Bulgaria, the first in growth and efficiency, employing 80 people. One of the group's firms, Ontotext, participated in research projects under the European Commission's Fifth and Sixth Framework Programmes, while another, EngView Systems, won the European Information Technology Prize in 1999 with its CAD/CAM software for sheet materials, which has since been sold all over the world.

In addition to its civil projects, in 2002 Sirma Solutions won a large contract with the MOD and developed the AAFCS Vulcan automated artillery command-and-control system. The system supports the whole process of battlefield management on the basis of a geographical information system, integrated encrypted communications, GPS, laser and video target acquisition and meteorological sensors and is used by the Bulgarian armed forces. As of late 2012 Sirma had 400 employees in its 10 companies located in Bulgaria (in Sofia, Kazanlak, Varna, Ruse and Plovdiv), the USA (in San Francisco, California, and Fairfield, Connecticut), Canada (in Montreal) and Brazil (in São Paulo).⁶¹

Bianor Services in Sofia, set up in 1998, was another outstanding representative of the first subgroup. Bianor provided software services for the telecommunications and arms industries, including project management, business process analysis, software design and development, software quality assurance, system integration and system support. Approximately 70–80 per cent of the firm's revenue was earned from handling difficult Internet-related software projects that had been outsourced by Western clients, primarily in Japan and the USA. In February 2008 the German company TechniData and Bianor Services formed TechniData Labs Bulgaria, which became a development centre for TechniData's environmental compliance management solutions. In 2009 the company employed 70 people, with offices in New York and Sofia. In February 2009 the President of Bulgaria, Georgi Parvanov, awarded Bianor the 2008 Innovative Enterprise of the Year award, and in May that year the Long Island Software and Technology Network (LISTnet) awarded Bianor the Long Island Software Award for its mobile service delivery platform. Bianor has functioned principally as a civil company with the capacity to also meet military needs and could become a partner in the projects for modernization of the Bulgarian armed forces. The company also partici-

⁶¹ Stanchev, K., 'Sirma Group: globally competitive from day one (case study)', 2000, <<http://www.ime-bg.org/news/nov2000/sirma.pdf>>; Ontotext, 'About us', <<http://www.ontotext.com/about-us>>; and Sirma Solutions, 'Military & industrial applications', <<http://www.sirmasolutions.com/services/military-industrial-applications>>.

pated in the development of NATO's Alliance Ground Surveillance (AGS) system, under the umbrella of Northrop Grumman.⁶²

The second subgroup of new private arms firms had historical, informal or personal links with the traditional core defence industrial companies. Opticoelectron, located in Panagyurishte, the traditional centre of optical instrument production, was created through the decentralization of a former state-owned company that specialized in optical devices for SALW. It consisted of seven plants, employing 736 people. In 2007 Opticoelectron received a NATO Secret Industrial Security Certificate and Clearance, enabling it to handle classified NATO material. In 2010 the Opticoelectron Group became one of the hundred most successful Bulgarian companies. In 2012 it entered into a strategic partnership with a South African company and won an innovation award from the International Police Council for Counter-Terrorism in Washington.⁶³

The former state-owned premises of the company became a special industrial zone, Hi-Tech Industrial Park, also called Opticoelectron-Panagyurishte, one of four fully functioning Bulgarian industrial parks. Using available know-how, the park has specialized in precision instrument making and has employed a large number of workers who had been dismissed from the city's former SOEs.

Optix in Panagyurishte, founded in 1998 by former Opticoelectron employees, became one of the most outstanding Bulgarian defence-related companies in the field of electro-optics. In 2002 it won a major MOD tender for night surveillance equipment. In 2004 the company established a joint venture with Scholly Fiberoptic GmbH, a leading German medical instrument producer and the joint venture company became a worldwide leading supplier of endoscopy visualization technology. Since 2007 Optix has won the Bulgarian national Innovative Company of the Year award four times. It was also awarded a NCAGE manufacturer-supplier code. The company has supplied the night-vision goggles used by Bulgarian troops in Afghanistan and Iraq.⁶⁴

The first industry association, the Bulgarian Defence Industry Association, was formed in 1999 by a former government official, Latchezar Stoykov, with the assistance of six ministries, including the MOE and the Ministry of the Environment, and some key arms companies (Arsenal,

⁶² 'Bulgaria's Bianor becomes a holding', *Sofia Echo*, 31 Oct. 2007; Bianor, 'Bulgarian President Georgi Parvanov awarded Bianor with innovation prize', PRWeb, 2 Mar. 2009, <<http://www.prweb.com/releases/2009/03/prweb2192104.htm>>; 'Bulgarian Internet co Bianor in partnership with Germany's TechniData AG', MaxBulgaria, 20 Feb. 2008, <<http://www.maxbulgaria.com/en/property-news/bulgarian/Bulgarian-Internet-co-Bianor-in-partnership-with-Germanys-TechniData-AG/2586.html>>; and Northrop Grumman, 'NATO Alliance Ground Surveillance', <<http://as.northropgrumman.com/products/natoags/>>.

⁶³ 'NATO grants classified info clearance to Bulgaria's Opticoelectron', *Géopolitiques de la Bulgarie*, 21 Feb. 2007, <<http://bieas.canalblog.com/archives/defense/p50-0.html>>.

⁶⁴ 'NATO grants classified info clearance to Bulgaria's Opticoelectron' (note 63).

Dunarit, Armimex and Electron Progress).⁶⁵ Although it enjoyed high-level government support and conducted some interesting projects, such as integrating arms manufacturing companies with civil society, its impact on defence-related decisions and company-level coordination was negligible. In an effort to better represent the sector's interests, in 2004 another association, the Bulgarian Defence Industries Association was set up by the managers of two key companies, Arsenal and Tchernomore, and the Bulgarian Academy of Science's Institute of Metal Science, Equipment and Technologies. As of late 2012 the BDIA had 15 members, both private and state-owned.⁶⁶

III. Procurement

Procurement had the same uneven rhythm as defence industrial policy in general, with long periods of nearly complete immobility. Then, from the late 1990s, when NATO membership became a possibility, intense changes followed, resulting in a surplus of procurement projects. The radical budget cuts that followed in the mid-2000s led to a more balanced acquisition policy intended to take into account the country's economic potential and rely more on domestic suppliers.

In the early 2000s the general improvement of the economy and NATO membership led to a gradual increase of the defence budget. After Bulgaria joined NATO the defence budget between 2005 and 2007 varied between 2.4 per cent and 2.6 per cent of GDP, although the trend of increases was declining.⁶⁷ Only a modest 0.1 per cent of the total budget was spent on R&D. The Plan for Organizational Development and Modernization of the Armed Forces until 2015 (Plan 2015) was adopted in November 2004 by the Council of Ministers. Together with the strategic defence review that was adopted in 2004, Plan 2015 laid down guidelines for the long-term transformation of the armed forces, including 11 priority projects costing over 1.5 billion leva (\$952 million), to be accomplished by 2010.

By 2005, however, it became clear that resources were lacking and Bulgaria was forced to cut back its large-scale modernization projects and search for alternative sources of financing. In November 2005 the country suspended its military-related procurement plans. Earlier that autumn the

⁶⁵ Stoykov (note 39); and Bulgarian Defence Industry Association, 'Prerequisites for stabilization and competitiveness of Bulgarian defence industry sector', <<http://bdia.tripod.com/bulgariandefenceindustryassociation/id8.html>>.

⁶⁶ Bulgarian Defence Industries Association, 'Membership', <<http://www.bdia-bg.com/en/participants/participants>>.

⁶⁷ US Commercial Service, *Study on Developing Bulgaria's Defense Sector Marketing Information Package*, 3rd edn (US Commercial Service: Sofia, Mar. 2009); Murphy, J., 'Bulgaria announces defence budget', *Jane's Defence Industry*, 1 Jan. 2006, p. 6; and Anderson, G., 'Budget allocation hits Bulgaria's plans for military modernisation', *Jane's Defence Industry*, 1 Mar. 2006.

International Monetary Fund had criticized Bulgaria for the disruptive effect that its large-scale military-related acquisitions had on the state budget. In 2005, during a temporary suspension of modernization deals, Bulgarian officials sought additional resources, such as revenues from US military bases, offset deals and foreign loans, and also considered alternative ways of financing essential acquisitions. The government investigated public–private partnership (PPP) constructions but soon realized that the size of such deals far surpassed the resources that could be mobilized. The government also conducted talks with several foreign banks (Dresdner Bank, Deutsche Bank, ABN AMRO, Citigroup and Société Générale) in an effort to obtain a loan of approximately \$1.8 billion to finance its procurement projects.⁶⁸

In January 2005 the MOD signed a contract for the sale of 12 Eurocopter AS 532 AL Cougar and 6 Eurocopter AS 565 MB Panther helicopters, for €360 million (\$448 million). An agreement with the French bank Société Générale helped to finance the Eurocopter purchase. Société Générale pledged to provide a deposit of €249 million (\$310 million), approximately 60 per cent of the estimated value of the deal.⁶⁹ In June 2011, however, Eurocopter agreed to halve the order for the Panther helicopters and the MOD and Eurocopter ‘signed an agreement to release Bulgaria from its obligation regarding the three remaining Panther helicopters’.⁷⁰

In early 2006 Bulgaria reduced its military expenditure, halting or significantly trimming procurement plans. The number of priority projects was first cut to nine, then to three—armoured vehicles, helicopters and transport aircraft—worth an estimated €700 million (\$878 million). The world economic crisis and mounting financial difficulties pushed the government to further revise its procurement plans; it scaled back contracts that had already been signed and postponed others.

In 2006 the government cancelled plans to buy 4 Gowind corvettes from France and instead bought three second-hand vessels from Belgium for €54 million (\$79 million), payable over eight years.⁷¹ It also cancelled a contract signed in 2005 with the Israeli company Elbit Systems for the repair and upgrade of Mi-17 and Mi-24 Russian-made helicopters and abandoned a plan to purchase mine-protected APCs for its contingents in Afghanistan

⁶⁸ Anderson, G., ‘Bulgaria looks to modernise its armed forces’, *Jane’s Defense Industry*, 1 Aug. 2005; and Vogel, B., ‘Bulgaria temporarily suspends army modernisation deals’, *Jane’s Defense Industry*, 1 Nov. 2005.

⁶⁹ Anderson, G., ‘Bulgaria looks to finance deal for helicopter buy’, *Jane’s Defence Weekly*, 25 Jan. 2006.

⁷⁰ de Larrinaga, N., ‘Paris Air Show 2011: Eurocopter and Bulgaria agree reduced Panther helo order’, IHS, 23 June 2011, <<http://www.ihs.com/events/exhibitions/paris-air-show-2011/news/day-4/Eurocopter-Bulgaria-reduced-Panther-order.aspx>>.

⁷¹ ‘Bulgarian corvette deal sunk by second-hand frigates’, *Defense Industry Daily*, 9 Dec. 2007, <<http://www.defenseindustrydaily.com/bulgarian-corvette-deal-sunk-by-second-hand-frigates-04380/>>.

and Iraq, although the Bulgarian company Terem-Khan Krum did upgrade a few of the APCs.⁷² However, in June 2007 Bulgaria announced a bid for 7 APCs, with the prospect of purchasing an additional 60 in the future.⁷³

In 2003 DaimlerChrysler won a deal to supply Bulgaria with all-terrain vehicles—trucks, ambulances, general purpose vehicles and buses—up to 12 900 vehicles by 2012.⁷⁴ In November 2006 the deal was modified and a new 18 million leva (\$12 million) contract was signed for 20 Mercedes-Benz high-mobility vehicles and another 65 vehicles, including armoured jeeps and buses.⁷⁵ In February 2006 Finmeccanica announced that Bulgaria had selected its C-27J Spartan light tactical transport aircraft—developed as a joint venture between Alenia Aeronautica and Lockheed Martin—to replace its Antonov An-26 Curl airlifters. Originally, Bulgaria planned to purchase eight aircraft for €91 million (\$58 million); it first reduced the number of aircraft to five and then, in December 2010, to three.

In August 2010, facing fines and the confiscation of already-delivered items, the Bulgarian Government allocated 256 million leva (\$174 million) of its financial reserve to pay for a number of arms deals that previous governments had made with foreign partners. By December 2010—after tough negotiations with Eurocopter, Alenia Aeronautica, DaimlerChrysler and the Belgian Government—Bulgaria had renegotiated the deals, made the most urgent payments and was able to keep the items it had received.⁷⁶

According to the MOD's investment plan of April 2011, 2 billion leva (\$1.4 billion) was to be spent on armament purchases and military modernization projects by 2020, half to purchase new multipurpose combat aircraft for the air force.⁷⁷ Despite the precarious financial situation, in August 2010 the Defence Minister, Angelov, declared that the MOD would soon announce a public tender for new handguns and sniper rifles for use in the armed forces' foreign missions.⁷⁸ A week later, however, the Prime Minister, Boyko Borisov, declared that some key acquisitions, such as the combat aircraft, could be postponed: 'Bulgaria is in no hurry to pick a brand of strategic fighter jets and to make a purchase . . . The modernization of the

⁷² Holdanowitz, G., 'Bulgaria postpones APC selection, seeks funds for fighters, corvettes', *Jane's Defence Weekly*, 2 May 2007.

⁷³ 'Bulgaria govt oks purchase of armored personnel carriers', *Géopolitiques de la Bulgarie*, 1 June 2007, <<http://bieas.canalblog.com/archives/2007/06/01/5152597.html>>.

⁷⁴ Holdanowicz, G., 'Bulgarian procurements near decision moment', *Jane's International Defence Review*, vol. 38 (Feb. 2005), p. 8.

⁷⁵ 'Romania, Bulgaria, five more East European nations to join NATO', Sofia News Agency, 29 Mar. 2004.

⁷⁶ The contracts were signed by the Sakskoburggotski and Stanishev governments (2001–2005 and 2005–2009). 'Bulgaria's finances squeezing existing arms deals', *Defense Industry Daily*, 8 Aug. 2010, <<http://www.defenseindustrydaily.com/Bulgarias-Finances-Squeezing-Existing-Arms-Deals-06506/>>; and 'Bulgarian govt sacrifices reserve funds for troubled arms deals', Sofia News Agency, 4 Aug. 2010.

⁷⁷ 'Bulgarian PM on fighter jets deal: butter before guns!', Sofia News Agency, 3 Sep. 2011.

⁷⁸ 'Bulgarian military to purchase modern weapons', Sofia News Agency, 31 Aug. 2011.

Bulgarian military will come only after we fix the infrastructure and improve people's income.' The government has sought less expensive solutions, such as prolonging the life cycle of the available fleet (through maintenance and upgrade) and using Bulgarian bases for joint exercises with allied forces that would cover most of the costs.⁷⁹

Also in August 2010 the government signed a contract with the Russian aircraft maker MiG for the maintenance and repair of its MiG-29 combat and training aircraft that would extend the operational life of 16 Bulgarian MiG-29 combat aircraft by at least five years. The 48-month deal was worth 1.148 billion leva (\$777 million), and Terem-Georgi Benkovski in Plovdiv would carry out the work. According to the Deputy Defence Minister, Valentin Radev, annual costs for maintenance and repair of the combat aircraft would require an additional 7–8 million leva (\$4.7–5.4 million).⁸⁰

Bulgaria intended to establish a balance between its major procurement partners—the EU, Russia and the USA—and domestic producers. In the framework of the US Foreign Military Financing programme, by 2010 the country had received approximately \$143 million in financial assistance to support training and procurement of military equipment.⁸¹ By 2005 the US IMET programme had trained more than 400 Bulgarian military and civil personnel at a total cost of \$13.9 million.⁸² Bulgarian Government officials hoped to attract significant defence industrial investments and cooperation offers from the USA in order to revitalize the country's arms industry, which the Minister of Foreign Affairs, Solomon Passy, stressed in his February 2004 visit to the USA.⁸³ After Bulgaria became a NATO member its links with the USA strengthened, and in 2007 the two countries signed a defence cooperation agreement and a bilateral investment treaty.⁸⁴ Despite the multiplication of contacts and investments, the USA did not become a major actor in the Bulgarian defence sector. In September 2010 the Defence Minister, Angelov, joined the Minister of Economy, Energy and Tourism, Traikov, in calling for US companies to 'breathe life into the Bulgarian industry'. According to Traikov, within NATO Bulgaria had 'intensive contacts with companies from the US military industrial complex' that could be developed.⁸⁵

⁷⁹ 'Bulgarian PM on fighter jets deal: butter before guns!' (note 77).

⁸⁰ 'Bulgaria seals deal with Russia for MIG-29 maintenance', Sofia News Agency, 3 Sep. 2011.

⁸¹ US Department of State, Bureau of European and Eurasian Affairs, 'U.S. relations with Bulgaria', Fact sheet, 7 Jan. 2013, <<http://www.state.gov/r/pa/ei/bgn/3236.htm>>.

⁸² Interview with Vesselin Bliznakov, Bulgaria's Minister of Defence, in Ackerman, R. K., 'Economic, international obligations drive Bulgarian defence', *Signal*, Sep. 2006.

⁸³ 'Bulgaria and America: promoting democracy and fighting terrorism', Sofia News Agency, 6 Mar. 2004.

⁸⁴ US Trade Office in Sofia, 'Your global business partner', <<http://www.buyusa.gov/bulgaria/>>; and US Commercial Service (note 67).

⁸⁵ 'Bulgaria moves to boost own military industrial complex' (note 17); and 'Minister eager to have US revive Bulgaria's defense industry' (note 29).

The military bases established in Bulgaria in 2006 provided a special link to the USA. Dimitar Tsanchev, an MFA spokesperson, declared that the establishment of the military bases is 'part of the process of the modernization of the army and enhancing the capacity of this army to interact on an operative basis with NATO and U.S. military units'.⁸⁶ Bulgarian authorities expected direct and indirect economic benefits from the deal as well. As Tsanchev put it: 'We think that . . . the joint use of these military facilities will lead to an increase in the confidence in our country on behalf of investors and improve the general investment climate in our country.'⁸⁷ In 2008 there were about 2500 US soldiers stationed in the country in three military bases used jointly by Bulgarian forces.

Despite its close ties to the US military, Bulgaria procured almost exclusively European products for the modernization of its armed forces, which created tax problems related to Alenia Aeronautica's delivery of the C-27J aircraft that contained US elements. Bulgaria's purchase of European products was partially in response to the attention that EU-based defence circles paid to countries that became NATO members in the second wave of post-cold war enlargement. As Rainer Ohler, an EADS spokesman, put it: 'The European defense industry for too long ignored the market opportunities of the new countries, while U.S. competitors were quicker. . . . Now we've learned the lessons.'⁸⁸ In April 2008 Bulgaria joined the European Defence Agency's defence procurement programme.

Bulgarian decision makers also tried to establish proper working relations with Russia. After the demise of the Warsaw Pact, Russia was no longer the prime military supplier for East Central Europe, but the heritage of the past remained, embodied in the equipment and the deep structures of the military-related sector. Most ECE countries preferred to ignore Russia, but Bulgaria awarded a major upgrade deal to a Russian partner and sought practical solutions to the problems of spare parts and property rights, among others, by purchasing the licence for Russian AK-47 assault rifles (Kalashnikovs).

In 2006 Nikolay Yankov, director of the MOD's Armaments and Equipment Policy Directorate, declared that the ministry would rely more on domestic companies for the supply of lightweight firearms, ammunition, military electronics and communications, and in the integration of communications and IT systems. However, large weapon systems would still be procured from leading international manufacturers. Yankov also

⁸⁶ Brunwasser, M., 'Bush winds up European tour in Bulgaria', *Cups & Cross Ministries*, 15 June 2007, <<http://cupandcross.com/bush-winds-up-european-tour-in-bulgaria/>>; and 'US, Bulgaria sign defence co-operation agreement', *Southeast European Times*, 28 Apr. 2006, <http://setimes.com/cocoon/setimes/xhtml/en_GB/features/setimes/features/2006/04/28/feature-01>.

⁸⁷ 'US troops set for Bulgaria bases', *BBC News*, 28 Apr. 2006, <<http://news.bbc.co.uk/2/hi/europe/4951726.stm>>.

⁸⁸ Quoted in 'Romania, Bulgaria, five more East European nations to join NATO' (note 75).

announced that the share of capital expenditure would increase from 17 per cent to 20–25 per cent of military expenditure, thereby facilitating modernization and new acquisitions.⁸⁹ This promise was not fulfilled, and in late 2008 the sector was incensed by the government's procurement policy. The executive manager of Samel-90, Petar Georgiev, declared that the selection process was unsatisfactory; the conditions for deals were such that no domestic firm could meet them; and the government had also failed to provide financial support and subsidies to ease the situation for the domestic industry. According to Georgiev, the MOD's modernization projects did not involve Bulgarian companies since the ministry signed contracts exclusively with foreign firms and 'offset programmes are dust in the eyes of society'—as of December 2008 not one of the offset projects that had been promised by foreign partners had started. Most of the important Bulgarian arms makers were contemplating a shift to the energy sector.⁹⁰

However, the situation gradually changed. In mid-2010 Angelov stated that the MOD had bought €174 million (\$230 million) worth of weapons from Bulgarian producers and €82 million (\$109 million) from foreign companies. He promised that after 2013 more new arms would be purchased from domestic producers, which could participate in the modernization of the equipment used by the army's special forces and probably in the modernization of the Mi-17 Russian helicopters owned by other NATO member states. In July 2011 Angelov stated that a Bulgarian company had won the procurement tender for equipment for the Bulgarian contingent in Afghanistan.⁹¹

Offsets

Until the early 2000s the government did not give much importance to offsets when it made procurement decisions. However, the experience of other countries in East Central Europe and the tempting offers of competing Western companies made offsets a key factor in the process of allocating resources. The Minister of Economy and Energy, Petar Dimitrov, noted that Bulgaria 'had accepted any kind of investment, but now it needed to attract "second generation" investments, which meant high technology and know-how'. Dimitrov promised to assist companies with their offset projects because 'one of the goals we have is to modernise the army, but the major goal is to modernise the economy', which 'would be achieved with offset deals'.⁹² By the end of 2007 offset deals generated investments amounting to €158 million (\$216 million).

⁸⁹ Bulgarian Ministry of Defence (note 14).

⁹⁰ Iliev (note 43).

⁹¹ Harizanova (note 20).

⁹² Kostadinov, P., 'Arms trade offset: pros and cons', *Sofia Echo*, 7 Dec. 2007.

Bulgarian offset legislation was introduced in 2004 and amended in 2007 and 2011. Offset obligations were compulsory for deals over €5 million (\$6.2 million), although optional above €2.5 million (\$3.1 million); had to match the nominal value of the primary contract; and required 30 per cent direct offset. An inter-agency council that was chaired by the Minister of Economy and Energy—with representatives from the MOE and from the Finance, Interior and Defence ministries, the State Agency for Information Technology and Communications, and the InvestBulgaria Agency—made decisions.⁹³

In the 2005 helicopter deal, worth €360 million (\$448 million), Eurocopter offered 100 per cent offset and pledged to set up two plants in Bulgaria to manufacture ‘aluminium products and chemical goods’, creating 1000 jobs and potentially boosting exports.⁹⁴ In 2007 Eurocopter signed a deal (reportedly worth €100 million (\$137 million) with Samel-90 to launch joint production of military communications equipment.⁹⁵

High expectations concerning offsets created controversy between the MOD and the MOE, both of which were eager to obtain foreign financing for their projects. Representatives of the MOD criticized the existing regulations, stating that offsets slowed deliveries and increased purchase prices—administrative costs for an offset deal could increase the original price by up to 30 per cent. However, the MOD’s main objections were that the MOE’s criteria for selecting offset projects were arbitrary, fulfilment of offset pledges was slow, and little or no funds were invested in R&D. One of the directors of the BDIA, Stefan Vodenicharov, stated that because none of the BDIA-affiliated companies was included in an offset deal this brought into question the MOE’s selection criteria, particularly in the light of the 30 per cent direct offset obligation. Critics mentioned the delay in the construction of a hangar for helicopters, an offset in the Eurocopter deal, and noted that the beneficiaries of the Alenia project had all been minor companies with small projects (e.g. building a greenhouse for roses grown for export) that could have been financed via other channels.⁹⁶

⁹³ Bulgarian Ministry of Economy and Energy, ‘Offset’, <<http://www.mi.government.bg/en/themes/offset-283-283.html>>; and Zherkov, I., Ministry of Economy and Energy, Offset Programs Directorate, ‘The role of the offset programs as a part of the state policy for guaranty the national security and the economical interests of the country in the context of public-private partnerships in defence’, Presentation, SfP-982063 Conference, Varna, 29–31 May 2008, <http://sfp.e-dnrs.org/wp-content/uploads/2008/09/Varna_Presentations/Session_II/Part_I/02_I_Zherkov_I_Hadjiiska.ppt>.

⁹⁴ ‘Eurocopter starts two plants in Bulgaria’, Standart, 7 Dec 2005, <<http://paper.standartnews.com/archive/2005/12/07/english/moneyt/index.htm>>; and ‘Bulgaria signs 360-million-euro offset program with Eurocopter’, Xinhua, 8 Dec 2005, <http://english.peopledaily.com.cn/200512/08/print20051208_226418.html>.

⁹⁵ ‘Eurocopter may build telecom equipment plant in Samokov’, Pioneer Investors, 16 Feb. 2007, <<http://www.pioneer-investors.com/news2.asp?newsid=8069>>.

⁹⁶ Kostadinov (note 92).

Appendix 8A. Bulgarian company case studies

I. The Terem group: a difficult privatization

Terem's long and unsuccessful saga of privatization illustrates the difficulties of transforming a large-scale, prolific, unevenly performing state-owned company into several functional units. Privatization efforts have failed due to the reluctance of the state to renounce a large, strategically important, revenue-producing group of companies even though it was unable to properly finance it; the lack of potential domestic buyers with sufficient funds; and the unwillingness of potential foreign investors to dedicate funds for restructuring the companies. The unresolved ownership questions escalated the group's problems and led to significant losses.

In 1963 the Bulgarian MOD united its military repair plants to form the Terem group. A 1998 government decree transformed it into a totally state-owned joint stock company, Terem EAD, with 13 plants in various locations. In 2000 a ruling by the Sofia City Court led to Terem being reorganized as a holding company of eight maintenance, repair and production companies with 2400 employees. All of these companies carried out both civil and military production and repairs.¹

As with most MOD-owned companies in East Central Europe, little information was made available about Terem's activities and economic status. The few items of information that sporadically appeared in the news media suggested that some of the plants had good potential and performed well, while others struggled with serious difficulties. The successful companies included Terem-Georgi Benkovski in Plovdiv, which had been established in 1939 as the first aircraft workshop in Bulgaria and later worked on modernization of MiG-29 combat and training aircraft in cooperation with the Russian company MiG. Another successful company, the Terem-Khan Krum tank-repair plant in Targovishte, used its own innovations to upgrade APCs for the Bulgarian military. Terem-Khan Krum also manufactured components (frames, bridges, containers etc.) for vehicles delivered to the MOD by DaimlerChrysler.²

Efforts to privatize Terem began in the late 1990s, but all of them failed. As a Bulgarian journalist put it, 'If privatisation success were defined by sales of tender documentation, the current efforts to privatise national defence repair holding TEREM would be successful indeed.'³ Privatization efforts multiplied after Bulgaria became a member of NATO. In August 2004 the Defence Minister, Nikolai Svinarov, announced the imminent start of privatization. A day later

¹ 'Bulgaria arrests boss of Terem military holding', *Sofia Echo*, 9 Sep. 2009.

² Bulgarian Ministry of Defence (MOD), Armaments and Equipment Policy Directorate, *Defence Industrial Policy of the Ministry of Defence of the Republic of Bulgaria* (Bulgarian MOD: Sofia, 2006).

³ 'Terem privatization: and then there was one . . .', *Bulgarian Monthly Security News*, 1 Feb. 2005.

the Defence Strategy Group, a consortium of two Swiss and one Norwegian company, proposed buying 80 per cent of Terem at a price to be 'determined by the Bulgarian side'.⁴

After several failed attempts to privatize Terem, in 2007 a team of economic experts proposed dividing it into eight subsidiary companies—four considered 'strategic' and four involved in 'non-core' activities—and selling the majority shares of the eight companies, with Terem receiving the revenue from the sales. In June 2007 the Privatization Agency announced public bids for the sale of several of the non-core entities and their premises. In March 2008 another bid to sell Terem included a clause addressing the eventuality of failure to find a buyer. In that case, Terem was mandated to explore alternative options, such as creating a joint venture, merging with a partner (after approval by the MOD) or partially disposing of assets or self-contained units.

In April 2008 Terem was separated into two blocs. The strategic bloc included Terem-KRZ Flotski Arsenal in Varna (repair of naval vessels), Terem-Georgi Benkovski, Terem-Khan Krum and Terem-Ivaylo in Veliko Tarnovo (overhaul and repair of small arms, artillery systems and basic missile systems, and destruction of such weapons). The Privatization Agency offered to sell up to 66 per cent of the shares of these firms.

The non-core bloc of companies included Terem-Letetz in Sofia (overhaul and repair of Mi-class helicopters), Terem-Ovech in Provadia (repair of military vehicles and track equipment), Terem-Gen. Vladimir Zaimov in Bozhurishte (overhaul and repair of radars, navigation and communications stations) and Terem-Tsar Samuil in Kostentz (SALW production, overhaul, repair and destruction). For these companies, the MOD offered to sell 74 per cent of the shares. Decision makers hoped to attract strategic investors from Bulgaria or EU countries, to generate 200 million leva (\$150 million) in revenue and to preserve the companies' military profiles.⁵ Later, however, the government abandoned the project and sold individual assets from Terem's factories, selling sections of three firms by late 2011.

The sale of Terem-Flotski Arsenal was expected to attract the greatest interest. Soon after the bid was announced DCNS, a French naval services group, teamed with Industrial Holding Bulgaria—in a bid related to Bulgaria's planned acquisition of Gowind class corvettes from DCNS—with the intent of buying 66 per cent of Terem-Flotski Arsenal's shares.⁶ However, at the end of 2008 the government blocked privatization of the company.

In September 2009 Terem's executive director, Zhechko Petrov, was arrested and accused of corruption and mismanagement. An August 2009 tax audit discovered 19 million leva (\$13.5 million) missing from the company's accounts.⁷

⁴ Angelov, A., 'TEREM for sale?', *Bulgarian Monthly Security News*, 1 Sep. 2004.

⁵ 'Defence co Terem seeks buyers for 8 subsidiaries', *Dnevnik a.m.*, 28 Mar. 2008, <<http://news.dnevnik.bg/ppage.php?page=1&y=2008&m=3&d=28V>>; and 'Terem is announced for sale', *Banker*, 29 Mar. 2008, <<http://www.banker.bg/?Issue=772&Section=51&Category=7&Article=33094>>.

⁶ 'France's DCNS, Industrial Holding Bulgaria team up to buy 66% of Bulgaria's TEREM-KRZ Flotski Arsenal', 30 June 2008, *SeeNews*, <<http://wire.seenews.com/news/france-s-dcns-industrial-holding-bulgaria-team-up-to-buy-66-of-bulgarias-terem-krz-flotski-arsenal-229854>>.

⁷ 'Bulgaria arrests boss of Terem military holding' (note 1).

In March 2011 the government opted to abandon compulsory state participation in defence industrial plants, and in August 2011 the Privatization and Post-privatization Control Agency offered to sell 34 per cent of Terem-Georgi Benkovski and 28 per cent of Terem-Gen. Vladimir Zaimov.⁸

II. Arcus: successful privatization via management–employee buyout

Arcus, located in Lyaskovets, was founded in 1965 as a mechanical engineering plant to produce fuses for the armed forces of Bulgaria and other Warsaw Pact countries. Even during the cold war it was one of few well-performing Bulgarian enterprises.⁹ In order to compensate for decreased military demand, after 1990 the company introduced civil production lines manufacturing hydraulic device components, drill parts and parts for the car industry.

In the mid-1990s Arcus began to develop NATO-compatible firearms under an MOD tender. Although the state failed to provide the expected financial support, the company used its own resources and know-how to develop its range of Arcus and Parabellum pistols, which were later used by the Bulgarian armed forces and also exported. Additionally, the company sold these weapons to civilians in the USA and in some West European countries.¹⁰

In 1996 Arcus was privatized in a management buyout, which also included employees, and soon became one of the few successful firms in the devastated Bulgarian arms industry. Management concentrated on developing a limited number of products and their success provided the necessary resources for continued research and development, development of new products and wide-scale marketing. In 1997 Arcus obtained an ISO 9001 quality certificate (from a British company) and an AQAP 110 certificate (issued by the Bulgarian MOD). By the early 2000s Arcus's products included ammunition (rounds, grenades and mortar bombs), small arms (pistols, revolvers, a gas-signal revolver and a sub-machine gun) and a wide array of fuses.

In 1988 the company had employed 3400 people. By 2002 that number had dropped to 2600, but by 2007 it increased to 2800, including 120 engineers working on R&D projects. In 1988 the company's output equalled \$20 million. Although output fell in the early 1990s, it later increased and by 2002 reached a 10-year high of 60 million leva (\$29 million). Military-related production represented 60 per cent of the company's output and 95 per cent of output was exported. Under its own export licence Arcus sold products to five NATO member states and to India and other countries in Asia and the Middle East.¹¹

⁸ 'Bulgaria puts 2 more military plant stakes on privatization table', Sofia News Agency, 10 Aug. 2011.

⁹ Galev, T., 'Military-related technological innovations in Bulgaria during socialism: beyond ideological and political borders, the ARCUS military plant case', Paper presented at the Technology and Rethinking European Borders conference, Lappeenranta, 24–28 May 2006.

¹⁰ Bankov, B., Executive director, and Iaymanov, Y., Sales and marketing manager, Arcus, Interview with author, Lyaskovets, 21 Mar. 2002.

¹¹ Center for the Study of Democracy and Saferworld, *Weapons under Scrutiny: Implementing Arms Export Controls and Combating Small Arms Proliferation in Bulgaria* (Saferworld: Sofia, 2004).

The company continued to develop new equipment, such as 40-mm munitions for NATO-standard grenade launchers, including an ‘anti-diver’ version that explodes under water. In 2004 Arcus built a facility for ammunition disposal and recycling. In October 2007 Arcus issued three-year bonds worth \$20 million to finance its investment plans.¹² By October 2009, despite the developing economic crisis in Bulgaria, Arcus reported only a slight drop in its non-consolidated net results. In 2012 the company was still profitable, even though its results had worsened.¹³

The perseverance and know-how of the management and workforce led to Arcus’s long-term success. Relatively few MBO-type privatizations succeed, but in Arcus’s case the ownership changed relatively soon after the end of the cold war and management carried out a consistent, radical in-depth restructuring and introduced a long-term development strategy. The company received sporadic state assistance, used its resources prudently and found alternate sources of financing when necessary.

III. Arsenal: a typical Bulgarian company

In 1878 Arsenal was set up in Rousse to serve the newly established Bulgarian Army. Due to strategic considerations, in 1924 the company moved to its current location in Kazanlak. In the mid-1980s Arsenal and its subsidiaries employed 20 000 people, but when the cold war ended Arsenal shut down its subsidiaries and concentrated production in Kazanlak. In 2003 Arsenal had approximately 4300 workers and the media reported plans to lay off an additional 2000 employees.¹⁴

In the spring of 2000, when the first plans for privatization became public, the Podkrepa labour union argued that the government’s MBO scheme would not solve Arsenal’s problems and claimed that a Dutch and a Russian company were interested in buying majority shares.¹⁵ Nevertheless, the government went ahead with its plan and offered the shares to the Arsenal 2000 consortium, created by the company management and employees, which bought slightly more than 50 per cent. The state retained the golden share. In 2002, 34 per cent of the shares were still state-owned and the company was expected to remain in state ownership for the longer term as one of five companies considered to be of strategic importance. State representatives sat on Arsenal’s board of directors and participated actively in decision making but, according to management, the company rarely received genuine help from the state.¹⁶ Additional attempts to sell shares in order to attract capital all failed.

¹² Bankov (note 10); and ‘Bulgarian arms producer Arcus issues \$20 mln bond’, SeeNews, 12 Oct. 2007, <<http://wire.seenews.com/news/bulgarian-arms-producer-arcus-issues-20-mln-bond-218582>>.

¹³ ‘Bulgaria’s Arcus reports 5,248,000 levs in 9-mo 2009 non-consolidated net result vs 5,319,000 levs year ago: table’, SeeNews, 30 Oct. 2009, <<http://wire.seenews.com/news/bulgarias-arcus-reports-5-248-000-levs-in-9-mo-2009-non-consolidated-net-result-vs-5-319-000-levs-year-ago-table-251914>>; and ‘Bulgaria’s Arcus 9-mo non-cons net profit falls 18.7%’, SeeNews, 25 Oct. 2012, <<http://wire.seenews.com/news/bulgaria-s-arcus-9-mo-non-cons-net-profit-falls-18-7-311467>>.

¹⁴ Center for the Study of Democracy and Saferworld (note 11), pp. 21, 24.

¹⁵ *Pari*, 4 Feb. 2000.

¹⁶ Streshkov, C., Technical director, Arsenal, Interview with author, Kazanlak, 21 Mar. 2002.

By 2002 the company had lost both its best and its worst workers; the latter became unemployed (in a region where unemployment reached 20 per cent), while the former left for jobs in the private sector or set up their own firms. By 2002 output had fallen to 20 per cent of the record production levels of the mid-1980s. Eighty per cent of Arsenal's output was military-related and its management planned to increase the share of civil production in order to compensate for the declining military demand.¹⁷ In May 2003 the Italian company Beretta visited Arcus, Arsenal and Opticoelectron to discuss investment or privatization, but no follow-up took place.¹⁸ Financial difficulties continued and by 2004 many of Arsenal's employees worked part-time or on call.

In 2002 Arsenal had exported close to \$25 million worth of arms and ammunition, making it one of Bulgaria's top 20 exporters. Its main market was India, but in 2004 it also supplied the new Iraqi Army with SALW. In 2004 Amnesty International reported that the company had produced 60-mm and 80-mm mortars under licence from Austria's Hirtenberger and expressed concern about their possible diversion to illicit end-users.¹⁹ Arsenal had previously acquired an ISO 9001 Quality Management System certificate and in 2004 it received an AQAP 2110 certificate, which it hoped would open doors for exports to NATO countries.²⁰

A 2006 government document listed Arsenal as a completely private company, with 36 per cent unspecified private ownership and 64 per cent owned by Arsenal 2000 joint stock company, the manager-employee consortium that bought the majority of shares in 2000. The number of employees was reported to be 5798.²¹ In April 2008 Arsenal was listed among the 101 enterprises considered to be of special importance or in which the state held a golden share and that the government had put under special financial supervision and control.²²

In the late 2000s the company produced small arms and artillery weapons, primers, powders, charges, pyrotechnic products, hunting and sport weapons, ammunition and a wide range of civil tools and machines. In order to further diversify its range of products, the company developed a light military vehicle with a Suzuki motor, but it sold only a few. Arsenal also carried out subcontracting work to generate additional resources. The company exported 90 per cent of its output to Asia, Africa and the Middle East. Most of its civil production was sold in Eastern Europe, with additional sales in Italy, Turkey and Norway. A small niche market for rifles existed in the USA.

Majority privately owned, but enjoying state protection and needing regular state support, Arsenal had an ambiguous status that provided both partial pro-

¹⁷ Streshkov (note 16).

¹⁸ Center for the Study of Democracy and Saferworld (note 11).

¹⁹ Amnesty International (AI), *Undermining Global Security: The European Union's Arms Exports* (AI: London, 1 Feb. 2004).

²⁰ Center for the Study of Democracy and Saferworld (note 11).

²¹ Bulgarian Ministry of Defence (note 2). The same document also listed Arsenal as a state-owned company. Data about the ownership structure and employment was confusing and did not seem to correspond to other sources.

²² 'Bulgaria Govt puts 101 state enterprises under special financial supervision', Sofia News Agency, 30 Apr. 2008.

tection and partial restriction. While the company's management took some constructive measures, they were not sufficiently radical or timely and the unresolved structural problems created serious adjustment difficulties. In March 2011 the government announced that it would give up its golden share in the remaining state-owned defence industrial companies. In August a tender for the state's 35.78 per cent stake in Arsenal was announced and in October the majority shareholder, the Arsenal 2000 consortium, bought it for 15 million leva (\$11 million).²³ According to the governmental InvestBulgaria Agency, in 2012 Arsenal was listed as a successful machine-building company, had 7000 employees and exported 80 per cent of its products to over 120 countries.²⁴

IV. Vazov Engineering Works: a difficult transformation

Vazovski Mashinostroitelni Zavodi (VMZ, Vazov Engineering Works), one of the 100 largest companies in Bulgaria, was established in Sopot in 1936 and grew into a large-scale military industrial enterprise after World War II.²⁵ The company's wide range of products comprised 60 per cent military-related products, including a range of artillery and aviation ammunition, man-portable (Stinger-type) anti-aircraft missile systems and rocket-propelled grenade (RPG) systems. VMZ exported most of its production, with India as a principal market.

The history of VMZ after 1990 included a series of failed adjustment efforts. The company survived thanks to nearly continuous state backing and weapon sales to developing countries that generated enough revenue to keep it from shutting down. VMZ addressed its losses and accumulating debt by filling the most urgent financial holes with state aid and, increasingly, by selling its assets.

By the late 1990s it had become evident that the company needed fundamental revamping, but VMZ did not introduce genuine changes. In 2000 the company had a net loss of 40 million leva (\$18.8 million). In early 2001 the government decided to grant an almost \$4 million interest-free loan to the firm to pay its striking workers' long overdue salaries.²⁶ In order to cover debts and salaries, VMZ sold two units that produced civil goods unrelated to military production. In 2002 the Swedish company SKF bought VMZ's ball bearings unit. During 2002–2003 the company failed to pay its employees for several months, and they went on strike several times. In 2004 VMZ registered a profit of 559 000 leva (\$355 000), with sales exceeding 46 million leva (\$29 million). However, the company's long-term obligations amounted to 36.1 million leva

²³ 'Bulgaria unblocks state quota in arms plants to speed up their sale', SeeNews, 9 Mar. 2011, <<http://wire.seenews.com/news/bulgaria-unblocks-state-quota-in-arms-plants-to-speed-up-their-sale-183853>>; 'Bulgaria puts 2 more military plant stakes on privatization table', Sofia News Agency, 10 Aug. 2011; and 'Bulgaria makes BGN 15 M from sale of minority stake at "Arsenal" military plant', Sofia News Agency, 26 Oct. 2011.

²⁴ InvestBulgaria Agency, 'Machine building successful examples: Arsenal Kazanlak', <<http://www.investbg.government.bg/en/sectors/successful-example-0-149.html>>.

²⁵ The company was named after Ivan Vazov, a 19th century poet, writer and proponent of democracy.

²⁶ Grigorov, N., 'State bails out ailing arms plant', *Sofia Echo*, 1 Mar. 2001.

(\$23 million), with short-term obligations totalling 54.96 million leva (\$35 million).²⁷

In 2000 the government declared its intent to partially privatize the firm but stressed that, as a strategic company, an MBO scheme was not suitable.²⁸ However, it did not propose an alternative. VMZ's management used impending privatization as a pretext to postpone restructuring. Just before it lost the 2005 election the government of Simeon Saksoburggotski decided to sell the firm through public tender. Investors with experience in the manufacture and trade of military products and at least €50 million (\$62 million) in revenue in the three previous financial years were invited to bid. Foreign investors could only bid through a Bulgarian legal entity and no offshore companies were allowed to bid. VMZ's assets at the time were assessed at 118 million leva (\$75 million), with over 4000 employees.²⁹ There were no suitable bidders.

To cover some of VMZ's debts the Privatization Agency sold some of the company's non-core assets in 2007 and more in early 2009. In late 2009 Bulgarian news sources reported that VMZ was on the verge of bankruptcy. For four months 4000 employees did not receive salaries. According to the mayor of Sopot, Veselin Lichev, the reason for this situation was not poor management but 'commercial companies that [did] not offer the production of the arms factory' (i.e. did not market them efficiently enough).³⁰ In October 2009 the Minister of Economy, Energy and Tourism, Traicho Traikov, stated that the company owed the state 50 million leva (\$36 million). The Minister of Defence, Nikolay Mladenov, noted that previous governments had loaned money to VMZ indiscriminately, without requiring the company to meet any criteria, and that VMZ's previous management was involved in violations of regulations together with government officials. Often VMZ paid workers' salaries, but not their social security and health insurance benefits. Mladenov claimed that VMZ was not an isolated case but represented the condition of all military factories in Bulgaria. Ivan Stoenchev, who had served as general manager of the company for decades, stated that the factory was working at 10 per cent of its production capacity and employed 3700 workers, whose jobs were not threatened.³¹

Beginning in the autumn of 2009, unrest among VMZ's workers grew over delayed salaries and rumours of workforce cuts, leading to several strikes and protest rallies. In February 2009 the company announced that it had signed two contracts to sell grenades and RPGs to a client in the Middle East. Manu-

²⁷ 'VMZ Sopot set for privatisation', *Sofia Echo*, 5 July 2005.

²⁸ Stoeva, A., 'The Economic Ministry will work out a special strategy for the privatisation of VMZ', *Pari*, no. 5 (24 Feb. 2000); and Bulgarian Information and Public Relations Directorate, 'State to retain golden share in VMZ-Sopot after sale', *Weekly Government Bulletin*, 8-12 Jan. 2001, <http://sun450.government.bg/old/eng/gis/bulletin/2001/08_12_January.html>.

²⁹ 'Bulgaria gears up arms plants tender', *Sofia News Agency*, 1 Apr. 2005.

³⁰ He also noted that 'Nearly 4000 workers of VMZ Sopot are on the brink of survival'. 'Workers of VMZ Sopot did not received [sic] salaries for 4 mounts [sic]', *Guide Bulgaria*, 10 Nov. 2009, <http://news.guide-bulgaria.com/SC/Plovdiv/Sopot/Sopot/News.aspx?8429=Workers_of_VMZ_Sopot_did_not_received_salaries_for_4_mounts>.

³¹ 'Bulgaria top military plant VMZ Sopot heavily in debt to state', *Sofia News Agency*, 11 Oct. 2009.

facturing began and the workers expected their salaries to be paid from the advance payments received by the company.³² When that did not occur, hundreds of workers went on strike, seeking three months' back wages. Stoenchev promised that the overdue salaries would be paid as quickly as possible but added that he could sue the employees for lost profits resulting from the production delays caused by the protests.³³

In May 2010 some of VMZ's former top managers were investigated on suspicion of abuses that may have contributed to the dire financial state of the company. At that time VMZ's debt had reached 100 million leva (\$68 million).³⁴ Meanwhile, during a September 2010 visit to the USA, Traikov invited Boeing's management to study VMZ and the opportunities that its sale and privatization would afford.³⁵

In the spring of 2011 the government announced that the company would be sold through a one-off public tender. The successful bidder would be required to preserve the core activities, keep the plant in operation for at least five years, settle its debts (including overdue labour costs, wages, social security contributions and taxes) and not reduce labour costs for three years after take-over.³⁶ In a July 2012 interview Delyan Dobrev, Minister of Economy, Energy and Tourism, declared that the company's bad shape was due to '20 years [of] bad management'. By this time the company had 145 million leva (over \$100 million) in debts and employed 3300 people.³⁷

V. Electron Progress: success on civil and military markets

Electron Progress was an MOD-affiliated research institute, part of the state-owned Electron Consortium and also one of the 'elite' companies in the Bulgarian military industrial complex of the past. It had a generous budget, a well-trained and versatile workforce and access to the latest technology, even during the period of cold war restrictions.³⁸ In the years after the change of political system a period of decay followed. Although the company remained state property, the state failed to properly manage and finance it. In 2001 Electron Progress went bankrupt. In 2002 Miltech, a private company that repre-

³² 'VMZ Sopot started works on new contracts', Guide Bulgaria, 12 Feb. 2010, <http://news.guide-bulgaria.com/SC/Plovdiv/Sopot/Sopot/News.aspx?8840=vmz_sopot_started_works_on_new_contractsnews.aspxnews.aspx>.

³³ According to Bulgarian television, the striking workers were fired but afterwards the firings was said to have been the result of a mutual agreement, which enabled the workers to register with labour bureaux and receive unemployment benefits. 'Top Bulgarian military plant VMZ Sopot fires scores of workers', Sofia News Agency, 16 Feb. 2010.

³⁴ 'Bulgaria probes managers of troubled military plant VMZ Sopot', Sofia News Agency, 25 May 2010.

³⁵ 'Minister eager to have US revive Bulgaria's defense industry', Sofia News Agency, 19 Sep. 2010.

³⁶ 'Bulgaria ready to sell arms manufacturer VMZ Sopot', *Sofia Echo*, 24 Feb. 2011.

³⁷ 'Minister Delyan Dobrev: There is no fear VMZ Sopot to be sold dirt-cheap', Focus News Agency, 10 July 2012, <<http://www.focus-fen.net/?id=f2947>>.

³⁸ After the end of World War II Western countries introduced an embargo on exports of arms and sensitive technology to Warsaw Pact members. The Coordinating Committee for Multilateral Export Controls (CoCom) was established to set the list of banned products and supervise the embargo's implementation. CoCom ceased to exist in 1994.

sented several transnational companies, including Lockheed Martin, bought the company. Privatization occurred via an open bid involving four competitors. For a long period the company's majority owner was Georgi Kroumov, a Bulgarian businessman with an impressive business network both inside the country and in the region.

After the ownership change, production was streamlined and the company's activities focused on integrating and engineering electronic and communications services, with a marked shift from production to system integration. The company continued to focus on software, design and system integration, and it changed its emphasis from the adaptation of foreign products to meet local needs with its own, customized products. Electron Progress developed products, often from scratch, in response to the specific needs of its customers. In a few years the company became one of the best IT companies in Bulgaria. Particularly at the beginning of the period of transformation, Electron Progress was a unique island of flexible, optimized production in the midst of a sector geared towards mass production.

Profile cleaning and adjusting were accompanied by rationalizing the company's assets, by renting the bulk of the unused administrative buildings to other enterprises, by shedding non-core production and by selling assets, including real estate and recreation facilities. Revenues were used to refurbish its administrative building, retrain personnel and invest in high-tech equipment. As a result of efficient in-depth restructuring, and despite a 75 per cent drop in employment, turnover increased twentyfold by 2005. Electron Progress's management considered human capital to be its most important asset and, instead of short-term financial considerations, it emphasized long-term development projects. In 2005 the company had 150 employees, all skilled. Many were former MOD employees, who had lost their jobs due to downsizing or had left because of dissatisfaction with their poor future prospects. Electron Progress offered higher than average wages, training opportunities and foreign assignments that enabled employees to gain experience abroad. The company carefully maintained a mix of older workers with long experience and traditional skills and freshly trained university graduates. Electron Progress helped its dismissed workers set up small-scale, specialized enterprises that retained a privileged relationship with the firm and became part of its emerging network of local subcontractors.

Electron Progress maintained professional and personal links with its main customer, the Bulgarian MOD, but also had important foreign markets in France, Germany and the USA. In 2005 military-related production represented 90 per cent of the company's output, but the management actively sought ways to diversify. Entry into commercial markets was not easy, and Electron Progress found the environment to be more competitive and demanding than its traditional military markets. Nevertheless, its flexibility, innovative approaches and ability to accurately target niche markets soon also led to success on civil markets. The Bulgarian Telecommunications Company (BTC) and local banks became its major civil partners.³⁹

³⁹ Pingelov, K., Managing director, Electron Progress, Interview with author, Sofia, 24 June 2005

Some of the company's projects were co-financed with funds from the EU. The EU's expanded 'Poland and Hungary: Assistance for Restructuring their Economies' (PHARE) programme financed two projects on 'competitiveness', and a personnel training project was conducted with EU funds from the Human Resources Development operational programme.⁴⁰ Since 2006 Electron Progress has assembled the latest generation of the Harris Corporation's radio communications equipment under an offset agreement. With the help of Miltech the assembly work developed into a strong partnership, and in 2008 Harris Corporation announced that Electron Progress would start manufacturing its Falcon III 'high quality technological radios' for the Bulgarian MOD and for sale in third markets.⁴¹

In a balanced mix of military and civil projects Electron Progress became involved in developing systems to address the problems in the city of Varna, a main tourist destination on the Black Sea. Varna had long struggled with an inadequate transport system and climatic difficulties (huge snowfalls in the winter and landslides in the summer). Electron Progress elaborated a comprehensive system that identified risks and monitored them by the use of sensors and also introduced an early-warning system to warn city authorities and citizens, and to mobilize a rapid-reaction response.⁴² Electron Progress continued working on the system it had created for BTC and adjusted it to meet the needs of the Bulgarian MOD, establishing the Strandja monitoring, early-warning and crisis management system.⁴³ Other company projects included the development of a communications jamming system, Comet, and a mobile coastal surveillance radar, Kaliakra; the establishment of a national military command centre; and the elaboration of projects in telemedicine.⁴⁴ The company also formulated several public-private partnership proposals with the government to share the risks and benefits of providing security.

According to a company presentation, Electron Progress was the first Bulgarian company to receive a NATO AQAP 2110 Certification (in 2003), the first to send its personnel to support Bulgaria's mission in Iraq, the first presented to the London Stock Exchange investors (in 2004), and the first to be awarded a NATO Basic Ordering Agreement (in 2005); it was also granted access to the NATO classified document registry.⁴⁵

⁴⁰ Electron Progress EAD, <<http://www.eprogress.bg/epsite/index.php?lang=en>>.

⁴¹ Miltech Ltd, 'Americans make radios in Bulgaria', 5 Feb. 2008, <http://www.miltech-bg.com/index.php?option=com_content&view=article&catid=1:2009-07-05-07-23-07&id=129:2009-09-02-10-51-24&Itemid=18>.

⁴² Pingelov (note 39); and 'Electron progress makes it to NATO', *Sofia Echo*, 12 Sep. 2005.

⁴³ Dimitrova, D., 'Defence Ministry to have new security system', *Europe Intelligence Wire*, 24 June 2005; and Electron Progress EAD, 'Military command centre', <<http://www.eprogress.bg/images/stories/presentation/CommandCenter.pdf>>.

⁴⁴ Electron Progress EAD, 'Electron Progress EAD: systems for early warning of the population with end-acoustic devices', Presentation, Sofia, 2011, <<http://www.eprogress.bg/epsite/images/stories/presentation/ews-en.pdf>>; and 'Workshop, dedicated to "prophylactic telemedicine" at the New Bulgarian University (NBU), with the participation of Electron Progress EAD', <http://www.eprogress.bg/epsite/index.php?option=com_content&view=article&id=41:-2011&catid=13&Itemid=24&lang=en>.

⁴⁵ Electron Progress EAD (note 44).

9. Romania: high ambitions, harsh realities and pragmatism

At the beginning of the process of transformation that took place after the end of the cold war Romania's economy was profoundly imbalanced. A corrupt and inefficient state machine owned the majority of the country's economic assets and controlled most aspects of economic, political and everyday life. Romania's economic difficulties during the 1990s culminated in a major crisis in 1998–99. However, a period of economic recovery followed that turned into rapid growth, driven by an investment boom and strong export performance, particularly in the areas of IT and motor vehicle production. The 2008 global economic crisis and unresolved, deep-rooted economic problems led to a dramatic fall in 2009, with a 7.2 per cent contraction of GDP. Trying to cope with the crisis, the government introduced radical austerity measures and borrowed large sums from the International Monetary Fund. Despite improvements, developments in Romania often negated each other. Growth was uneven, with significant dissimilarities between different regions, areas of production and different companies. The chaotic years of transformation increased inequalities: social cohesion was low, corruption was omnipresent, the political system was unstable and extremist political movements became influential in the country.

Following the ousting of Nicolae Ceaușescu in 1989, the *Frontul Salvării Naționale* (FSN, National Salvation Front), which advocated gradual economic reform, won a large majority in the 1990 presidential and legislative elections and its leader, Ion Iliescu, became president. Increasing social and political tensions led to the sacking of the Prime Minister, Petre Roman (FSN), in 1992. Iliescu's supporters formed a new party, the *Frontul Democrat al Salvării Naționale* (FDSN, Democratic National Salvation Front), which won the 1992 elections and formed a coalition government, headed by Nicolae Văcăroiu, together with the nationalist *Partidul Unității Naționale a Românilor* (PUNR, Romanian National Unity Party), the extreme nationalist *Partidul România Mare* (PRM, Greater Romania Party) and the *Partidul Socialist al Muncii* (PSM, Socialist Party of Labour). This shaky coalition reshuffled several times, then lost the 1996 elections to the *Convenția Democrată Română* (CDR, Romanian Democratic Convention) coalition, and Emil Constantinescu became president. The CDR invited the FDSN and the *Uniunea Democrată Maghiară din România* (UDMR, Democratic Union of Hungarians in Romania), representing the Hungarian minority, into the government. This coalition remained functional, despite three changes of prime minister, until the presidential elections in Novem-

ber 2000, when, owing to general dissatisfaction and economic hardship, Iliescu, now representing the Partidul Social Democrat (PSD, Social Democratic Party), beat the PRM candidate, Corneliu Vadim Tudor. Iliescu appointed the PSD's leader, Adrian Năstase, as prime minister. A period of relative political stability and economic growth followed, with increasing international integration.

In 2004 Traian Băsescu, a former leader of the Partidul Democrat (PD, Democratic Party), was elected president, while the leader of the Partidul Național Liberal (PNL, National Liberal Party), Călin Popescu-Tăriceanu, was appointed prime minister and formed a coalition government. In April 2007 the Romanian Parliament suspended President Băsescu on charges of unconstitutional conduct, but he was not impeached, thanks to a referendum that confirmed his position. After the November 2008 parliamentary elections the Partidul Democrat-Liberal (PD-L, Democratic Liberal Party) and the PSD formed a coalition with Emil Boc, leader of the PD-L, as prime minister. The government fell in October 2009, and in December Băsescu was re-elected in a close election, re-forming his government with Boc as prime minister. In February 2012 the Boc government resigned and Mihai Răzvan Ungureanu formed a government that lost a vote of no confidence in April. In May an interim coalition government of the social democrats (PSD), liberals (PNL) and conservatives (Partidul Conservator, PC), headed by Victor Ponta, was formed to lead the country until new elections, and Ponta was confirmed in his post after the elections of December 2012.

During most of the post-World War II period, Ceaușescu's harsh and unpredictable dictatorship and its chaotic aftermath caused Romania to be in a relatively marginalized position on the international scene, despite its economic significance and political ambitions. From the beginning of the systemic changes in East Central Europe, Romania was eager to change its image and find a place in the emerging new world order. In 1999 both Bulgaria and Romania became members of the Multinational Peace Force South-Eastern Europe Brigade (MPFSEE), under the auspices of NATO's Partnership for Peace programme. Romania began participating in the Iraqi occupation in July 2003, and in 2004 it became a member of NATO. In December 2005 the government signed an agreement that allowed troops from the United States to be stationed and trained at Romanian military facilities.¹ In January 2007 Romania joined the European Union, and in early 2007 the USA set up the Eastern Europe Task Force (now called Task Force-East), operating in Bulgaria and Romania and headquartered at the Mihail Kogalniceanu air base in Romania. The main purpose of the task

¹ Although it remained a member of the Warsaw Pact, from the late 1970s Romania did not allow the Warsaw Pact to use its territory for military purposes and it opposed the Soviet Union's invasion of Afghanistan.

force was joint combat training of troops from Bulgaria, Romania and the USA for the war in Afghanistan and other future missions. In April 2008 Romania hosted a NATO summit in Bucharest. The Prime Minister, Popescu-Tăriceanu, greeted the event as proof that the country had become an equal member of the international community.²

In July 2009 Romania's participation in the Iraq mission ended.³ However, Romania's Afghan contingent was increased, from 962 to more than 1500 soldiers, in response to a US plea to boost the number of international troops in that country.⁴ In the autumn of 2011 the government decided to withdraw the Romanian police force from Kosovo.⁵ As of April 2012 Romania had 1838 soldiers posted abroad, in NATO or other international military missions: 57 in Bosnia and Herzegovina, 61 in Kosovo, 1663 in Afghanistan, and another 57 in other locations.⁶

As expected, after Barack Obama was elected US president, the USA abandoned the idea of creating a missile defence radar system with bases in the Czech Republic and Poland. A new proposal emerged to establish several European land bases for a US-led NATO interceptor missile system to defend against a possible Iranian threat, and two military bases, one in Bulgaria and one in Romania, were selected for upgrading to accommodate the system.⁷ In a tour that served to finalize agreement on the proposal, US Vice President Joe Biden praised Poland and Romania as examples for the region. 'In Eastern Europe, there are countries still struggling to establish fully functioning democracies and vibrant market economies. . . . You can help guide Moldova, Georgia and Ukraine along the path to stability and prosperity.'⁸ In September 2011, during a trip by President Băsescu to the USA, Romania and the USA adopted a 'joint statement on a Strategic Partnership for the 21[st] Century' and signed an agreement on deployment

² Romanian Government Press Office, 'Address by PM Calin Popescu-Tariceanu at the assessment meeting of the Defence Ministry's 2007 activity', 8 Apr. 2008, <http://old.gov.ro/address-by-pm-calin-popescu-tariceanu-at-the-assessment-meeting-of-the-defense-ministry-s-2007-activity__12a77908.html>.

³ Romanian Ministry of National Defence, 'Historical landmarks', <<http://english.mapn.ro/historical/>>.

⁴ Perry, T., 'Romania shows its support for the U.S.-led mission in Afghanistan', *Los Angeles Times*, 19 Aug. 2010.

⁵ 'Romania to withdraw police officers from Kosovo', 27 Sep. 2011, B92, 27 Sep. 2011, <http://www.b92.net/eng/news/politics-article.php?yyyy=2011&mm=09&dd=27&nav_id=76582>.

⁶ Romanian Ministry of National Defence, 'Participation in international missions', 24 July 2012, <<http://www.mapn.ro/smg/eng/misiuni-internationale/>>.

⁷ The Mihail Kogalniceanu Air Base in Constanța, Romania, which could house 1600 US troops, was to receive an investment of \$50 million and the Novo Selo military training facility in Bulgaria was to receive \$60 million for the basing of 2500 troops. Robson, S., 'New bases in Bulgaria, Romania cost U.S. over \$100M', *Stars and Stripes*, European edn, 17 Oct. 2009.

⁸ 'Biden urges Central Europe to help guide fledgling democracies', Radio Free Europe/Radio Liberty, 22 Oct. 2009, <http://www.rferl.org/content/Biden_Urges_Central_Europe_To_Help_Guide_Fledgling_Democracies/1858597.html>.

of the missile shield (at the Romanian base in Deveselu), which Băsescu called ‘beneficial not only for Romania but also to European countries’.⁹

I. Defence industrial policy

During the 1990s Romanian government agencies intended to keep the defence sector intact and under state control, but limited resources and inconsistent and inefficient policies hampered these efforts. Arms sales plummeted, and arms manufacturers often sold their products on grey and black markets in order to improve their financial situation. The 2002 NATO summit meeting in Prague, at which Romania was invited to join the alliance, became a turning point. In the framework of NATO’s Membership Action Plan (MAP) the government launched a defence establishment reform that included the armed forces, the intelligence agencies, the arms industry and the Ministry of Administration and Interior.

Năstase’s government had assumed power in 2001 with the aim of stabilizing Romania’s economy and accelerating its entry into the EU and NATO. The invitation to join NATO and the country’s new international status had a catalysing effect on the defence-related sector. The government increased defence spending and prioritized a group of development projects. It aimed to revamp the arms industry to enable it to integrate sophisticated imported technologies and produce equipment for the restructured Romanian armed forces. While the government intended to reduce the number of arms industry employees from 45 000 to 18 500 by 2004, most of the dismissed workers were to receive compensation from the state. The government’s plans envisaged the reorganization of the companies to create ‘production modules that will function as cost centres’ and to separate production into defence, civil and auxiliary divisions.¹⁰ The government pledged to place more orders with domestic producers, after more than a decade of predominantly foreign procurement. The 16 most important defence-related companies were transferred from the Ministry of National Defence to the Ministry of Industry and Resources (MIR) in the hope that separating the sellers from the buyers would improve their performance. The new policy led to protests by workers and trade unions, culminating in a series of strikes and clashes with the police in the summer of 2002. Workers blocked the town of Cugir, a traditional stronghold of weapon production.¹¹ As in Poland, the Romanian trade unions played an important

⁹ ‘Romania president’s visit to Washington leads to key missile shield accord, strategic partnership declaration’, *Romanian Business News–ACTmedia*, 15 Sep. 2011.

¹⁰ Tudor, R., ‘Romanian prime minister’s plans for industrial revival’, *Jane’s Defence Weekly*, 13 Sep. 2002.

¹¹ ‘Romanian defense industry workers protest’, *Southeast European Times*, 6 Aug. 2002, <http://www.setimes.com/cocoon/setimes/xhtml/en_GB/features/setimes/newsbriefs/2002/08/020807-IVAN-003>.

role, representing the employees' interests, fighting massive layoffs and leading the protests against the plans.

In 2004 the government reformulated its policy directives, giving the arms industry an important role in the country's future economic development. It planned to privatize 12 major operators that reported to the Ministry of Economy, Trade and the Business Environment, through the sale of shares on the stock exchange, and to revamp the rest. The government planned to set up business incubators to assist dismissed military personnel to set up new businesses in the towns with the highest number of redundant military staff (Sibiu and Timisoara).¹² Few of these ambitious proposals succeeded, and the sector remained notoriously inefficient. In the late 2000s several major arms producers still needed direct financial support from the state to ensure their everyday survival. In 2007, for example, the government granted 29.8 million lei (\$12.2 million) in wage subsidies to Avioane Craiova, Romarm (a large holding company) and Uzina Mecanică Oraştie for renovation and upgrading. It justified the measure by 'the strategic importance of [the] defense industry, which should be maintained at an appropriate level, regardless of the level of military orders for procurement'.¹³

A 2007 government document stressed that the restructured arms industry should be oriented towards equipping NATO forces and establishing partnerships with prestigious international companies. Civil production would replace military production at some converted facilities, while new, updated technology would modernize other facilities. The key difference from previous defence industrial policy guidelines was that privatization became a key element in achieving these goals.¹⁴ The sector's importance was confirmed, but the new policy acknowledged that economic constraints limited governmental involvement. In early 2008 at a meeting with MND representatives, the Prime Minister, Popescu-Tăriceanu, confirmed the priority of economic considerations: 'national defence is a priority itself within the framework and limits allowed by our economic development'. He also called for more efficiency and creativity in management of the ministry.¹⁵

In early 2011 the MOE announced that it would write off €234.7 million (\$326 million) worth of debts owed by defence industrial companies in

¹² 'Measures provided by the governing program for 2004', Nine o'clock, 25 Jan. 2004.

¹³ Romanian Government Press Office, 'This year, the companies from the defense industry will be supported to pay the salary rights to a maximum number of about 2.625 employees compared to last year, reduced by 472 people compared to last year, according to a Decision adopted today by the Executive.', 28 Feb. 2007, <http://old.gov.ro/this-year-the-companies-from-the-defense-industry-will-be-supported-to-pay-the-salary-rights-to-a-maximum-number-of-about-2-625-employees-compared_12a76957.html>.

¹⁴ Romanian Government Press Office (note 13).

¹⁵ Romanian Government Press Office (note 2).

order to improve their economic and financial situation. The MOE's document cited an EU norm allowing the protection of national military interests and argued that foreclosing company assets would significantly hamper the production capacity of the sector. The affected companies included Avioane Craiova, Constructii Aeronautice, IAR Braşov, IOR Bucureşti, Şantierul Naval Mangalia (Mangalia Shipyard), Romaero Bucureşti, Romarm and its subsidiaries, and Uzina Mecanică Orăştie.¹⁶ Despite efforts to privatize arms production (discussed below), state agencies continued to micromanage the sector, elaborating development projects, providing financial bail outs and interfering in daily management. In early 2011, in order to carry out restructuring, privatization, estate administration and other activities, the government announced a 7 per cent increase in the number of defence industrial employees.¹⁷

Despite mounting financial difficulties, government agencies promoted the development of new products, particularly those related to the participation of Romanian armed forces in foreign missions, such as armoured vehicles, UAVs, individual protection equipment and command-and-control systems.¹⁸ At the 2011 International Exhibition for Military Equipment (Expomil) the executive director of the Asociația Patronala Română a Producătorilor de Tehnică Militară (PATROMIL, Romanian Business Association of the Military Technique Manufacturers), Viorel Manole, noted that future developments would include cybernetic defence, spearheaded by companies such as UTI Systems or Romsys. A representative of the MOE declared that the government intended to promote CBRN products and envisaged cooperation with Czech and Slovak companies in this endeavour.¹⁹

Romanian decision makers seemed convinced that arms industry promotion was an efficient crisis-solving tool. In March 2011 the Minister of National Defence, Gabriel Oprea, celebrated the launch of the 8x8 APC national programme at the Uzina Automecanică Moreni (Moreni Auto

¹⁶ 'Romanian state wants to write off debts of defense industry companies', Romania Insider, 13 Feb. 2011, <<http://www.romania-insider.com/romanian-state-wants-to-write-off-debts-of-defense-industry-companies/18833/>>. According to data provided by the Ministry of Public Finance, the cumulated debt of these companies to the state budget reached 917.4 million lei (\$301 million) in 2009. 'Government prepares to erase defence industry companies' public debts', Nine o'clock, 15 Feb. 2011, <<http://www.nineoclock.ro/government-prepares-to-erase-defence-industry-companies-public-debts/>>.

¹⁷ In 2010 the government reduced the maximum number of employees in the defence sector by around 300 to 1655. Tudor, I., 'Average no. of employees in Romanian defense industry may increase by 7% in '11', Mediafax, 20 Jan. 2011, <<http://www.mediafax.ro/english/average-no-of-employees-in-romanian-defense-industry-may-increase-by-7-in-11-7906220>>.

¹⁸ Mişu, C. and Tudose, M., 'Collaborations internationales pour l'industrie de défense' [International collaborations for the defence industry], Radio Romania International, 2 Sep. 2008, <<http://old.rrr.ro/arh-art.shtml?lang=6&sec=75&art=14437>>.

¹⁹ "'Expomil 2011' aims to identify opportunities for development of military equipment', *Bursa*, 22 Sep. 2011.

Mechanical) plant. He declared that ‘The Romanian troops need a 21st century-level ordnance ... In MoND we have experts, we have resources for research and development in armoured vehicles and we also have political will. [The] “8x8 Armoured Personnel Carrier” program is the first one designed to renew the national defence industry’ providing the ‘Romanian Armed Forces with an efficient ... internationally competitive’ product that can also ‘be exported for the Romanian State’s benefit’.²⁰ Oprea stressed the value of the government’s 2010 ‘Order no. 38’ to support the national defence industry: ‘This decision was a lifesaver for many economic agents and Moreni Auto Mechanical Plant, which received 5,000 tons of used-up ordnance to be deconstructed, was one of them.’ The free transfer of this material helped in ‘keeping the job of the highly qualified specialists and preserved the production installations for the coming years’.²¹ In November 2011 Romarm’s CEO, Vasile Crişan, mentioned that the MND had also launched a new ‘national programme’ to aid in Romaero Bucureşti’s development of a UAV and the development by Romarm’s Uzina Automecanică Moreni of an 8x8 APC and by Uzina Mecanică Cugir of an 5.56-mm calibre assault rifle.²²

The unfolding economic crisis, nevertheless, set a limit on ambitious development projects. In May 2012 Mircea Tantau, head of the Directorate for the Defence Industry and Special Matters of the MOE, said that the directorate has prepared a strategy and programme for the reorganization of the arms industry until 2020. He noted that ‘The Romanian Government does not have much money to invest in this sector, and that is why we have rethought the organisation of the defence industry’. Tantau also declared that the sector had 7500 employees and further layoffs were ruled out.²³

With the country’s increasing international integration, external factors started to play a greater role in shaping domestic defence industrial policy. Foreign governments directly intervened to influence major procurement decisions. In 1997 a \$1.4 billion contract with Bell Helicopter Textron to purchase 96 Cobra attack helicopters was cancelled when the IMF declared that Romania’s economy could not bear the burden of the acquisition.²⁴ Under its private sector adjustment loan with Romania, the World Bank strongly advocated privatization and conversion of defence-

²⁰ Romanian Ministry of National Defence, “‘8x8 armoured personnel carrier” national program launched at Moreni Auto Mechanical plant’, *Romanian Military Newsletter*, no. 5 (29 Mar. 2011), p. 3.

²¹ However, the next sentence refers to the amount of recyclable material as ‘50 000 tons’. Romanian Ministry of National Defence (note 20).

²² Olescu, E., “‘Romarm’ is no longer being monitored by the IMF”, *Bursa*, 17 Nov. 2011.

²³ ‘Romania could export armoured vehicles to South America’, *Romanian Business News-ACTmedia*, 18 May 2012.

²⁴ The deal, actively promoted by the Clinton administration, was also opposed by Daniel Dăianu, then Romania’s Minister of Public Finance, who was sacked to clear the way for the purchase. Perlez, J., ‘At I.M.F.’s urging, Romania shelves copter deal’, *New York Times*, 13 Sep. 1997.

related firms.²⁵ In August 2011 the European Commission and the IMF mission to Romania suggested reforming state-owned enterprises, including the ‘sale of majority or minority stakes in some companies and the introduction of professional private management’.²⁶ In an October 2011 meeting with the Secretary General of NATO, Anders Fogh Rasmussen, Oprea stressed that Romania would contribute to NATO missions, despite the financial constraints related to the global economic crisis.²⁷ The need to meet EU, IMF or NATO criteria became a leitmotif even at the company level. When discussing the company’s restructuring, Romarm’s CEO talked about ‘the model promoted by Brussels’.²⁸ Catalin Moraru, the Deputy Head of the Armament Department of the MND, stated ‘We want it to be a lean, viable company that would handle competition with the other players in the country and abroad, without state aids. If we do not succeed in building a company that meets the requirements of the IMF, I am going to hand in my resignation’.²⁹

Privatization

Like Poland, Romania has long struggled with the dilemma of privatization in the arms industry. While the government was keen to preserve the key defence-related assets, it also wanted to attract foreign capital, technology and cooperation. In the early 1990s a handful of arms-making companies were sold to domestic private owners, but the process of privatization proceeded slowly. In the end, a two-track solution was proposed: in 2000 the government grouped key domestic producers in the state-owned Romarm holding company; and it allowed privatization of other companies. Simultaneously, foreign private investors were encouraged to set up joint ventures with Romanian partners, particularly in the aviation industry.

The government created Romarm with the intention that the holding company would remain state-owned and carry out the government’s defence industrial policy. Its creation proved to be more a protective than a stimulating measure. Instead of carrying out restructuring, enterprises strove to remain in or become members of the group because state agencies regularly intervened on behalf of the holding company’s firms. Other companies had to struggle for survival and several went bankrupt. Romarm

²⁵ Perry, C. and Keridis, D. (eds), ‘Romania’, *Defense Reform, Modernization, and Military Cooperation in Southeastern Europe* (Potomac Books: Dulles, VA, 2004), p. 123.

²⁶ European Commission, ‘Statement by the EC and IMF on the review mission to Romania’, MEMO/11/545, 1 Aug. 2011, <http://europa.eu/rapid/press-release_MEMO-11-545_en.htm>.

²⁷ Romanian Ministry of National Defence, Press Release no. 132, 10 Oct. 2011, <http://english.mapn.ro/cpresa/3595_Press-Information>.

²⁸ Olescu, E., ‘The strategy for the restructuring of “Romarm” does not rule out privatization’, Interview with Vasile Marius Crişan, CEO of Romarm, *Bursa*, 30 Sep. 2011.

²⁹ Olescu, E., ‘The domestic defense equipments look exceptional, but they are built with logistics from the 1920s’, *Bursa*, 21 Sep. 2011.

itself functioned as a slightly reformed classic SOE; despite some restructuring efforts that included internal reorganization and the sale of some companies, the holding company could not become the driving force of the sector's transformation.

In the early 2000s privatization was primarily seen as a revenue-generating tool. Iliana Decebal, who oversaw arms production at the MIR, declared that 'Privatisation of these defence companies is the best solution to make them profitable'.³⁰ After the government failed to sell some of the less important firms, it chose to put 12 large promising firms on the market, including IAR Braşov and Romaero Bucureşti, two of the best performing Romanian arms producers. However, the government's stringent conditions again led to failure: the companies were not sold. In 2003 four modest-sized, not particularly outstanding Romarm companies were offered for sale but also did not attract serious bidders.³¹

In June 2004 the government announced a privatization initiative to sell additional arms industry firms, including 15 companies belonging to Romarm. The plan was to reorganize and restructure the companies by separating defence-related and civil activities, and to create joint ventures between Romarm's subsidiaries and private foreign firms, followed by the gradual sale of Romarm's shares. A potential buyer had to preserve the profile and maintain the production facilities of a company. The government planned to use the revenues from sales to pay the companies' debts to the state and local authorities, and to invest in environmental protection projects.³² During the 2005 Expomil, government officials announced that various Romarm companies had captured the interest of powerful foreign companies, such as Rheinmetall, Steyr, Glock and Day & Zimmermann, and privatization contracts were expected to be concluded in 10 to 18 months.³³ However, of the 23 companies offered for sale in the privatization initiative, only 7 were sold. In July 2006 a leading Romanian manufacturer of equipment for industrial automation, Retrom Pascani, bought another company, Uzina Mecanică Filiasi, a manufacturer of arms and ammunition.³⁴

In 2006 Romanian authorities declared that by 2007 the arms industry would be completely privatized. According to Aurel Cazacu, Director of the

³⁰ Tudor, R., 'Industry round-up: Romanian defence industry exports rising', *Jane's Defence Weekly*, 21 Nov. 2001, p. 20; and 'Romania sees arms sales double', *Jane's Defence Weekly*, 28 Mar. 2003.

³¹ Bodolan, C., 'Companies in defence sector—put out on the market', *Nine o'clock*, 27 Oct. 2003, p. 6.

³² Tudor, R., 'Romania looks to privatise defence industry', *Jane's Defence Weekly*, 23 June 2004, p. 23.

³³ Bulandra, J., 'Romanian arms industry looking for foreign partners', *Romanian Daily*, 13 Oct 2005, <<http://romaniandaily.ro/cat30760/art3659050086/>>.

³⁴ Tudor, R., 'Romanian defence industry sector begins privatisation drive', *Jane's Defence Weekly*, 26 July 2006; and 'Romanian arms factory sold for 1.4 mln euros', *HotNews.ro*, 18 July 2006, <<http://english.hotnews.ro/stiri-archive-1753293-romanian-arms-factory-sold-for-1-4-mln-euros.htm>>.

MOE's Defence Industry Division, five Romarm companies—the relatively prosperous Arsenal-Resita and Electromecanica Ploiești (each with important potential foreign buyers), an R&D institute, Uzina Automecanică Moreni and Metrom in Brașov—were already at an advanced stage of the privatization process. Romaero and Avioane Craiova were also on the threshold of privatization, and the government was about to announce the bid for the Mangalia Shipyard. Potential buyers were expected to keep the defence-related profile and avoid employment cuts.³⁵

In the summer of 2008 the Romanian privatization agency, the Autoritatea pentru Valorificarea Activelor Statului (AVAS, Authority for State Assets Recovery), announced that several large defence-related companies, including Avioane Craiova (Romania's sole helicopter maker), IAR Ghimbav, IOR București and Arsenal-Resita were to be sold during the year. Most firms would be sold through public bids or direct negotiation, but in some cases AVAS would try to sell its minority stake on the stock market.³⁶

After having written off the outstanding debts of the defence-related companies in April 2011 the MOE announced a plan to privatize 25 per cent of the companies under its control, including key energy companies and arms producers such as Avioane Craiova, Romarm and IAR Brașov. Later the MOE specified that only loss-making firms would be privatized. The Minister of Economy, Trade and the Business Environment, Ion Ariton, presented a new government proposal to hire private managers to run state-owned companies. He declared that 'private management for some of our subordinate companies will bring even better economic results and will give confidence to the investors'.³⁷ In September the MOE announced that a consortium of three consulting firms had won the bid of €600 000 (\$834 000) per year for the ministry's State CEO programme. The consortium's job was to prepare documentation to ensure a transparent and efficient reporting system and help the ministry select the executive search companies to recruit managers for several state companies.³⁸ According to a draft law, the salaries of the managers of these privatized SOEs would be

³⁵ 'Roumanie: privatisation de l'industrie de l'armement' [Romania: privatization of the arms industry], Roumanie.com, 18 Aug. 2006, <http://www.roumanie.com/Entreprises_roumaines-privatisation_industrie-armement_helicopteres_avions_pieces_equipement_armee-A1354.html>.

³⁶ 'Romania eyes selling large cos in '08-Official', Mediafax, 20 July 2008, <<http://www.mediafax.ro/english/romania-eyes-selling-large-cos-in-08-official-2797780>>.

³⁷ 'Private management for 25 pc of Economy Ministry's subordinate companies', Nine o'clock, 17 Apr. 2011, <<http://www.nineoclock.ro/private-management-for-25-pc-of-economy-ministry-s-subordinate-companies/>>; and 'Romanian Economy Min. wants to hire private managers for state companies with losses', Romania Insider, 28 Apr. 2011, <<http://www.romania-insider.com/romanian-economy-min.-wants-to-hire-private-managers-for-state-companies-with-losses/22693/>>.

³⁸ The firms were the Danish executive search company Pedersen & Partners, the consulting firm Roland Berger and the law firm Nestor Nestor Diculescu Kingston Pedersen (NNDKP). 'Pedersen & Partners, Roland Berger, NNDKP win first bid for Romania's "state CEO" program', Romania Insider, 19 Sep. 2011, <<http://www.romania-insider.com/pedersen-partners-roland-berger-nndkp-win-first-bid-for-romania-s-state-ceo-program/34919/>>.

equivalent to 45 average salaries—240 000 lei (\$78 000) per month—and they would also receive a percentage of the company's net profit.³⁹

In June 2011 the government announced the launch of a new round of privatizations, hoping to revive the economy by offering minority stakes in energy companies. These companies, similar to arms manufacturers, had previously been considered of strategic importance and kept out of privatization efforts.⁴⁰ In May 2012 Mircea Tantau declared that only the strategic capacities, 7 of Romania's 22 weapon and military equipment producing companies, will be preserved; the rest will be privatized. At the strategic companies (producers of explosives, explosive powders, ammunition and weapons) and at three maintenance centres (for armoured vehicles, aviation and watercraft) the state will remain the majority shareholder. Military production capacities will be separated from other assets and the latter will be put up for privatization.⁴¹

Privatization projects and the costly idea of hiring 'professional' managers were as unsuccessful as most of the state's defence industrial policy. Despite large-scale and continuous government backing and the emergence of some 'islands of excellence', the bulk of the sector continued struggling with fundamental structural problems. Romarm's Crişan summarized the situation: 'We had a customer who was interested in one of our products and he told me: "The products look exceptional, but they have been made with logistics and tools from the 1920s."' ⁴²

Joint ventures

The second track for encouraging private entrepreneurship, the creation of joint ventures and foreign cooperation projects that was actively encouraged by the authorities since the late 1990s, proved to be more successful than outright privatization. In some cases, joint upgrade projects or cooperative efforts evolved into joint ventures and, in a few cases, joint ventures were formed through the sale of assets. Most joint ventures were in the aviation sector, a relatively autonomous segment of the economy whose companies had enjoyed relative freedom (see appendix 9A, section III), although from the 2000s joint ventures also became more common in other branches. In several cases, in production of small arms

³⁹ 'Private managers at state-owned companies to be paid some EUR 50,000 per month', Nine o'clock, 13 Sep. 2011, <<http://www.nineoclock.ro/private-managers-at-state-owned-companies-to-be-paid-some-eur-50000-per-month/>>.

⁴⁰ Buckley, N., 'Basescu: Romanian privatisation will kick start economy', *Financial Times* beyond-brics blog, 7 June 2011, <<http://blogs.ft.com/beyond-brics/2011/06/07/basescu-romanian-privatisation-will-kick-start-economy>>.

⁴¹ 'Romania's defence industry downsized from 22 to 7 companies that include strategic capacities', *Romanian Business News—ACTmedia*, 17 May 2012.

⁴² Olescu (note 29).

and light weapons, for example, joint ventures were set up in the part of a company that produced civil products. The joint ventures with Elbit Systems Systems, Eurocopter, DaimlerChrysler and other transnational corporations exemplify some of the few success stories.

One of the first cooperation contracts, in June 1999, was between Aerostar in Bacău and Thomson-CSF Communications (a subsidiary of Thomson-CSF) to form the joint venture Aerothom Electronics for the production of IFF equipment in Bacău.⁴³ Joint ventures and cooperation projects multiplied after Romania joined NATO, in part in response to repeated warnings by Romanian authorities that foreign suppliers could only win procurement tenders if they teamed up with domestic producers. Thus, setting up joint ventures was sometimes part of a sales offensive. In 2008, hoping to participate in the modernization of the Romanian armed forces, both Saab and Alenia Aeronautica sought to form a company with Avioane Craiova. In another joint venture, Alenia signed a cooperation agreement with Aerostar (Bacău), among others, for the Eurofighter Typhoon programme—in the event that the Romanian Air Force chose the aircraft. Aerostar (Bacău) also set up a joint venture with US-based Textron, to produce armoured vehicles, with the prospect of a Romanian bid for 800 armoured vehicles.⁴⁴

International cooperation agreements were often perceived as an introduction to the establishment of joint ventures and frequently involved multiple partners—foreign and domestic, state-owned and private. Romarm's APC modernization project, for example, involved Thales, Renault Trucks Défense, Rheinmetall and Elprof, the largest, privately owned Romanian electronics manufacturer. Electromecanica Ploiești, which was partially owned by Romarm, produced Eurospike anti-tank missiles in a partnership with a European consortium.⁴⁵ Once they had entered the Romanian market, foreign companies often conducted a wide range of both military-related and civil activities with a variety of domestic partners. BAE Systems transformed civil aircraft into military ones together with Romaero in Bucharest; carried out a similar cooperation project with Aerostar (Bacău) that involved Avioane Craiova as a subcontractor; and cooperated with Intrarom, a private Greek–Romanian communications systems producer, and Romarm's ammunition-producing firms. By using available production assets in an innovative way, cooperation projects led to the

⁴³ Kogan, E., *Southeastern European Defence Industry: International Cooperation and Market Opportunities*, Conflict Studies Research Centre, Balkans Series 05/06 (Defence Academy of the UK: Camberley, Feb. 2005).

⁴⁴ 'Alenia Aeronautica and Aerostar S.A. sign a memorandum of agreement for future collaboration in the aerospace field', *Defense World*, Oct 22, 2008, <<http://www.defenseworld.net/news/1713>>; and 'Textron to manufacture armored vehicles in Romania: will form joint venture with Aerostar', *Agence France-Presse*, 9 Apr. 2010.

⁴⁵ 'Romanian defence industry aims to match NATO, EU standards', *Rompress*, 23 Oct. 2005.

introduction of new production profiles. The Fabrica De Maşini Grele Speciale (FAUR, Bucharest Mechanical Plant tank and ammunition producer) in Bucharest upgraded the TR-85 M1 Bizonul (Bison) main battle tank together with EADS and Sagem and started to produce a minesweeper with the British company Pearson.⁴⁶

Building on the positive results of its upgrade projects, the Israeli company Elbit Systems constructed a network of factories in Romania. Elbit and its subsidiaries A-E Electronics, Elmet International and Simultec employed approximately 400 workers and cooperated with IAR Braşov, Avioane Craiova, Aerostar (Bacău) and other Romanian manufacturers. One of the most successful Elbit subsidiaries, Simultec, built flight simulators using imported technology, both for the Romanian market and for export. Elbit also collaborated with Electromecanica Ploieşti to convert non-guided missiles into guided missiles; with Aerostar (Bacău) to modernize MiG-21 Lancer aircraft and with Avioane Craiova to transform the IAR 99 Şoim aircraft into a training aircraft. Together with Textron Marine & Land Systems, Aerostar (Bacău) produced armoured vehicles for the Romanian Army.⁴⁷

II. The arms industry

After World War II, particularly under Ceauşescu's dictatorship, the Romanian arms industry developed vigorously and provided a large-scale and comprehensive arms-production base that was not dependent on either the Warsaw Pact or the Western world, but which cooperated with both. Romania remained a formal member of the Warsaw Pact until its dissolution in 1991, but it did not participate in joint missions and displayed its independence by every possible means, including by developing an indigenous arms industry. In the late 1980s the Romanian arms industry had more than 100 companies, employed nearly 200 000 workers, and was one of the principal export sectors. It met 85 per cent of the procurement needs of the Romanian armed forces and generated nearly \$1 billion in export revenue annually, placing Romania among the world's top arms exporters.⁴⁸

The political changes in East Central Europe unsettled the Romanian arms industry, which deteriorated during the 1990s. The regular assistance provided by state agencies prevented a major collapse but was insufficient

⁴⁶ Mihiu and Tudose (note 18).

⁴⁷ Mihiu and Tudose (note 18); and Elbit Systems, 'Elbit Systems to upgrade Romanian air forces' C-130 transport aircraft under contract valued at \$18.6 million', Press release, 24 May 2011, <<http://ir.elbitsystems.com/phoenix.zhtml?c=61849&p=irol-newsArticle&ID=1567001>>.

⁴⁸ 'The defense industry of Romania on the brink of privatisation', Ministry of Industry and Resources, Mar. 2003, <http://www.fdi.net/documents/WorldBank/databases/plink/romania/defense_industry.pdf>.

to stimulate much-needed change. The industry struggled not only with technological deficiencies and inefficiency, but also with lack of funds and markets. By 2001 defence industrial output stood at approximately 10 per cent of the record output of 1989, and MND orders accounted for only 5 per cent of the 1989 output. Arms exports also suffered large losses since most of the country's traditional weapon buyers were under EU or United Nations embargo or had begun to purchase NATO standard equipment. In 2000 exports reached \$30 million and in 2002 approximately \$40 million.⁴⁹

In the early 2000s, after the Năstase government launched a proactive defence industrial policy, output increased slightly, from \$87 million in 2001 to \$118 million in 2002. However, in 2003 only 18 per cent of the sector's production capacity was in use.⁵⁰ Despite improvements, restructuring projects failed to be carried out and the pace of change remained slow. In 2004 the sector still employed 25 000 workers but only exported \$28 million worth of weapons—both far below the declared government targets. Even key arms makers sought to increase their civil production, although few completely ended their defence production. Uzina Mecanică Cugir, a key arms and ammunition producer, for example, established several cooperation projects with important international manufacturers of civil products (see appendix 9A, section II). Another major Romarm company, Tohan Zarnesti, built a modern facility to produce bicycles with a German partner but did not cease to produce ammunition.

According to a study by the Siteco Plopeni trade union, in 2006 Romania produced only 10 per cent of what its arms industry could generate, and changes in the sector had not been focused on weapons and military equipment.⁵¹ Many companies dismantled equipment and sold it as scrap, and real estate developers sought to acquire their valuable property. The state provided 'laughable amounts for investments in the sector, in the region of [5 billion lei (\$1.78 billion)] for all the 17 companies controlled by Romarm', and proposed "'great management ideas", industrial parks and projects that take a long time until implemented'. The privatization policy proved to be a failure. The union's leader, Mircea Voinea, noted that 'nobody rushes to do it given the debts of billions of [lei], the old staff and the long-standing state control'.⁵² Although government sources usually presented a strikingly different and optimistic image of the sector, both state officials and the trade unions proposed the same solution for the sector's ills: the creation of joint ventures with major international companies.

⁴⁹ Tudor (note 30); and 'Romania sees arms sales double' (note 30).

⁵⁰ 'Gondokkal küzd a hazai fegyvergyártás' [Domestic arms-making is in trouble], *Új Magyar Szó*, 24 Jan. 2006.

⁵¹ 'Unions: defence industry works at 10 pc of its capacity', Romanian Daily, 21 July 2006, <<http://romaniandaily.ro/cat30760/art8562480152/>>.

⁵² 'Unions: defence industry works at 10 pc of its capacity' (note 51).

According to PATROMIL's Viorel Manole, in 2009 the Romanian arms industry sold approximately €100 million (\$140 million) worth of military products. Half of the sector's output was exported, and the other half was sold on the domestic market. Fifty per cent of exports went to EU countries, mostly subassemblies and subsystems that were integrated into more sophisticated systems. The non-NATO standard products were sold to countries such as Algeria, Egypt and Iraq.⁵³ The sector's outstanding products that had good potential for export included armoured vehicles, high-tech ammunition, the STAR 80L and CA-95 anti-aircraft weapons, the Gap Filler radar, mini UAVs, and some communications, computer and electro-optical equipment.⁵⁴ In 2011 Romania exported weapons worth €131 million (\$182 million), the main buyers being the USA, Morocco, Afghanistan and the EU.⁵⁵

Defence industrial companies

Defence industrial companies in Romania consisted of five main groups: (a) the large-scale traditional defence firms that were reorganized under the umbrella of the state-owned Romarm holding company, (b) the SOEs that were not selected to become Romarm members but transferred to AVAS for later privatization, (c) privatized former SOEs that were purchased by principally domestic entrepreneurs, (d) joint ventures that united private foreign owners and Romanian SOEs, and (e) emerging new private companies.

Large traditional defence firms reorganized under Romarm

Romarm, the state-owned holding company under the supervision of the MIR, united the core 15 traditional arms producers of the country and one R&D institute. At its establishment in 2000 Romarm employed approximately 30 000 people and its firms produced a wide range of weapons: armoured vehicles on wheels and tracks, APCs and other specialized military vehicles; artillery systems, infantry weapons and ammunition for both; missile systems and missiles; and radio-location, communications, optical, electronic and aviation equipment. Romarm was expected to become an economic growth engine, but it was a sluggish and inefficient organization, unable to accomplish its own goals or push its member com-

⁵³ 'Arms industry sold military products of 100 million euros in 2009', Romanian Business News-ACTmedia, 12 Nov. 2009.

⁵⁴ Cicovschi, A., 'Privatization of the defense industry has developed entrepreneurship', *Curierul National*, 12 Apr. 2010; and "'Expomil 2011' aims to identify opportunities for development of military equipment', *Bursa*, 22 Sep. 2011.

⁵⁵ 'Romania exports Eur 131 mln of weaponry to US, Netherlands, Morocco', Romania Insider, 28 May 2012, <<http://www.romania-insider.com/romania-exports-eur-131-mln-of-weaponry-to-us-netherlands-morocco/57885/>>.

panies to react to the new challenges. In 2010 a new general manager, Vasile Crişan, was appointed; he changed the upper management and introduced a series of measures to improve performance. As of September 2011 Romarm had 5400 employees. According to Crişan, in three years exports, which represented about 90 per cent of total output, had increased by 70 per cent. The main markets were Asia, the Middle East and the USA. From 2009 to 2010 Romarm managed to increase its turnover—from 270.5 million lei (\$89 million) to 321 million lei (\$101 million)—and to slightly diminish its losses—from 126.5 million lei (\$41 million) to 119.3 million lei (\$38 million).⁵⁶ In June 2012 Crişan was dismissed, having been charged with incompetent management and causing damage to the arms industry (on Romarm, see appendix 9A, section I).⁵⁷

Romtehnica, another key player and independent of Romarm, was a principal arms trade and defence consultancy firm that sold both currently produced equipment and older equipment from company and armed forces depots. It handled approximately 90 per cent of Romania's defence procurements and was a key actor in arranging offset deals. It remained under MND supervision and was not scheduled to be privatized.

State-owned enterprises transferred to AVAS for later privatization

The group of state-owned firms awaiting privatization consisted mostly of aviation firms, like Avioane Craiova, IAR Braşov, IOR Bucureşti, Romaero Bucureşti and Rompiro Orăştie. Some specialized companies, like the Mechanical Factory for Armament (MFA) Mizil, a major heavy weapon producer, or the Mangalia Shipyard and a group of minor equipment producers (e.g. the mechanical works at Mârşa, Drăgăşani, Băbeni and Filiaşi) also belonged to this group, which was very heterogeneous with firms of different size, profile and performance.

One of the best performers was MFA Mizil in Prahova, which specialized in the manufacture of tracked armoured vehicles, heat and thermo-chemical treatment of steel, and equipment for the oil industry. The MND awarded the firm an estimated \$290 million contract to upgrade 180 MLI-84M infantry fighting vehicles that would be assigned to Romania's contingent in the NATO Response Force. MFA Mizil also manufactured OWS-

⁵⁶ Olescu, E., 'The strategy for the restructuring of "Romarm" does not rule out privatization', Interview with Romarm's general manager, Vasile Crişan, *Bursa*, 30 Sep. 2011.

⁵⁷ 'Romarm has paid some of the outstanding wages: the unionists of the gunpowder plant of Făgăraş have stopped the protests until June 27th', *Bursa*, 18 June 2012; and 'În urma unor scandaluri privind afaceri dubioase: directorul general al Companiei Romarm a fost demis' [After some questionable business scandals: Romarm CEO was fired], *Cotidianul.ro*, 9 June 2012, <<http://www.cotidianul.ro/directorul-general-al-companiei-romarm-a-fost-demis-185384/>>.

25R turrets for the MLI-84M vehicles, and 4x4 armoured wheeled and tracked vehicles in cooperation with foreign companies.⁵⁸

Privatized former state-owned enterprises purchased by domestic entrepreneurs

In 2003 Romania had 11 privatized former traditional producers, mostly in avionics, including Aerofina in Bucharest, Aerostar in Bacău, Aeroteh in Bucharest, and Condor in Bucharest; and special machinery and ammunition, including Electromagnetica, IEMI, Metav, Turbomecanica in Bucharest, Celohart in Zărnești, Nitramonia in Făgăraș, and Romcarbon in Buzău.⁵⁹ Some of these companies became rather successful, while others continued to struggle with the general difficulties of the sector—lack of funds and markets and outdated technology.

A handful of these companies benefited from the catalysing impact of the aviation cluster of companies, and a few firms succeeded in other branches. Pro-Optica in Bucharest, for example, was a successful privatized defence firm that produced surveillance, target acquisition, fire control and night vision, security and warning systems, in cooperation with Romanian and foreign firms such as Elbit Systems, Swiss Optic and Thales.

Joint ventures uniting foreign owners and Romanian state-owned enterprises

As of late 2012 Romanian companies had well-functioning joint ventures with large US defence contractors such as Lockheed Martin, Raytheon, General Dynamics and Northrop Grumman, as well as with European ones, such as EADS and Eurocopter.

The establishment of Elettra Communications in Ploiești was typical of such joint ventures. In 1999 Electromecanica Ploiești, a Romarm enterprise, and the Italian Marconi Selenia Communications (a member of the Finmeccanica group) started to cooperate in manufacturing telecommunications devices and equipment to fulfil an MND order. In 2004 Romarm, Electromecanica Ploiești, Marconi Selenia Communications, Marconi Selenia Romania and MarcTel (a private Romanian company) set up Elettra Communications to produce military fixed and mobile telecommunications equipment.⁶⁰ Both Selex Communications and Electromecanica Ploiești invested heavily in the expansion and diversification of production.⁶¹

⁵⁸ US Commercial Service, 'Romania: defense industry equipment', Presentation, International Specialized Exhibition Dedicated to Aerospace Industry, Defense and Security, 24–27 Apr. 2007, Bucharest, <http://www.vgtu.lt/upload/agai_asktc/20f05b16.pdf>.

⁵⁹ 'The defense industry of Romania on the brink of privatisation' (note 48).

⁶⁰ MarcTel, a prosperous medium-sized private company, was set up in 1998 to provide military and civil engineering telecommunication services. 'Marconi sets up joint venture with Romarm', Nine o'clock, 1 Apr. 2004, p. 8.

⁶¹ By 2009 the ownership of Elettra Communications was slightly modified, principally due to changes of its shareholders' status. SELEX Communications SpA, a Finmeccanica company, was the

According to the firm's CEO, Sandor Lovasz, the company played a pivotal role in Romania's integration in NATO, since it produced or assembled the bulk of the MND's telecommunications network, crucial for joint actions. From 2004 to 2009 the company grew continuously and its revenue doubled.⁶² In 2008, 60 per cent of the company's output was destined for Airbus, and its export partners included Brazil, Chile, Denmark, Finland, South Africa, the UAE and the USA. Elettra Communications sold its products to both military and civil markets and cooperated with several Romanian defence and civil firms.⁶³ In 2011, benefiting from the EU's European Regional Development Fund, the company made important technology investments.

New private companies

After the end of the cold war, new private companies appeared on the fringes of the state-owned defence sector. Through cooperation with state actors and by filling important niches, these firms—mostly in high-tech branches such as communications and IT—gradually became indispensable to the whole sector. They were all amphibian-like companies, engaged in a wide variety of both civil and military-related activities.

Romsys, created in 1993 and a success story in the emerging IT sector, developed complex informatics and communications solutions in banking and insurance, telecommunications, industry, public utilities and defence. In 1996 it became the first Romanian company to obtain an ISO 9001/2000 Quality Certificate, and in 1998 it began to cooperate with Lockheed Martin on several military-related projects. In 2003 it won a Certificate for National and NATO Classified Projects and was awarded Star Supplier status by Lockheed Martin. According to the company's website, of 60 000 Lockheed Martin subcontractors at that time, only 130 received the Star Supplier distinction, and Romsys was the second company in East Central Europe to hold the title in the subcontractors section. The company's management hoped to expand its operations, together with Lockheed Martin and also with other US companies, in markets such as Afghanistan, Iraq and the former Communist states.

In 2004 Romsys had 200 employees, revenue of \$17.62 million and \$4.73 million in net profits. Its main customers were gas and energy distribution companies, banks and private companies, including major transnational corporations that had been established in Romania, including ING Bank, BRD, UniCredit and public institutions. Romsys became a strategic

main shareholder with 51%. The other shareholders were Romarm, Electromeccanica Ploiești, MarcTel-Servicii Integrate de Telecomunicatii and Selex Communications Romania.

⁶² Selex Communications Romania, 'The Elettra Communications plant celebrates 5 years of activities', Media center, 21 May 2009, <<http://www.selex-comms.com/internet>>.

⁶³ Mihu and Tudose (note 18).

partner of the Romanian MND and the first NATO-certified company in Romania. The company's military-related projects included: the Air Sovereignty Operation Centres (ASOC) programme, the software and hardware interface between the NATO communications system and the Soviet-manufactured missile systems installed in Romania; an ASOC and the flight data exchange system; and the information technology and communications (ITC) infrastructure and the human resources management system for the MND and the army's headquarters. Among its civil projects, Romsys designed and implemented the integrated information system for Renault for the national distribution of Dacia vehicles and a wide range of ITC solutions for banking, health, energy and utility management projects. At the end of 2007 Romsys was taken over by New Frontier Holding, an Austrian group in the process of building a powerful IT supplier group in Central and Eastern Europe. In 2012 the company had 340 employees and, despite the crisis, realized a 50 per cent income growth, up to €64 million (\$82 million).⁶⁴

The UTI Group was founded in 1991 as a family-owned business by an ITC engineer, who had formerly been employed at the MND. The group specialized in IT, communications, security and defence systems, and construction and facility management. Its general manager stated that it sought to educate 'clients that security is not a government monopoly any longer'.⁶⁵ By late 2007 the UTI Group had 1200 employees and a turnover exceeding €92 million (\$126 million); in 2012 it had 3219 employees and a nearly €159 million (\$204 million) turnover. The group had offices in Bucharest, Chisinau and Warsaw and branches in Italy, Moldova, Poland and Yemen and exported its products to the Commonwealth of Independent States, the Middle East and several NATO member countries. The UTI Group's defence and security projects provide integrated security solutions and managing of industrial cooperation in offset programmes. Through acquisition of the Institute for Research and Design of Production Systems S.A. (ICPSP), a former Romarm R&D Institute, it has expanded its activities to defence engineering of platforms, armoured vehicles, military robots, weapons and ammunitions. The group has cooperated with Lockheed Martin, manufacturing the Gap Filler radar (discussed below), using the latest technology. UTI's civil projects include the first automated fare collection system in Romania, traffic management systems, complete security systems, fire protection and health institute and highway management systems.⁶⁶

⁶⁴ Romsys, New Frontier Group, 'About', <<http://www.romsys.ro/en/about.html>>; and Romsys, New Frontier Group, 'Ziarul Financiar: Romsys revenue has grown with 53% last year, up to 64 mio eur.', 14 Mar. 2012, <<http://www.romsys.ro/en/about/press-room/article/article/ziarul-financiar-romsys-revenue-has-grown-with-53-last-year-up-to-64-mio-eur.html>> (author's translation).

⁶⁵ Alexandrescu, P., 'Power of adaptation', *Bucharest Business Week*, 11 Mar. 2008.

⁶⁶ Alexandrescu (note 65); and UTI Group, *Corporate Overview 2011* (UTI: Bucharest, 2011).

The company's impressive growth has been built on organic in-house development based on innovation and a flexible management team that rapidly responded to new opportunities—at first by using company resources and later by obtaining external funding through partnerships and international projects. The UTI Group initially was a niche company, but gradually it became a key actor in the field. Similar to Bulgaria's Electron Progress company, the UTI Group's definition of 'security' was broad, enabling it to offer products for both civil and military use.

Most arms manufacturers were members of PATROMIL, which represented 100 military-related producers and was founded in 2001 by state-owned Romarm, Romtehnica, IEMI and the private companies UTI Group and Cobra Security. In 2010 PATROMIL signed a collaboration agreement with the MND that envisaged greater participation in acquisition and offset deals. In 2012 it had 40 members, 15 state-owned and 25 private companies, with 10 000 employees.⁶⁷

III. Military procurement

In 2001 defence spending was \$610 million, 1.52 per cent of GDP, but the amount was forecast to increase to 2.25 per cent (\$2.9 billion) by 2005. Rather than acquiring new weapon systems, the majority of procurement funds were earmarked for upgrading existing systems in order to achieve NATO interoperability. Priority programmes included new IFF equipment, three-dimensional radars and C⁴I equipment.⁶⁸ From the time of its invitation to join NATO, the government had steadily increased defence spending, and the robust economic growth after 2004 provided increased resources for the arms industry.

Nonetheless, budgetary constraints limited Romania's procurement ambitions. The 2003 budget of \$1 billion barely covered one-fourth of the armed forces' procurement needs, and in order to generate revenues, the MND sold access to radio frequencies to the private sector. According to World Bank data, in 2010 military expenditure reached 1.36 per cent of GDP.⁶⁹ Under the USA's Defense Export Loan Guarantee (DELG) programme—set up in 2003 to boost sales of US military equipment overseas—Romania purchased UAV systems and flight simulators for \$20 million.⁷⁰ To

⁶⁷ Manole, V., 'View on development of Romanian military and Industrial capabilities in relationship with NATO and EDA', Presentation, International Conference on Smart Defence: Pooling and Sharing, Sofia, 2–3 Apr. 2012, <http://sfp.e-dnrs.org/?page_id=1122>.

⁶⁸ Tudor, R. and Anderson, G., 'Romania pushes defence budget beyond NATO target', *Jane's Defence Industry*, 1 Nov. 2006.

⁶⁹ Vaknin, S., 'Analysis: Romania's private defence', UPI, 15 Apr. 2003; and 'Military expenditure (% of GDP) in Romania', Trading Economics.com, <<http://www.tradingeconomics.com/romania/military-expenditure-percent-of-gdp-wb-data.html>>.

⁷⁰ The credit scheme proved unsuccessful and in the end the MND abandoned it. Erwin, S. I., 'Defence dept.'s export loan program mired in uncertainty', *National Defense*, Mar. 2000.

bridge some of Romania's equipment gaps, NATO members donated second-hand military equipment to the country. Germany offered a Gepard anti-aircraft system; the USA contributed four C-130B Hercules transport aircraft; and both Canada and Norway supplied some second-hand equipment at no cost. During a March 2010 visit to Romanian troops in Afghanistan, Băsescu asked for more US military vehicles for the increased Romanian contingent.⁷¹

Modernization versus procurement

Thanks to their positive experience with upgrading projects and aware of budgetary limitations, Romanian decision makers often tried to upgrade and modernize the existing arsenal instead of purchasing new equipment. The best example of this policy was the upgrading of Romania's MiG-21 aircraft, in cooperation with Elbit Systems, which significantly prolonged their service time. In 2011 Elbit was awarded another contract, for \$18.6 million, to upgrade Romania's C-130B aircraft, among others, with electronic systems produced by Elisra Electronic Systems.⁷² In a similar case, in 2007 one of the Romarm companies modernized several Saur APCs that were urgently needed for use in Afghanistan and Iraq. This 'temporary import-substitution' was made possible thanks to the flexibility of a local firm. Later the Romanian authorities intended to purchase 300 new APCs to replace the obsolete Saur, manufactured in the 1970s and based on Soviet models.⁷³

Modernization projects occasionally led to new acquisitions. The large international companies presented attractive offers to address the enormous needs of the Romanian armed forces. In 2001 the government signed a framework contract with Elbit for the purchase or upgrade of 24 IAR 99 Şoim aircraft, depending on what the MND's budget could accommodate. In 2001 the MND purchased four aircraft, and in 2004 it bought an additional three and upgraded five in cooperation with Avioane Craiova.⁷⁴ In 1998–99 Lockheed Martin sold Romania five AN/FPS-117 long-range radars for air traffic control and strategic air surveillance. In 2004 Lockheed Martin also won a new contract to upgrade and extend the service life of

⁷¹ 'Romanian president asks for more U.S. military vehicles for troops in Afghanistan', *People's Daily*, 5 Mar. 2010.

⁷² Bodolan, C., 'Romania could transform Airbus 310 into a military plane', Nine o'clock, 11 Jan. 2004; and 'Elbit Systems to upgrade Romanian Air Forces transport aircraft for USD 18.6 million', *Romania Insider*, 24 May 2011, <<http://www.romania-insider.com/elbit-systems-to-upgrade-romanian-air-forces-transport-aircraft-for-usd-18-6-million/23954/>>.

⁷³ Tudor, R., 'Romania's defence procurement awaits Ç12bn boost', *Jane's Defense Industry*, 9 Nov. 2006.

⁷⁴ Tiron, R., 'Western firms gradually break into Romania's defense market', *National Defense*, June 2003; and 'MAPN to buy 3 IAR 99 aircraft, upgrade another 5', *Big News Magazine*, 11 Nov. 2004, <<http://bignewsmagazine.com/2004/11/mapn-to-buy-3-iar-99-aircraft-upgrade-another-5/>>.

the equipment by 15 to 20 years.⁷⁵ However, despite these positive experiences, modernization had technical limits and often did not provide a long-term solution.

Procurement

Before 1989, 70–85 per cent of Romania's military needs were met by domestic production. According to General Ion Sandu of the MND's Department for Armaments, in the early 1990s Romania tried to protect its domestic arms industry and favoured domestic procurement that limited the armed forces' ability to re-equip, but later procurement policy tipped to the other extreme. In 1998 Romania adopted a procurement system based on US Department of Defense regulations.⁷⁶ According to Sandu, that procurement policy made it possible for the Romanian forces to fully participate in a number of US-led missions, including in Iraq.⁷⁷

In the run up to NATO membership, the Romanian Government approved 25 projects to upgrade and modernize its armed forces, which were financed by government credits and managed by Romtehnica. The high cost of the modernization programme and a decrease in exports created a serious imbalance in the arms trade—annual imports totalled \$200–300 million—causing budgetary tension.⁷⁸ Introducing his plan to revamp the arms industry, Năstase stated that the domestic arms industry was now able to fill orders from the MND because the lack of domestic orders in the previous decade had forced it to restructure.⁷⁹ This statement created high hopes in domestic defence industrial circles that did not materialize in the form of increased orders from the MND. In 2005 the Minister of National Defence, Teodor Atanasiu, declared that new acquisitions would be used not only to revive the domestic arms industry, but also to promote further international cooperation and privatization.⁸⁰

⁷⁵ Lockheed Martin, 'Lockheed Martin upgrade to extend life of Romanian radars 15 to 20 years', Press release, 14 Feb. 2007, <<http://www.lockheedmartin.com/us/news/press-releases/2007/february.html>>.

⁷⁶ Bialos, J. P., Fisher, C. E. and Koehl, S. L., 'Accessing the Romanian defense market', *Fortresses & Icebergs: The Evolution of the Transatlantic Defense Market and the Implications for U.S. National Security Policy*, vol. 2, *Country Studies* (Johns Hopkins University, Center for Transatlantic Relations and School of Advanced International Studies: Washington, DC, 2009), p. 502.

⁷⁷ Quoted in Lukovic, M., 'Increased competition: the future of defence procurement', Summary of the International Quality & Productivity Center (IQPC) defence procurement conference that was held in London in Oct. 2006; Frost & Sullivan, 11 Dec 2006, <<http://www.frost.com/sublib/display-market-insight-top.do?id=89451538>>.

⁷⁸ Nemes, A.-V., Romtehnica's sales director, Interview with author, Bucharest, 30 May 2002.

⁷⁹ Tudor (note 10). Note that, as often occurred, the changes in the sector were presented as if they were the result of conscious defence industrial policy.

⁸⁰ 'Exclusive interview with Teodor Atanasiu, Minister of National Defence', Big News Magazine, <<http://bignewsmagazine.com/2005/02/exclusive-interview-with-teodor-atanasiu-minister-of-national-defence/>>.

In the spring of 2007 Romanian authorities announced the launch of six major strategic procurement programmes, the 'biggest since the fall of communism', according to the Minister of National Defence, Sorin Frunzăverde. Two projects each for the land, naval and air forces were expected to lead to full operational capability for two Romanian brigades in the NATO Response Force. The programmes were estimated to cost €12 billion (\$16 billion), to be carried out during a period of several years and to be funded from extra-budgetary sources. Frunzaverde noted that 'Now we have to find the appropriate funds to start the endowment process as soon as possible'.⁸¹ In April 2007 at the Black Sea Defense & Aerospace (BSDA) exhibition in Bucharest, a spokesperson for Romtehnica declared: 'Whether Romania looks to extra-budgetary funds or private funds remains to be seen, and is being discussed. . . . At the moment we are operating within the existing budget.' Romanian decision makers studied the example of Bulgaria, which in 2005 used alternative methods for financing defence procurement.⁸²

At BSDA 2007, the Minister of National Defence, Teodor Meleşcanu, declared that he would have preferred to see the Romanian armed forces supplied exclusively by domestic manufacturers.⁸³ However, the key suppliers for the large-scale modernization projects were foreign companies. In 2007 the government signed a contract worth 200 million Norwegian kroner (\$34 million) with Kongsberg for the delivery of communications systems. In addition, it bought 31 Swiss-built Piranha armoured fighting vehicles and 60 non-armoured Spanish-manufactured URO VAMTAC 4C military field vehicles. These acquisitions were outside the six major programmes but were judged indispensable for the Romanian troops operating abroad. In December 2007, after long and complicated negotiations, the government signed a contract with Alenia and Romtehnica for the purchase of seven C-27J Spartan aircraft, including pilot training, initial logistical support and a flight simulator, for €217 million (\$318 million). Romania took delivery of the first aircraft in 2009.⁸⁴ It also bought 36 used and modernized Gepard tanks from Germany and 750 Spike-MR/LR anti-tank missiles from Israel. The USA sold Romania 138 C-9 diesel engines for the modernization of 180 MLI-84 infantry fighting vehicles, while France supplied three SA-330 Puma helicopters.⁸⁵

⁸¹ Anderson, G., 'Romania seeks financing for major procurement drive', *Jane's Defence Industry*, 25 Apr. 2007; and Tudor (note 73).

⁸² Anderson (note 81).

⁸³ Grigoriu, G., 'Military equipment and technique to be produced in Romania', *Romanian Business News-ACTmedia*, 25 Apr. 2007.

⁸⁴ 'Alenia's C-27J wins Romanian contract', *Defence Industry Daily*, 10 Dec. 2007, <<http://www.defenseindustrydaily.com/alenias-c27j-staked-to-lead-role-in-negotiations-for-romanian-contract-02847/>>; and Donald, D., 'Romania receives first C-27J', *AIN Defense Perspective*, 24 July 2009.

⁸⁵ Vasileios, K., 'Romanian defence procurements under the new security strategy of the country', *Epicos Newsletter*, vol. 3, no. 33 (7 Aug. 2011).

In the spring of 2009 Băsescu declared that, despite the ongoing economic crisis, Romania could begin outfitting the armed forces by taking out loans. The Minister of National Defence, Mihai Stănişoară, noted that one of the key modernization projects, the acquisition of multipurpose aircraft, remained a strategic priority that could be accomplished under Ordnance 111/2007, which gave recourse to multiple annual loans outside the regular budget. According to the head of the MND's Weapon Department, Aurel Lascu, the ministry was involved in a programme for the modernization of four C-130B aircraft as part of a government-level agreement with the USA, although Government Decree 34/2009 reduced the MND's budget for 2009 to 6.96 billion lei (\$2.3 billion), 1.31 per cent of GDP.⁸⁶ The problem of financing expensive military acquisitions was far from resolved.

In March 2010 Romania declared its intention to purchase 24 used F-16 fighter aircraft from the USA that were provided free of charge but entailed the expense of modernization of the aircraft and infrastructure, amounting to \$1.3 billion. There was no international call for bids and offsets were not attached to the agreement. The government stated that the deal reflected the Romanian-US 'strategic partnership' and was justified by the shortage of public funds. In April Saab offered to sell Romania 24 new Gripen combat aircraft for the same price (\$1.3 billion), but without ammunition. Protesting the decision to purchase the US aircraft, Saab and Eurofighter refused to participate at BSDA 2010. In August the Prime Minister, Boc, declared that the government did not have the financial resources to buy the aircraft and would instead upgrade its 24 MiG-21 aircraft—at a cost of €1 million (\$1.3 million) per aircraft. In the spring of 2011 the USA set up an instalment plan for the potential sale, but in the autumn of that year Basescu declared that Romania could not afford to buy the F-16 aircraft unless a 'long-term financing solution' was found. He noted that the USA had proposed a regional project to support the purchase of the F-16s: the US Ambassador to Romania, Mark Gitenstein, had envisaged a 'regional effort', whereby Bulgaria, Croatia and Romania would together purchase a series of new aircraft. This would help Lockheed Martin and reduce the costs of the aircraft and pilot training.⁸⁷ In September 2012 Romania

⁸⁶ The initially approved budget was 7.65 billion lei (\$2.5 billion), 1.33% of GDP. See Vereha, A. T., 'Equipping the army gets put off every year . . . indefinitely', *Bursa*, 19 Sep. 2009.

⁸⁷ Bryant, C., 'Romania's planned jet purchase draws fire', *Financial Times*, 29 Mar. 2010; 'Media: Romania to receive installment plan for F-16 planes from US', *Romania Insider*, 3 Mar. 2011, <<http://www.romania-insider.com/media-romania-to-receive-installment-plan-for-f-16-planes-from-us/19853/>>; 'Saab offers cut price fighter jets to Romania', *Agence France-Presse*, 15 Apr. 2010; Associated Press, 'Saab AB, Eurofighter to skip Romanian defense expo', *Bloomberg BusinessWeek*, 7 Apr. 2010; 'President: Romania cannot afford F-16 fighters', *Romanian Business News—ACTmedia*, 19 Sep. 2011; and Iordache, M., 'Roumanie: pays producteur d'armes cherche clients, mauvaises références acceptées' [Romania: arms producer countries seeking customers, poor references accepted], *Le Courrier des Balkans*, 10 Oct. 2011, <<http://balkans.courriers.info/article18414.html>>.

declared its intention to procure 12 used F-16 combat aircraft from Portugal in a five year contract worth \$600 million.⁸⁸

Arms procurement in Romania lacked transparency. Despite some efforts, the level of corruption did not diminish sufficiently after the country became an EU member, and defence-related issues remained particularly opaque. Romania did not sign the EU's Code of Conduct on Defence Procurement.⁸⁹ Several scandalous arms sales and procurement deals shed light on the depth and ubiquity of corruption, which reached every layer of the decision-making process, including the highest echelons of power.⁹⁰

Offsets

In 2002 an emergency government ordinance established the Agentia de Compensare pentru Achizitii de Tehnica Speciala (Agency for Offsetting Special Technique Procurements, AOSTP), a public institution under the control of the prime minister. Originally offsets were envisaged as a tool to boost arms exports. Năstase declared 'We are currently considering a series of measures to increase Romania's arms and military equipment exports. First and foremost, we are pushing to expand industrial offset programmes, including compensatory trade for foreign military equipment purchased by the Romanian military'.⁹¹ Regulations have changed several times since 2002 but, as of late 2011, the offset threshold was €5 million (\$7.0 million) over a three-year period, while the 'offset obligation value' was at least 80 per cent of the value of the contract, half of which was to be direct offsets.

Romania's worst experience with offset was the purchase of two Type 22 frigates from the British Royal Navy for 116 million pounds (\$229 million) in 2004. The British Government's Export Credit's Guarantee department insured the deal; the London offices of Deutsche Bank and ABN Amro Bank handled the financing; and the Romanian Government guaranteed the for-

⁸⁸ Chiriac, M., 'Romania to buy 12 second-hand F-16 jet fighter aircraft from Portugal', *Defense World*, 27 Sep. 2012, <http://www.defenseworld.net/news/7609/Romania_To_Buy_12_Second_Hand_F_16_Jet_Fighter_Aircraft_From_Portugal>.

⁸⁹ The Code of Conduct on Defence Procurement of the EU Member States participating in the European Defence Agency, Adopted by the EDA Steering Board 21 Nov. 2005, <<http://www.eda.europa.eu/docs/documents/code-of-conduct-on-defence-procurement.pdf>>.

⁹⁰ See e.g. Wood, D., *Romania's Arms Transfer Control System at EU Accession: An Analysis*, (Saferworld: London, Feb 2007); Transparency International, 'Bulgaria and Romania must produce concrete and irreversible anti-corruption results', Press release, 11 Feb. 2009, <http://archive.transparency.org/news_room/latest_news/press_releases/2009/2009_02_12_bulgaria_romania_anti_corr_uption>; and Bojin, D., 'Exclusive: conflict of interests at the highest level, President Basescu's brother involved in the arms industry', *Bursa*, 23 Aug. 2009; 'WikiLeaks: ex army chief of staff involved in US military technique deals', *Nine o'clock*, 6 Apr. 2011, <<http://www.nineoclock.ro/wikileaks-ex-army-chief-of-staff-involved-in-us-military-technique-deals/>>; and Pop, V., 'Corruption in Bulgaria and Romania still unpunished, EU says', *EU Observer*, 20 July 2011, <<http://euobserver.com/news/32643>>.

⁹¹ Tudor (note 10).

oreign credits. The frigates were modernized and entered service, but inspections revealed that the price was unjustifiably high and the contract tainted by corruption on both sides. The British Government pledged to use 80 per cent of the contract value for investments in Romania—two-thirds in the arms industry and the rest in civil production—but did not fulfil its offset obligations. Despite several rounds of negotiation and a severe warning by the Romanian MND, no solution had been found as of June 2008. An MND official declared ‘Romania expected something else from a major UK company. Our disappointment will affect evaluation of BAE Systems for future contracts on the Romanian defence market—and we are ready to spend several billion euros on procurement in the next 10 years’.⁹² The case demonstrated the institutional weaknesses of Romanian offset mechanisms and the country’s weak position in relation to powerful international players. In 2007 an investigation in the UK confirmed that the deal was plagued by corruption in both countries.⁹³

According to PATROMIL, one of the most successful offset projects was the creation of the Gap Filler radar, a partnership between Lockheed Martin, UTI Systems and Romarm’s Uzina Automecanică Moreni. Another success was an Elbit offset arrangement that led to the sale to the US Department of State of two flight simulators for Mi-24 and Mi-8 helicopters, produced by Elbit’s Simultec and its Romanian partners.⁹⁴ The USA later used the flight simulators in Afghanistan.

IV. Exports

Prior to the systemic changes in East Central Europe, Romania sold approximately \$800 million per year of conventional weapons, such as armoured vehicles, cannons, missiles and SALW, making it one of the world’s top arms exporters at the time. Arms represented 5–6 per cent of total Romanian exports.⁹⁵ After 1990 foreign sales plummeted dramatically because of the loss of most of Romania’s traditional trade partners, the stricter arms control measures that the government gradually introduced, and the general economic crisis. By the late 1990s the country exported

⁹² ‘Romanian defence minister signs document on purchase of two frigates from UK’, *newnations.com*, 28 Jan. 2003, <<http://www.newnations.com/Archive/2003/February/ro.html>>; and Munteanu, C., ‘The “frigates” affair, a mystery for two successive governments’, *Nine o’clock*, 12 June 2006, p. 2; and Romanian Ministry of National Defence, ‘Frigates offset contracts have been discussed in the Great Britain’, Press Release no. 475, 16 Nov. 2007, <<http://english.mapn.ro/cpresa/continutarearhiva.php?id=1746>>.

⁹³ Leigh, D. and Evans, R., ‘Country profile: Romania’, *The Guardian*, 7 June 2007.

⁹⁴ Bulandra, I., ‘Simultec Romania concluded USD 7.5 M contract with US State Department’, *Romanian Daily*, 3 Jan. 2006, <<http://romaniandaily.ro/cat30760/art4799748459/>>.

⁹⁵ Tudor, R., ‘Tough line on embargoes hits Romanian exports’, *Jane’s Defence Weekly*, 23 Oct. 2002, p. 17. Bialos et al. quote \$620 million per year. Bialos et al. (note 76), p. 492. Romanian sources usually give higher figures, c. \$800 million.

between \$30 million and \$40 million worth of arms, and figures for arms sales remained low until the early 2000s. In 2001 arms exports reached \$24.5 million, the lowest in 12 years, according to Nineta Barbulescu, the head of the Agenției Naționale de Control al Exporturilor Strategice și al Interzicerii Armelor Chimice (ANCESIAC, National Agency for the Control of Strategic Exports and Prohibition of Chemical Weapons). (In 2003 the agency became the Departamentul pentru Controlul Exporturilor, ANCEX, National Agency for Export Control.) Most export items were small-calibre weapons, while maintenance and upgrades of aircraft and licensed helicopter production accounted for 15 per cent. The main destinations were Africa, Asia, and North America, with the USA as the largest single buyer, followed by Israel and India.⁹⁶

Romanian arms exports have been traditionally split between aviation and SALW. According to a 2001 ANCESIAC report, 77 per cent of the items sold that year were SALW.⁹⁷ By the late 2000s the share of high-tech components and aviation equipment had increased while SALW sales had diminished, although they remained a major export item, particularly to the USA and countries in the developing world.⁹⁸ According to an Africa Europe Faith and Justice Network report, since the mid-1990s Romania has sold large quantities of SALW to Africa.⁹⁹ A Center for Public Integrity report revealed that many Romanian-produced arms, sold to the USA as sporting weapons, went through minor modifications and ended up in criminal circles, notably in the Mexican drug war.¹⁰⁰

Octavian Ciobanu, general director for the arms industry at the MIR, stated that the low level of exports was related to strict regulations: ANCESIAC 'is sometimes erecting hard-to-cross barriers for the defence companies. Before 1989 Romania exported \$1 billion a year worth of arms, ranking it fifth among the world's arms exporters. In the first six months of 2002, however, it exported shamefully little'.¹⁰¹ However, the low export levels were principally due to the poor performance of the sector and changes on the world market. If Romanian arms producers wanted to boost foreign sales they had to offer high-technology items, such as radars,

⁹⁶ Tudor (note 95).

⁹⁷ Romanian National Agency for the Control of Strategic Exports and Prohibition of Chemical Weapons (NACSEPCW), *Report on Arms Export Control 2000–2001* (NACSEPCW: Bucharest, 22 June 2003), pp. 34–35.

⁹⁸ 'Romania sells tens of thousands of Kalashnikovs to Americans', *Bucharest Herald*, 16 Aug. 2011.

⁹⁹ Africa Europe Faith and Justice Network (AEFJN), *Arms Exports and Transfers: Europe to Africa, by Country* (AEFJN: Brussels, Dec. 2010).

¹⁰⁰ Schmitt, R. and Young, R., 'Romanian weapons modified in the U.S. become scourge of Mexican drug war', Center for Public Integrity, iWatch News, 3 Feb. 2011, <<http://www.iwatchnews.org/2011/02/03/2158/romanian-weapons-modified-us-become-scourge-mexican-drug-war/>>.

¹⁰¹ Tudor, R., 'Bucharest's defense industry reorganisation to cost \$120m', *Jane's Defence Weekly*, 24 July 2002, p. 46.

precision-strike weapons, missiles and equipment for information and electronic warfare.

In the early 2000s foreign sales started to increase. According to ANCEX's Cristian Munteanu, Romanian arms exports grew from \$37.8 million in 2000 to \$69.5 million in 2003 and dropped to \$41.85 million in 2004; they included small arms, helicopters, aircraft and spare parts.¹⁰² In 2003 Romania exported to the USA \$15 million worth of weapons that included light weapons (mainly sub-machine guns) and ammunition; according to the agency's representatives, 'the most important transaction in the last three years'. The MIR's Aurel Cazacu stated that exports had doubled in 2005 compared to those of 2004, principally due to sales to Africa, Asia and the USA.¹⁰³ Romanian companies sold modernized Puma helicopters to the UAE and MiG-21 aircraft to Croatia, and delivered weapons and munitions to Iraq. In 2006 ANCEX declared that several small- and medium-sized Romanian weapon producers had signed contracts for the delivery of components for off-road military vehicles, and for aircraft, missiles and military electronics.¹⁰⁴

ANCEX reported over €43 million (\$60 million) in arms exports in the first six months of 2009, to customers in Afghanistan, Burkina Faso, Ethiopia, Gabon, Georgia, India, the Middle East, Pakistan and the USA.¹⁰⁵ Romarm's Crişan declared that Romania had arms sales contracts for 2011 that totalled \$127 million, both to EU countries and the Middle East, although the US market was the destination for 95 per cent of Romanian arms exports. Romarm exported tanks, APCs, weapons and ammunition, including 7.62-mm AKM assault rifles that were manufactured by Cugir.¹⁰⁶

In November 2010 reports circulated that the European Commission might initiate an infringement procedure against Romania, which, despite the government's promises, had failed to make progress in enforcing export control regulations by setting up a control regime for the export of dual-use items. The frame agreements with the European Commission and the IMF stipulated the dissolution of ANCEX, whose operations were said to be in a 'blurry state', and transferring its responsibilities to a department within the MFA.¹⁰⁷

At the 2011 Expomil, PATROMIL's Viorel Manole declared that 'the advantage of hosting the EXPOMIL exhibition is that we can stand out on a

¹⁰² 'Roumanie: privatisation de l'industrie de l'armement' (note 35).

¹⁰³ 'Roumanie: privatisation de l'industrie de l'armement' (note 35).

¹⁰⁴ 'Romania exports weapons to Iraq', Romanian Daily, 7 June 2006, <<http://romaniandaily.ro/cat30760/art8505380767/>>.

¹⁰⁵ 'Romania's main clients for arms export', Romanian Business News-ACTmedia, 15 Dec. 2009.

¹⁰⁶ 'Romania to export USD 127 M worth of arms in EU, Mideast', Nine o'clock, 31 Jan. 2011, <<http://www.nineoclock.ro/romania-to-export-usd-127-m-worth-of-arms-in-eu-mideast/>>.

¹⁰⁷ 'EC warns Romania over infringement procedure', Nine o'clock, 15 Nov. 2010, <<http://www.nineoclock.ro/ec-warns-romania-over-infringement-procedure/>>.

market on which Romania is becoming more and more aggressive'. He added that Romania's arms industry focused primarily on the EU and NATO 'given the fact that the Ministry of National Defence has not enough funds'.¹⁰⁸

The majority of arms sales took place through Romtehnica, which employed approximately 100 people and, despite the political and economic changes, had managed to preserve its special position in the sector.¹⁰⁹ The company's Director General, Mihai Nicusor-Micrea, stated in an interview that 'Since joining NATO, Romtehnica's economic relations with US and EU companies have increased intensively. This was mainly due to the increased demand of the Romanian [MND] for imports of western military hardware, ensuring interoperability with other NATO members, and exports to sensitive destinations under contracts signed mainly with the USA. These exports are part of the Romanian contribution to the war on terrorism.'¹¹⁰

V. Poland and Romania: a comparison

In terms of size, ambition, foreign and defence industrial policy directions, Romania was close to the Polish model. The direction of Romania's foreign and defence industrial policies was close to that of Poland, as were the extent and objective of those policies. After the end of the cold war Romania's arms-production base was large and comprehensive, having been initially shaped by the requirements of the Warsaw Pact and later by Ceauşescu's attempts to achieve full autarky for defence supplies. From the early 2000s, like Poland, Romania strove to play an important international role, both at the European and regional level and cultivated close relations with the USA. After the terrorist attacks on the USA of 11 September 2001, Romania became a valued ally in the 'global war on terrorism' and participated in US-led operations in both Afghanistan and Iraq.

Similar to Poland Romania kept the bulk of defence industrial companies in state ownership and provided relative protection for them during the hectic period of major economic and political changes. The government wanted Romarm to play a similar role in defence industrial developments to that of Poland's Bumar Group. Romarm had a similar holding group structure with diverse companies that were expected to form a horizontally and vertically integrated production system; its mission was to coordinate company restructuring, financing and R&D, and to represent the sector on

¹⁰⁸ 'Military equipment exhibitors to show off products at EXPOMIL 2011', Romanian Business News-ACTmedia, 23 Sep. 2011.

¹⁰⁹ Nemes (note 78).

¹¹⁰ Strategic Media, 'Romania, geared for growth: tactical strategies are driving Romania's defense sector', <http://www.smlstrategicmedia.com/pdf/Romania_report.pdf>, p. 5.

domestic and foreign markets. However, Romarm was poorly run and unable to compel its members to carry out reforms. Despite some improvements, such as major downsizing and the introduction of quality-assurance systems, the holding group functioned like a modernized traditional SOE. Most of Romarm's companies, some in grave condition, replicated its inefficiency and inertia, waiting to be rescued by the state. Since Romarm had a key position in the sector, its weakness slowed the development of the entire arms industry. The supervising ministry also failed to manage Romarm efficiently or to push it to undertake genuine changes.

Like their Polish (and Czech) colleagues, Romanian decision makers placed special emphasis on promoting the aviation sector, which absorbed much of the funding for defence. However, in contrast to the Polish policy, from the early 1990s Romanian officials encouraged joint ventures and cooperation with Western companies. Many Romanian aircraft producers were involved in assembly, licensed production or low-level supplier activities for foreign partners, while their Polish counterparts often managed to enter into high-level, long-term strategic partnerships that eventually led to their purchase by the foreign partner. Perhaps this occurred because Romania was a relative latecomer to the globalized arms industry and far poorer and less developed than Poland. Centuries of underdevelopment coupled with the devastating decades of Ceauşescu's regime left their mark on the economic and social system and on human relationships. The long period of decay after the collapse of the Warsaw Pact, and a large measure of corruption and chaos, further eroded the production base. Recovery did not start until the early 2000s and, although impressive, it was not stable enough to fundamentally reshape basic economic structures and to set in motion mechanisms to further enhance efficiency. In addition, Romanian politics were more volatile than those in Poland. These factors highlight the crucial role of the general level of economic, institutional and political development in the success of a company or a sector.

Appendix 9A. Romanian company case studies

I. Romarm: a difficult transformation

In 2000 the Romanian Government set up *Compania Națională Romarm* to unite the country's key weapon producers in a state-owned holding company under the control of the Ministry of Economy and Commerce. By 2002 Bucharest-based Romarm employed 29 000 people, a decrease from the 120 000 who had worked at its subsidiary companies before 1989. Seventy per cent of Romarm's output was military-related, with 65 per cent sold on the domestic market, although less than 10 per cent of the company's military-related production capacity was used. All of Romarm's firms were able to manufacture both civil and military products and, in order to stabilize the economic situation, in the early 2000s the holding company's management proposed increasing the share of civil production to approximately 70 per cent.¹ According to a government document, in 2002 only 10 per cent of Romarm's military output was sold, while 25 per cent of civil industrial products and consumer goods could be sold. Civil production represented about 45 per cent of total production capacities.² According to a Romanian news source, in 2001 Romarm's sales reached €27 million (\$24 million), but by 2004 that figure had dropped to €7 million (\$8.7 million).³

After NATO invited Romania to join the alliance military-related activity regained importance. In 2005 Romarm's general manager, Pavel Mitiu, declared that Romarm's arms exports had increased to \$45–50 million, double the volume of export sales in 2004. Most of the sold items were Kalashnikov-type weapons, the markets for which stretched from Indonesia to the USA, and unit sales rose to 'tens of thousands'.⁴ However, the increased export volume was more an indication of access to new markets than of improved performance. Romarm was so inefficient as a holding company that in the summer of 2007 defence industry unions demanded its dissolution and the transformation of its 16 branches into independent companies. They asked the authorities to save the remaining 8000 jobs by writing off debt and liquidating Romarm.⁵

From its inception, Romarm had conducted a series of restructuring projects, most of which failed to reach completion and did not improve its performance.

¹ Manole, V., Executive manager, and Iancu, N., Marketing manager, Romarm National Company for Military Technology, Interview with author, Bucharest, 27 May 2002.

² Romanian Ministry of Industry and Commerce, Stability Pact Regional Working Table III, 'Requirements and necessities for conversion in C.N. "ROMARM"-S.A.: action modalities and directions', Bucharest, 4 June 2002.

³ 'Gondokkal küzd a hazai fegyvergyártás' [Domestic arms-making is in trouble], *Új Magyar Szó*, 24 Jan. 2006.

⁴ Bulandra, J., 'Arms exports reach 50 million dollars', Romanian Daily, 25 Oct. 2005, <http://romaniandaily.ro/site_archives/October2005.html>.

⁵ 'Defence industry unions want Romarm to disappear', Nine o'clock, 18 July 2007.

The holding company functioned as a loosely reformed state-owned enterprise, with a heavy bureaucratic structure, sluggish and opaque decision making, and inefficient management. Despite continuous and substantial state help, it has remained unprofitable since the 1990s. Even though several of Romarm's subsidiary companies possessed significant assets and development potential, the holding company was unable to successfully restructure them or assist them in their efforts. An examination of the Romanian defence market noted that Romarm was 'described by several analysts as "an opaque and ubiquitous state holding group." These tend to be the most unreconstructed, least efficient companies, which survive mainly through sole-source procurement and government-directed work share under the Romanian Offset Law'.⁶

In 2010 a new general director, Vasile Crişan, introduced a series of measures to revamp Romarm. He sought to 'reconfigure the structure of the company and to resize its production capacities, based on the equipment needs of the army, and the requirements of the foreign market, in order to transform the company into an entity with a flexible management and a viable and profitable activity ... reduce arrears, help expand the company's line of business and increase its turnover'. As of December 2011 the holding company employed 5400 workers in five divisions: armoured vehicles, infantry weapons and ammunition, artillery systems, missile systems, and explosives and propellants. Exports increased by 70 per cent between 2008 and 2011, with approximately 90 per cent of the output exported to Asia, the Middle East and the USA. In 2010 Romarm's turnover was 321 million lei (\$101 million) with losses of 119.3 million lei (\$37 million) that were, according to Crişan, mostly caused by penalty payments related to past debt. Romarm's R&D activities concentrated on APCs, 'reactive guided projectiles and thermobaric weapons'.⁷

Company management considered external support and guidance from the government, the EU or NATO as indispensable to success.

The reconfiguration of the current production capacities will be supported by investments in the capabilities defined in Brussels as being the responsibility of Romania. ... Keeping in line with the model promoted by Brussels, we are also trying to establish strategic partnerships with other Romanian private players, as well as with players from other partner countries, in order to uncover additional financing sources, maximize profits and to split risks. ... Unfortunately, the defense sector isn't eligible for accessing European grants, which is why I think that the government should have a different approach when it comes to our investing needs.⁸

In a later interview, however, Crişan stated that Romarm's primary goal was to reorganize itself and become profitable in order to gain financial independence from the MOE.⁹

⁶ Bialos, J. P., Fisher, C. E. and Koehl, S. L., 'Accessing the Romanian defense market', *Fortresses & Icebergs: The Evolution of the Transatlantic Defense Market and the Implications for U.S. National Security Policy*, vol. 2, *Country Studies* (Johns Hopkins University, Center for Transatlantic Relations and School of Advanced International Studies: Washington, DC, 2009), p. 504.

⁷ See the interview with Crişan in Olescu, E., 'The strategy for the restructuring of "Romarm" does not rule out privatization', *Bursa*, 30 Sep. 2011.

⁸ Olescu (note 7).

⁹ Olescu, E., 'The objective of "Romarm": financial independence', *Bursa*, 31 Oct. 2011.

In September 2011 the government announced that Romarm would be one of the first state-owned companies to acquire a professional private manager through the MOE's State CEO project that aimed to improve the performance of several strategically important state companies by hiring private managers to run them.¹⁰ However, in late October 2011 the government and the International Monetary Fund approved a new restructuring project for Romarm that Crişan presented: instead of divesting, Romarm would be reconsolidated and recapitalized. Crişan had earlier stated: 'We do not rule out partnerships and consolidations on a national level, which would create the critical mass needed for bargaining power in international negotiations, and where applicable, even privatization.'¹¹

Instead of 16 independent subsidiaries, the company would be reorganized in four divisions: (a) weapons, ammunition and equipment for infantry manufactured by a united Cugir arms factory and the mechanical plants at Sadu, Metrom, Cugir and Braşov; (b) artillery and armoured fighting vehicles, produced by Automecanica Moreni, UM Bucharest and Arsenal Resita; (c) ammunition manufactured by Uzina de Produse Speciale Dragomireşti and the Mija, Tohan, Carfil and Plopeni mechanical plants; and (d) missiles produced by Electromecanica Ploieşti and the Research Institute for the Design of Production. In addition, the Făgăraş special products plant and an ammunition company would be reorganized and privatized. Shares of some segments of the reorganized Romarm holding company would also be offered for sale. The key goal was financial independence. Revitalizing Romarm was part of the MND's new national programme to promote selected defence industrial projects and direct military procurement towards national suppliers. After the summer of 2012 several top management changes took place that destabilized the holding company. According to the company's new CEO, Dan Tache, 2012 was the worst year for Romarm, with 800 000 lei (\$238 960) losses, but 2013 held several promising arms export deals—96% of the group's output was exported.¹²

II. Cugir: a typical Romanian company

Cugir (SC Fabrica de Arme Cugir SA), a key arms and ammunition producer, was established in 1799 as a steel manufacturer, with significant defence-related production introduced before World War II due to cooperation links with Czechoslovakia's Škoda Works. However, weapon production ceased

¹⁰ 'Private management for 25 pc of Economy Ministry's subordinate companies', Nine o'clock, 17 Apr. 2011, <<http://www.nineoclock.ro/private-management-for-25-pc-of-economy-ministry's-sub-ordinate-companies/>>; and 'Romanian Economy Min. wants to hire private managers for state companies with losses', Romania Insider, 28 Apr. 2011, <<http://www.romania-insider.com/romanian-economy-min.-wants-to-hire-private-managers-for-state-companies-with-losses/22693/>>. For additional details see chapter 9, section I, in this volume.

¹¹ Olescu (note 7).

¹² Olescu, E., "'Romarm' is no longer being monitored by the IMF', *Bursa*, 17 Nov. 2011; and 'Romarm manager: 2012 the worst year in company history', Romanian Business News-ACTmedia, 25 Sep. 2013, <<http://actmedia.eu/companies/romarm-manager-2012-the-worst-year-in-company-history/48260>>.

during the war and in the immediate post-war period. It was relaunched in the 1960s in response to Nicolae Ceaușescu's goal to arm all Romanians. By the 1980s Romania was among the world's leading arms manufacturers and Cugir had become one of its foremost companies. Record production levels were achieved during the 1980–88 Iran–Iraq War, when arms worth \$1200 million were exported to both sides. By 1989 the company employed 16 000 workers.¹³

After the end of the cold war the company was divided into several successor plants, two of which—Usine Mécanique Cugir SC and Usine d'Armement SA—focused predominantly on military-related products, including assault rifles, machine guns, grenade launchers, pistols and ammunition, as well as manufacturing hunting rifles. In 2002 Cugir's premises became part of an industrial park, and that year production of arms and ammunition represented 60 per cent of the company's significantly decreased output. Although 65 per cent of Cugir's production was exported, most military-related items were sold on the domestic market, principally to the MND and the Ministry of Interior and Resources. Ammunition production was the most profitable production branch. Initially, it had been based on Soviet licences but, after a 1995 government decision to switch to NATO standards that was accompanied by credits, credit guarantees and access to documentation, it was revamped.

In the early 2000s due to low military demand the company had attempted to diversify and produce sport and hunting weapons and other goods for the civil market. It had also established civil sub-supplier contracts with leading Western companies: with Elbit Systems for aircraft wheels; with General Motors, Mercedes-Benz and DaimlerChrysler for car components; with Salomon for rollerblade skates; and with a German firm for machine tools. In 2001 a joint venture was set up with the DaimlerChrysler group to produce geared wheels and parts for Mercedes-Benz and for the European automotive industry. Cugir also had cooperation projects with Belgium's FN Herstal and with Israel Military Industries to produce ammunition. In 2005 Romanian authorities announced that Austrian Glock would produce four to six models of its 9-mm pistols at the Cugir factory, with a view to transferring production completely to the plant.¹⁴ International cooperation represented 30 per cent of the company's income. The company also obtained an ISO 9001 quality certificate, a military quality certificate and quality certificates from Elbit Systems and Mercedes-Benz.¹⁵

Before 1989 Cugir had employed 16 000 workers, giving work to practically the entire region of Alba, but by 2006 the number dropped to 900. The company's management pleaded with the government to speed up the accreditation process for NATO-standard ammunition and firing ranges, to eliminate the

¹³ This section draws on Kiss, Y., *Small Arms and Light Weapons Production in Eastern, Central, and Southeast Europe*, Occasional Paper no. 13 (Small Arms Survey: Geneva, Oct. 2004), pp. 29–30.

¹⁴ ExpoMil, 'Romania's status of future EU member is an opportunity for the defense industry to modernize its armaments, management and telecommunications', Press release, 12 Oct. 2006; and Bulandra, J., 'Romanian arms industry looking for foreign partners', Romanian Daily, 13 Oct 2005, <<http://romaniandaily.ro/cat30760/art3659050086/>>.

¹⁵ Clonta, M., Director General adjunct, Kudler, F., Factory manager, and other members of the Cugir management group, Interview with author, Cugir, 28 May 2002.

company's debt to the Ministry of Public Finance, to provide state guarantees for Cugir's loans and to simplify privatization procedures.¹⁶ Cugir appeared on AVAS's 2007 list of companies for sale and, together with 22 other military-related firms, on a similar June 2009 list prepared by the Chamber of Commerce and Industry of Romania. The government also made several announcements about the company's availability for sale to foreign investors. However, no buyers appeared and no management changes took place, and the company continued to slide downward in a spiral of indebtedness. In order to reduce running costs, Cugir sold or rented out its unused premises and reduced the number of employees.¹⁷ According to AVAS, in 2007 the company had a turnover of €10 million (\$14 million) and 700 employees. Hundreds were later dismissed, although in 2009 more than 100 were rehired thanks to a new export order. In addition to their salaries, Cugir promised the employees bonuses and meal vouchers.¹⁸

Despite its poor performance, Cugir survived thanks to state backing and its increasing export activity. It sold large amounts of SALW to, among other clients, its main US buyer, Century International Arms.¹⁹ According to a study by the Center for Public Integrity, many foreign guns are stripped of their military features and sold in the USA as sporting guns, where they are modified and resold through wholesalers to local gun dealers as bargain assault weapons. 'The WASR-10 has become a favorite of the Mexican drug cartels and in recent years hundreds of them have been traced to crimes in Mexico.'²⁰

In March 2011 the government-appointed special administrator for the Cugir arms factory revealed that the company had reached a critical state due to many years of mismanagement and corruption. He claimed that the plant was unable to retool and increase production because it owed 6.6 million lei (\$3.0 million) to its former subcontractors.²¹ During a visit to the Cugir plant, Romarm's CEO Crișan said that during 16 years the company had developed one viable contract while, since his takeover, Romarm had managed to negotiate two significant new export deals for \$60 million.²²

¹⁶ 'Gondokkal küzd a hazai fegyvergyártás' (note 3).

¹⁷ 'UM Cugir tries to redress', *Ziarul Unirea*, 12 Nov. 2007.

¹⁸ 'Romania's Cugir mechanical plant drops staff cutbacks on higher demand', *Romanian Business News-ACTmedia*, 30 Dec. 2008; and 'Cugir Works to hire 100 persons next month', *Nine o'clock*, 25 May 2009, <<http://www.nineoclock.ro/2009/05/25/page/3/>>.

¹⁹ 'Romania sells tens of thousands of Kalashnikovs to Americans', *Bucharest Herald*, 16 Aug. 2011.

²⁰ Schmitt, R. and Young, R., 'Romanian weapons modified in the U.S. become scourge of Mexican drug war', Center for Public Integrity, *iWatch News*, 3 Feb. 2011, <<http://www.iwatchnews.org/2011/02/03/2158/romanian-weapons-modified-us-become-scurge-mexican-drug-war/>>.

²¹ 'Cugir weapon factory RON 6.6 M in the red', *Nine o'clock*, 28 Mar. 2011, <<http://www.nineoclock.ro/cugir-weapon-factory-ron-66-m-in-the-red/>>; and Soare, F., 'FA Cugir nu poate fi salvată prin declarații politice!' [Cugir FA cannot be saved by political statements!], *Informatia de Alba*, 31 Jan. 2011, <<http://www.informatiadealba.ro/social/fa-cugir-nu-poate-fi-salvata-prin-declaratii-politice/>>.

²² Nicolae, F., 'Directorul general "Romarm" a vorbit despre planurile de revigorare a Fabricii de Arme Cugir' ['Romarm' director general talked about plans to revive Cugir Weapons Factory], *Alba24*, 29 Jan. 2011, <<http://alba24.ro/directorul-general-romarm-a-vorbit-despre-planurile-de-revigorare-a-fabricii-de-arme-cugir-14139.html>>.

III. The Romanian aviation industry

The origins of the Romanian aviation industry date back to the early 20th century. Before 1989 it included eight key producers and two research institutes, coordinated by the National Centre of the Romanian Aeronautical Industry, and employed 35 000 people, including 2500 in research institutes.²³ Since 1989 the sector has managed to preserve its relative autonomy, has become a primary destination for foreign direct investment and has performed far better than the rest of the defence sector. In 2012 eight manufacturers—Industria Aeronautica Romana (IAR) Braşov, Aviaone Craiova, Aerostar (Bacău) and Bucharest-based Aerofina, Aeroteh, Romaero, Turbomecanica and Metav—and seven private and state-owned R&D institutes employed more than 7000 people.²⁴

Romaero

The largest Romanian aviation manufacturer, Romaero, was established in 1920. By 1968 it had acquired a licence agreement with the UK-based Britten-Norman company to manufacture the Romaero Islander aircraft. In 1994 a new contract with Boeing marked a shift in activity towards parts and components and aerostructure production. In the early 2000s Romaero began to cooperate with Lockheed Martin. In 2002 Romaero invested \$2 million to ensure compatibility with Lockheed Martin, and in 2004 the partners signed a \$30 million contract to upgrade four Romanian Air Force C-130B Hercules transport aircraft. The Minister of Economy, Dan Ioan Popescu, stated that the contract was ‘a crucial moment for the Romanian defence industry’.²⁵ In April 2006 Romaero signed a frame contract with Saab Aerostructures for the production of sub-assemblies and components for Airbus A380. Aurel Cazacu, president of Romaero’s administration council, claimed that ‘There is no model of Airbus, Boeing, Bombardier [or] Gulfstream that does not include components produced in Romania’ and also noted that Saab Aerostructures was negotiating with government officials and was ‘interested in taking over Romaero’.²⁶ In 2011 the company’s shares were divided between the MOE (52 per cent), the Prop-

²³ Association of Romanian Aeronautical Companies, ‘Romanian aeronautical industry history’, 2008, <<http://www.opiar.ro/history.html>>; and Kogan, E., ‘Romanian aerospace living on the edge; after a decade of restructuring and privatisation, cooperative programmes and subcontracting seem to be the keys for the future’, *Interavia Business and Technology*, 1 Mar. 2002.

²⁴ Nae, C., ‘New concepts in Romanian aeronautical activities’, Presentation, Aerodays 2011, Madrid, 30 Mar.–1 Apr. 2011, <<http://www.airtn.eu/downloads/6h4.pdf>>; and Dempsey, A., ‘The battle for Romania’s fighter aircraft contract’, *Defence Viewpoints from the UK Defence Forum*, 24 May 2010, <<http://www.defenceviewpoints.co.uk/articles-and-analysis/the-battle-for-romania-fighter-aircraft-contract>>.

²⁵ Tudor, R., ‘\$30m upgrade for Romanian Hercules’, *Jane’s Defence Weekly*, 24 Nov. 2004, p. 12; Tudor, R., ‘Romania sees arms sales double’, *Jane’s Defence Weekly*, 2 Apr. 2003, p. 17; and Tudor, R., ‘EC 135/635 helicopters to be made in Romania’, *Jane’s Defence Weekly*, 4 Dec. 2002, p. 20.

²⁶ ‘Romaero to expand production of parts for the largest plane on earth’, *Bucharest Daily News*, 27 Apr. 2006.

erty Fund (21 per cent) and the private Romanian Muntenia financial investment fund (nearly 26 per cent).²⁷

In late 2011 Romaero employed 965 workers; its main partners were Boeing, Bombardier, BAE Systems, Israel Aerospace Industries, Spirit Aerosystems, Elbit Systems and the Société Anonyme Belge de Constructions Aéronautiques (SABCA). Romaero functioned as East Central Europe's maintenance and repair centre for narrow body aircraft and, from 2003, served as the national service centre for C-130B Hercules transport aircraft. Aerostructure manufacturing represented half of its profile, and maintenance and repair of civil and military aircraft the other half. Of the maintenance and repair activities, 60 per cent came from foreign operators. Romaero exported over 90 per cent of its products, principally to Europe, followed by North America and Asia. After 10 years in the red, Romaero became profitable in 2005 and has remained so despite the global economic crisis that began in 2008. The company has reinvested a significant share of its profits in production. In 2003 it launched a complex investment programme to upgrade its production facilities and has continued to invest large sums of money in upgrading (€500 000–1 million, or \$700 000–1.4 million) since 2009.²⁸

IAR Braşov

IAR Braşov was founded in 1925 as a joint venture with the French companies Blériot-Spad and Lorraine-Dietrich. In the 1970s the company built the 316B Alouette III and SA-330 Puma helicopters under licence and became the only helicopter manufacturer in the country. In 2002 IAR Braşov and German-French Eurocopter created a joint venture, Eurocopter Romania, to manufacture, overhaul and repair the Alouette and Puma helicopters, sharing assets (49 : 51 per cent). IAR Braşov also cooperated with EADS.²⁹ In 2004 the company split into IAR Ghimbav, later again renamed IAR Braşov (construction, repair and maintenance of helicopters), ICA Ghimbav (construction and repair of small aeroplanes and gliders) and Top Therm (PVC elements). In 2008 Top Therm went bankrupt.³⁰ IAR Braşov employed 3900 people before 1989, 1700 in 2002 and 550 in 2010.

²⁷ Romaero, 'About Romaero', <<http://www.romaero.com/>>; and 'SIF "Muntenia" hopes that "Franklin Templeton" will actively get involved in the management of "Romaero"', *Bursa*, 8 Dec. 2010.

²⁸ Brânzan, A., 'Peste 90% din producţia ROMAERO merge la export: interviu cu domnul Mişa Popic, directorul general al societăţii' [Over 90% of ROMAERO's production is exported: interview with Mr Mişa Popic, general manager of the company], *Bursa*, 23 Nov. 2011; 'Romania's Romaero Jan-Sept net profit falls 38.4%', SeeNews, 28 Oct. 2011, <<http://wire.seenews.com/news/romania-romaero-jan-sept-net-profit-falls-38-4-209355>>; and 'Romaero continues cooperation with SABCA', Nine o'clock, 31 Mar. 2011, <<http://www.nineoclock.ro/romaero-continues-cooperation-with-sabca>>.

²⁹ Occasionally the company was also referred to as IAR Ghimbav. IAR Braşov, 'Company profile', <<http://www.iar.ro/>>; Tudor, R., 'Romanian troops join "Enduring Freedom"', *Jane's Defence Weekly*, 24 July 2002; and Tudor, 'EC 135/635 helicopters to be made in Romania' (note 25).

³⁰ Giurma, D., 'La Ghimbav se va construi o fabrică de componente de aviație' [Ghimbav will build an aircraft component factory], *Realitatea.net*, 3 Mar. 2010, <http://www.realitatea.net/la-ghimbav-se-va-construi-o-fabrica-de-componente-de-aviatie_703014.html>; and 'Maestro-Constanta to handle Toptherm bankruptcy', *Bursa*, 8 Apr. 2008.

The company's shares were traded on the stock exchange and were divided among the state asset-managing agency, AVAS, the Ministry of Labour, Family and Social Protection, a private Romanian financial investor, Societatea de Investitii Financiare (SIF) Transilvania, and other minor shareholders. In the late 2000s the Romanian Government launched another of its privatization campaigns, and IAR Braşov's key foreign partners, Eurocopter and EADS, competed to buy the company, although in the end after lengthy negotiations both bids were rejected. Eurocopter France repeatedly expressed its interest to purchase IAR Braşov. In 2008 a bid by Aero Vodochody was also refused.³¹ In June 2010 the company's shareholders approved the transfer of its most important assets—'land, buildings, fixed assets, manufacturing preparation, technical documentation pertaining to the maintenance, repair and overhaul activities' for the Alouette and 330 Puma helicopters—to Eurocopter Romania, as a contribution to the capital of that joint company. The Competition Council approved the transfer later in the year, but the small shareholders, led by SIF Transilvania, protested and the deal was suspended.³² Even though IAR Braşov has turned a profit since the mid-2000s in the second half of 2011 it appeared on the list of companies selected for the MOE's State CEO project.³³

Aerostar

Aerostar, an aeronautical company located in Bacău, worked together with Elbit Systems on a major military project: the MiG-21 Lancer aircraft upgrade for the Romanian Air Force. It also produced spare parts for Airbus, Boeing and civil aviation, and participated in projects run by the Dutch company Fokker. The company manufactured sport and light aircraft, mainly for export to the USA, and offered maintenance services for the civil aviation sector and inspection services for a wide range of aircraft, such as the Saab 340 and the Boeing 737. In January 2007 BAE Systems Regional Aircraft selected Aerostar as the

³¹ Anderson, G., 'Eurocopter declares continued interest in IAR Brasov', *Jane's Defence Industry*, 23 Apr. 2007; Agence France-Presse, 'Roumanie: Eurocopter renonce à l'avionneur IAR Brasov' [Romania: Eurocopter waives the manufacturer IAR Brasov], *Les Echos*, 15 Sep. 2008; Gagi, F., 'Aero Vodochody to take over IAR', *Income Magazine*, 19 Nov. 2008, <<http://incomemagazine.ro/articles/aero-vodochody-to-take-over-iar>>; and 'AVAS will launch privatization of IAR Ghimbav again', *Romanian Business News-ACTmedia*, 19 Dec. 2008.

³² Vrânceanu, O., 'The Ministry of the Economy, Trade and Business Environment (MECMA) has rejected the exchange of stock in other companies for IAR Ghimbav', *Bursa*, 7 Nov. 2011; and 'Competition body okays IAR Ghimbav take-over by Eurocopter', *Nine o'clock*, 26 Oct. 2010, <<http://www.nineoclock.ro/competition-body-okays-iar-ghimbav-takeover-by-eurocopter/>>.

³³ 'IAR Braşov a înregistrat în 2007 un profit net de circa 12 milioane lei' [In 2007 IAR Braşov recorded a net profit of about 12 million], *Financiarul*, 3 Mar. 2008, <<http://www.financiarul.ro/2008/03/03/iar-brasov-a-inregistrat-in-2007-un-profit-net-de-circa-12-milioane-lei/>>; Chirileasa, A., 'IAR Braşov ar putea distribui dividende de 4 mil. lei' [IAR Braşov could distribute dividends of 4 million lei], *ZF Burse-Fonduri Mutuale*, 31 Mar. 2011, <<http://www.zf.ro/burse-fonduri-mutuale/iar-brasov-ar-putea-distribui-dividende-de-4-mil-lei-8117842>>; 'Romanian Economy Min. wants to hire private managers for state companies with losses' (note 10); and Vrânceanu, O., 'IAR Braşov ar putea evita „managementul privat”' [IAR Braşov could avoid 'private management'], *Bună Ziua Braşov*, 28 Apr. 2011, <http://www.bzb.ro/index.php?page_name=stire_detalii&id_stire=63114>.

prime contractor for a BAE 146QT (Quiet Trader) conversion programme.³⁴ In addition to repair work on military aircraft engines and maintenance on the Boeing 737, Aerostar produced ground combat vehicles and completed the Dialog programme, an IFF system—both for the Romanian armed forces. The company also manufactured the civil Festival aircraft, which was purchased by private domestic clients, including the Romanian Airclub, and by customers in Australia, Canada and the USA. Since the end of 2006, Aerostar's position has stabilized, largely due to its collaboration with companies such as BAE Systems, EADS and Fokker.³⁵

In 2000 Aerostar had been fully privatized and its shares had begun to be traded on the Bucharest Stock Exchange, but the company had been profitable even before its privatization and it has continued to perform well ever since. In 2010 Aerostar employed 1257 people (a decrease from 1600 in 2008), had a 158 million lei (\$50 million) turnover, a net profit of 11.2 million lei (\$3.5 million) and exports of 56 per cent of its output (an increase from 43 per cent in 2008). Civil sales represented 40 per cent. Despite the global economic crisis, the company maintained its position on domestic and foreign markets and even managed to spend 9 per cent, 14 million lei (\$4.4 million), of its turnover on capital investments.³⁶ In late 2008 Aerostar and Alenia signed a memorandum of agreement to cooperate on various aerospace industrial and engineering activities, including the Eurofighter Typhoon combat aircraft programme (if the MND chose to buy it).³⁷ In April 2010 Textron Marine & Land Systems announced that it had formed a partnership with Aerostar to participate in efforts to modernize the Romanian land forces' armoured vehicles.³⁸

Despite the economic crisis that hit Romania hard, Aerostar was profitable in 2012 and in June it started a 21.9 million lei (\$6.3 million) programme to expand its production facilities. The EU contributed 8.7 million lei (\$2.5 million) to the project.³⁹

Avioane Craiova

Avioane Craiova, a military aircraft manufacturer, was founded in 1972. Its first project, in cooperation with the former Yugoslavia, was the IAR-93 combat aircraft, of which 200 were delivered to Romania. Although the model was decommissioned and discontinued when Romania joined NATO, the company

³⁴ Jackman, F., 'Cultivating conversions', *Aviation Week & Space Technology*, vol. 166, no. 18 (May 2007).

³⁵ 'The Romanian aeronautics industry', Radio Romania International, 30 Oct. 2007, <<http://old.rri.ro/arh-art.shtml?lang=1&sec=10&art=6674>>.

³⁶ Aerostar, *Annual Report 2010* (Aerostar: Bacau, 2011).

³⁷ 'Alenia Aeronautica and Aerostar S.A. sign a memorandum of agreement for future collaboration in the aerospace field', *Defense World*, 22 Oct. 2008, <<http://www.defenseworld.net/news/1713>>.

³⁸ 'Textron, Aerostar partner on Romanian bid', UPI, 9 Apr. 2010.

³⁹ 'Romanian aircraft maker Aerostar 9-mo net profit surges 163%', *SeeNews*, 5 Nov. 2012, <<http://wire.seenews.com/news/romanian-aircraft-maker-aerostar-9-mo-net-profit-surges-163-313479>>; and Belkina, K., 'Romania's Aerostar launches 21.9 mln lei (5.0 mln euro) project to raise capacity', *SeeNews*, 21 June 2012, <<http://wire.seenews.com/news/romania-aerostar-launches-21-9-mln-lei-5-0-mln-euro-project-to-raise-capacity-284081>>.

continued to produce an updated training aircraft, the IAR-99 Falcon or IAR-99 Şoim, together with Elbit Systems. Avioane Craiova also supplied spare parts for leading aircraft producers and repair services for civil aviation for companies such as Fokker and SABCA.⁴⁰

In the early 2000s Avioane Craiova had been offered for sale, but the government only received offers from buyers attracted to the valuable real estate. Interest in the company suddenly increased when Romania announced a tender for a multi-role combat aircraft to replace its MiG-21 Lancer aircraft fleet. In order to increase its chances, in 2007 Saab expressed interest in buying Avioane Craiova.⁴¹ Alenia, representing the Eurofighter consortium, also presented an offer, accompanied by an offset deal of at least 80 per cent that would 'involve most Romanian aerospace and defense companies'. The comments of Enzo Casolini, Alenia's senior vice-president for military programmes, provide rare insight into the logic of negotiations: 'This interest forms part of a possible offset offer . . . although we would need to do a survey of the facilities to look at the possibility of creating logistics activities.' The group promised that Romania might even receive an assembly line if it bought 48 Eurofighters. 'If only 24 are bought, assembly, however, becomes more complicated.'⁴²

Between 2007 and 2009 five attempts to sell Avioane Craiova failed, and AVAS and the bidders accused each other of making impossible demands. In 2009 the company was transferred to the MOE, which also failed to sell it. By July 2009 Avioane Craiova's debt was estimated to total €18 million (\$25 million).⁴³ In the meantime the workforce had decreased from 1300 in 2002 to 700 by mid-2006 and the company's financial situation continued to deteriorate. Attempts to secure European Commission funding for the company also proved fruitless. In May 2010 the MOE began a restructuring programme in the hope of reducing running costs.⁴⁴

In 2009 SABCA terminated its cooperation with Avioane Craiova, noting the lack of demand caused by the global economic crisis.⁴⁵ This dealt a major blow to the company, which had seen its manufacture of components for the Airbus A330 and A340 as a way to enter the civil aviation market. The MND, with its orders for repair and upgrade of the IAR-99 Falcon aircraft, remained the company's most important client, but Avioane Craiova's management worried that budget cuts would affect the MND's orders and ability to pay.⁴⁶ In 2009 the

⁴⁰ 'The Romanian aeronautics industry' (note 35).

⁴¹ Anderson, G., 'Saab prepares Avioane Craiova bid decision', *Jane's Defence Industry*, 25 Apr. 2007; and 'Avioane Craiova still in Saab's plans', *New Europe*, 24 Mar. 2008, <<http://www.neweurope.eu/node/24158>>.

⁴² Italy pitches Romania Eurofighter offset', *Defense News*, 5 Nov. 2007.

⁴³ Anderson, G. and Bell, M., 'Romania embarks on fifth attempt to sell Avioane Craiova', *Janes.com*, Romania News Watch, 26 Nov. 2009, <<http://www.romanianewswatch.com/2009/11/romania-embarks-on-fifth-attempt-to.html>>.

⁴⁴ 'Avioane, Avioane Craiova SA (Romania), aircraft manufacturer', *Jane's All the World's Aircraft*, 1 Feb. 2012.

⁴⁵ On SABCA's continued cooperation with Romaero on Airbus 380 see 'Romaero continues cooperation with SABCA', *Nine o'clock*, 31 Mar. 2011, <<http://www.nineoclock.ro/romaero-continues-cooperation-with-sabca/>>.

⁴⁶ Grosoreanu, B., 'SABCA renunță la contractul cu Avioane Craiova' [SABCA canceled the contract with Avioane Craiova], *Gazeta de Sud*, 14 July 2009.

company had accumulated losses of over 19 million lei (\$6.2 million) and was on the verge of bankruptcy. In May 2010 Romanian news media reported that the company could be saved if the MND chose to purchase a multi-role aircraft, because Avioane Craiova would benefit from offsets or could offer its IAR-99 Falcon as a temporary solution.⁴⁷ The company also proposed reconfiguring its aircraft for police use. In early 2011 the government announced its decision to forgive Avioane Craiova's debt of €10.7 million (\$14.9 million) as part of a plan to erase the arms industry's debt.⁴⁸ In the first months of 2011 Avioane Craiova's turnover continued to fall and its losses to increase, and by mid-year the company's general manager was replaced.⁴⁹

Other aviation industry companies

Other Romanian aviation industry companies include Turbomecanica, in Bucharest, which manufactures aircraft engine parts for Rolls-Royce. In 1990 two companies split off from Turbomecanica and one of these, Aeroteh, continues to cooperate with companies such as Eurocopter and Rolls-Royce. Aero-fina, another Bucharest company, has developed and produces ejection seats for aircraft, black boxes for the MiG-21 Lancer aircraft and Puma helicopters, and missile launchers. It has participated in all major Romanian aircraft projects, equipping aircraft with flight instruments and avionics.⁵⁰

In July 2011 Premium Aerotec, a wholly owned German subsidiary of EADS, opened a new factory in Ghimbav for the production of aircraft components for Airbus. The company—established in Aeropark Braşov, close to IAR Braşov and Eurocopter Romania—became the centrepiece of the Ghimbav Aerospace Technology Park, a high-tech aviation industrial park to which the Romanian Government pledged to contribute €19 billion (\$26.4 million).⁵¹

⁴⁷ Grosereanu, B., 'Avioane Craiova SA, salvată cu 30 de milioane de euro' [Avioane Craiova SA, could be saved for 30 million euros], *Gazeta du Sud*, 7 May 2010.

⁴⁸ Ionaşcu, D., 'Avioane Craiova vrea să facă "poliţie aeriană"' [Avioane Craiova wants to create 'air police'], *Jurnalul Naţional*, 30 Oct. 2011; and 'Situatie disperata la Avioane Craiova' [Avioane Craiova desperate], *Aviatic Magazin*, 28 Aug. 2011.

⁴⁹ 'Avioane Craiova replaces its general manager', *Bursa*, 11 July 2011.

⁵⁰ 'The Romanian aeronautics industry' (note 35); and Mişu, C. and Tudose, M., 'Collaborations internationales pour l'industrie de défense' [International collaborations for the defence industry], *Radio Romania International*, 2 Sep. 2008, <<http://old.rrr.ro/arh-art.shtml?lang=6&sec=75&art=14437>>.

⁵¹ 'EADS, aircraft maker IAR Brasov to receive state aid for EUR 92 mn joint project', *Euro-money.com*, 24 Aug. 2009, <<http://www.euromoney.com/Article/2281039/EADS-aircraft-maker-IAR-Brasov-to-receive-state-aid-for-EUR-92mn-joint-project.html>>; and 'Aerospace plant opened in Romania', *UPI*, 15 July 2011.

10. The new arms industry in East Central Europe

I. Key factors affecting the choice of a new defence industrial model

In East Central Europe four tightly interrelated factors shaped each country's choice of a model for defence industrial adjustment: the direction of foreign policy, the general state of the economy and the type of economic reform package that was introduced, the domestic defence industrial policy, and the heritage of the Warsaw Pact.

The direction of foreign policy

Foreign policy and international ambitions directly influenced the development of the domestic arms industry in the countries of East Central Europe. For arms manufacturers, the foreign military missions of the national armed forces generated the most important business opportunities.

Poland's active foreign policy and close ties to the United States meant that it benefited from the most important defence-related orders, cooperation and offset deals. Contracts related to foreign military missions played a crucial role in reviving the ailing Polish arms industry: participation in such missions, together with independent national or joint battle groups, created higher demand for Poland's domestic manufacturers. However, the foreign policy of the 2005–2007 government of Lech and Jarosław Kaczyński focused on domestic matters and at times that government engaged in confrontation with European institutions. The subsequent government, led by Donald Tusk, readjusted the balance between the country's international and regional roles and domestic policy.

Foreign military undertakings played a major role in shaping the defence sector in both Bulgaria and Slovakia. In contrast, their impact was less important in the Czech Republic and Hungary, which filled niche functions in international military endeavours, thus resulting in more modest orders for their arms makers.

All of the countries of East Central Europe followed a predominantly US-oriented foreign policy, but each also made important gestures towards their European partners. They took part in European Union or United Nations international missions and diversified their military procurement choices. However, when the economic crisis began in 2008 and they were

forced to reduce their foreign engagements, they terminated first their contributions to UN and then those to EU missions.

The general state of the economy and the type of economic reform package

The general state of the economy determined the feasibility of international roles for the countries of East Central Europe. The economic situation in the ECE countries that became members of NATO in the 1999 round of enlargement (the Czech Republic, Hungary and Poland) was relatively better than that of those that joined NATO in 2004 (Bulgaria, Romania and Slovakia), but developments since have somewhat rearranged these positions. Due to economic constraints, Romania could not afford a more prominent international position, even though it aspired to have one, while Poland's relatively early economic recovery enabled it to channel significant resources to the arms industry and to nurture that industry's international ambitions. The Czech Republic's relative economic stability would have enabled it to play an active international role, but its foreign policy was rather inward-oriented.

The type of economic reform adopted in each ECE country—shock therapy, radical reform or gradual reform—also had a direct impact on defence industrial developments. It determined the speed and depth of economic restructuring and institutional changes, the role of the state, the amount and directions of foreign direct investment, the state of the banking system, infrastructure development and other important matters. It also played a key role in the timing of each country's entry into the EU and NATO. Measured by the standard International Monetary Fund and World Bank criteria, the Czech Republic, Hungary and Poland were the most advanced on the 'transition trajectory' of privatization, economic and political liberalization, and inflow of FDI. However, economic and political considerations became less important after the terrorist attacks on the USA of 11 September 2001, and external security-related factors gained priority in the process of selecting candidates for membership.

Privatization, one of the key targets of post-cold war transformation, occurred in a modified fashion in the defence sector. Governments often blocked privatization, even in countries such as Poland that advocated fast and wide-scale privatization in the rest of the economy, or carried it out in a particular way. In both Poland and Romania the way in which commercialization of state assets took place led to a new concentration of economic power at the state-owned commercial holdings. Crony privatization in Slovakia, under Vladimír Mečiar's second term as prime minister, gave significant economic assets and power to personal allies of Mečiar and created powerful political and economic centres of power, similar to past

relations of power and dependence. Unresolved ownership questions heavily burdened defence industrial companies and obstructed their restructuring, as developments in the 1990s in Bulgaria and Romania illustrate. Rapid and early privatization could facilitate adjustment, as some examples from the Czech Republic and Hungary that advocated radical privatization show, but only if it was paired with efficient management and capital investments.

Domestic defence industrial policy

State defence industrial policy, the key factor in shaping developments in the defence sector, determined the relationship between the national armed forces and modernization of the arms industry and established the share of domestic arms that were procured. It also defined the size and nature of resources and assistance provided to the arms industry. The government's foreign policy and the type of economic reform package had major impact on the key defence industrial policy choice—whether arms making was considered a special strategic sector or not. If the arms industry preserved its special position in the economy, a set of targeted policies managed it, but if arms making became a 'neutral' economic sector, its place in the economy depended on its performance rather than its nature.

The internationally most ambitious countries, Poland and Romania, had the most active defence industrial policies. They preserved a significant military-related production base that was largely protected, promoted and owned by the state. The arms industry was considered an engine of growth and an important tool of international integration. Initially, both countries supported all defence companies, justifying the choice with economic and national security arguments. As the political and economic transformation process unfolded, the policy of general protection and support gradually shifted to one of selective promotion. Both Poland and Romania created a core defence industrial group that was protected and promoted by the state, even during the worst periods of economic hardship. In the Czech Republic, and from the late 1990s also in Slovakia, a mixed policy united elements of liberalism and the selective promotion of special projects.

Hungary chose an essentially neutral 'hands-off' defence industrial policy that treated defence-related companies by and large like any other commercial company. Occasionally, they received government backing or modest financial support—mostly in the context of NATO-related missions—but these were exceptions. Regular upsurges of a more active state policy occurred but usually were not followed through. Military-related production gradually lost its special importance. Although it could still fulfil significant economic functions and act as an element of international

economic or institutional integration, its weight seriously diminished. The post-2010 defence industrial policy changes aimed to reverse these developments by introducing general protection and promotion of the remaining arms makers; however, the new policy guidelines were not well-founded and the resources to accomplish them were missing.

Since it had lost its special, crucial place in the economy, in Hungary, and to a lesser extent in the Czech Republic, the arms industry was indistinctively subject to general economic policy. In the early 2000s, for example, Hungary introduced sweeping budget cuts to balance the state budget and spending on arms production was radically trimmed, even though this caused major difficulties for the defence sector. In Hungary defence industrial policy guidelines usually described possible future developments or listed requests, while in Bulgaria, Poland, Romania and Slovakia they represented actual policy measures to be implemented. General policy guidelines were often bent or modified to suit the needs of the arms industry. Procurement exemplified this approach, and the governments took decisions about most major modernization projects for the armed forces outside the general procurement policy framework and financed them from extra-budgetary sources.

The nature of defence industrial policy determined the sector's institutional organization. If a state adopted an active defence industrial policy, the sector was kept together in large state-owned holding companies. In Poland the state-owned ARP (the Industrial Development Agency) and the Bumar Group united the core defence industrial producers. In Romania the Romarm holding company and Romtehnica did the same and also managed the most important defence-related projects and traded on behalf of the companies. In Bulgaria, the Czech Republic, Hungary and Slovakia the state no longer organized and managed the defence sector, which became a loose group of separate companies that were kept together by common interests and voluntary associations.

Countries with an active defence industrial policy usually sought to promote arms exports. The Czech Republic and later Bulgaria and Slovakia adopted more or less liberal defence industrial policies. However, they made targeted efforts to market the products of their arms industries, particularly in the emerging markets of Asia and Africa.

The heritage of the Warsaw Pact

Macroeconomic and international political factors undoubtedly decided the adjustment model for the arms industry that a country chose, but the Warsaw Pact period also left its mark. The composition of the arms-making industry, its infrastructure, the size and geographic distribution of the companies, and the composition of the labour force formed the base on which

Table 10.1. Defence industrial adjustment models in East Central Europe

Bulgaria	Czech Republic	Hungary	Poland	Romania	Slovakia
<i>International role, foreign policy</i>					
Relatively active	Passive	Passive	Active	Active	Active
<i>Economic reform</i>					
Gradual; later, liberalism	Radical	Radical	Shock therapy	Gradual; later, liberalism	Gradual; later liberalism
<i>Status of arms industry</i>					
Partially exempted from reform	Included in reforms	Included in reforms	Exempted from reform	Exempted from reform	Exempted from reform; later, included
<i>Defence industrial policy</i>					
Active; first, general; later, selective promotion	Passive; later, selective promotion	Passive	Active; first, general; later, selective promotion	Active; general promotion	Active; first, general; later, selective promotion
<i>Warsaw Pact heritage</i>					
Preserved with modification	Largely eroded	Eroded	Preserved with modification	Preserved with modification	Eroded

the new model was built. Defence industrial policy determined whether to preserve or abandon the heritage of the Warsaw Pact. Bulgaria, Poland and Romania opted to revive the specialization, trade and cooperation practices of the past, while Hungary and Slovakia dismantled this heritage. In the Czech Republic most of the Warsaw Pact structure has gradually dissolved due to a slow erosion process.

II. Defence industrial adjustment models

By the mid-2000s the complex interplay of the four key factors outlined above led to the emergence of two distinct models of defence industrial adjustment in East Central Europe: the Polish model and the (pre-2010) Hungarian model. On the models chosen by the six countries studied here see table 10.1.

From the early 1990s Poland played an active international role. Its foreign policy was and continues to be markedly Atlanticist, and the country has often volunteered to mediate between the 'old' and the 'new' Europe, skilfully using its status as a privileged partner of the USA. Poland has also emerged as a leader in Eastern Europe, particularly in relation to some of the countries close to it: Belarus, Estonia, Latvia, Lithuania and Ukraine.

Immediately after the collapse of the old regime the government introduced economic shock therapy: radical privatization and marketization of the whole economy. The state, however, remained the main and majority owner of the core defence companies and played a key role in consolidation of the sector. Regardless of political orientation, successive Polish governments embraced an active defence industrial policy, regularly placing orders, promoting exports, and providing subsidies and other forms of assistance to arms-making firms. The bulk of the output of these companies was destined for the national armed forces and was used in international military missions. Poland has preserved the industrial heritage of the Warsaw Pact—the key companies, the structure of production, and the composition and geographical distribution of assets. The defence sector has remained a specific, key economic sector, embedded in the deep economic structures, with extensive horizontal and vertical linkages and firm political backing.

Hungary has followed a rather passive foreign policy that at times makes it appear almost reluctant to participate in EU or NATO activities. Internal political struggles and conflicts with its neighbours characterized the country in most of the post-cold war period. Despite occasional bursts of more active promotion of the defence sector, succeeding governments adopted a primarily passive defence industrial policy. Stabilization of the sector resulted from the restructuring efforts of individual companies. In the early 1990s the government privatized most defence firms, and state agencies withdrew from protection and management activities. Modest domestic orders led the government to encourage companies to increase their foreign sales, but state agencies did not actively promote exports. The heritage of the Warsaw Pact eroded during the roller-coaster years of economic transformation. Arms making lost its privileged status and became a largely neutral economic branch whose development and status depended principally on economic factors and ad hoc political interests. From 2010 the government intended to change this model and adopt a general protection and promotion policy.

In Bulgaria, the Czech Republic, Romania and Slovakia the combination of the key factors that shaped defence industrial adjustment resulted in different variations of these two models.

The adjustment model chosen by Romania was closest to that of Poland. Romania gave its domestic arms industry a key role, both as an engine of growth and as a tool of international integration. The state preserved the key defence-related production facilities and managed them through a state-owned holding company. However, even though its defence industrial guidelines advocated generous support, Romania was unable to sufficiently assist its arms companies due to its relatively limited resources. Despite active promotion of arms exports, most of the output of Romania's arms

manufacturers was bought by its Ministry of National Defence. Economic difficulties also restricted the country's international role and participation in foreign military missions. The Warsaw Pact heritage remained discernible in the main features and structure of the sector.

After the political turnover Bulgaria intended to maintain and promote its ailing arms industry but lacked the financial resources to back this policy. In 1997 the government of Ivan Kostov opted for radical change, including a bold privatization policy, but a significant segment of the defence sector remained in state ownership and was protected until the late 2000s. Defence industrial policy combined elements of selective protection and liberalism, accompanied by export promotion. NATO membership and Bulgaria's status as a strategic ally in the USA's 'global war on terrorism' reinforced the particular importance of the defence sector. Most of the companies and production structures from the time of the Warsaw Pact survived and, beginning in the early 2000s, they became the foundation on which the partial recovery of the sector was built.

In the early 1990s the Czech Republic introduced the most radical policy for dismantling the defence sector and its Warsaw Pact heritage, but by the mid-1990s the country had made a sharp turn and adopted a policy of selective promotion. Most defence-related assets had already been privatized but, using principally economic arguments, the state renewed protection and promotion for certain segments of the sector. Companies that were involved in the development of the L-159 combat aircraft or in specific NATO-related projects received some form of official protection and assistance, including significant orders. The remaining firms struggled for survival on their own. By the late 2000s the Warsaw Pact-origin defence industrial base had been significantly modified. While the Czech Republic followed a rather passive foreign policy, it actively promoted arms sales abroad.

After gaining its independence, Slovakia followed a markedly nationalistic policy under the two governments led by Mečiar and adopted a protectionist economic model. The state led the process of stabilizing the arms industry, and government agencies continued to play a key role in coordinating, protecting and promoting the sector. The government of Mikuláš Dzurinda, which took office in 1998, introduced an outward-oriented, active foreign policy and a radical economic reform package, including new defence industrial guidelines. These consisted of full privatization of the sector and a selective promotion policy that concentrated on NATO-related products and those with promising export potential. The industrial heritage of the Warsaw Pact was dismantled. By 2006—when Robert Fico's coalition government came to power with a more interventionist and nationalistic agenda, including renewed support for the arms industry—changes in the sector seemed to be irreversible.

III. The outcome of defence industrial transformations

The post-cold war transformation of the arms industry in East Central Europe caused significant human and material losses. The radical reduction of military-related production facilities and workforces could have meant increased resources for civil projects, which was the scenario envisaged at the beginning of the process. However, by the early 1990s governments abandoned comprehensive conversion projects and the freed assets that had previously been tied to the military sector contributed only marginally to national economic recovery. Instead, the changes led to significant economic and social losses that had to be borne by the affected regions, companies and people. Tens of thousands of workplaces closed; decades of accumulated know-how was lost; large amounts of technology, raw material, parts and finished products were sold at rock-bottom prices or simply discarded; and industrial estates and their complex infrastructure were shut down or abandoned. At the end of the cold war the functional, high-quality assets of the arms industry could have been converted into drivers of a new, knowledge-based economy, but the opportunity was lost.

The arms industry continued to absorb significant resources during the decades of transformation after 1989. In Poland the aggregated value of the resources pumped into the defence sector since the end of the cold war probably far surpasses the benefits produced. In countries where the arms industry was marginalized, expenses were smaller, although not negligible. Even in Hungary, which followed a principally hands-off policy, the 'natural decay' of the sector caused considerable economic loss because the government was reluctant to deal with the economic, labour and environmental consequences of the 'spontaneous market cleansing'. The government's sudden decisions to direct considerable resources to the sector—although not sufficient to restart a growth cycle—ultimately contributed to the losses and this might well also be the fate of the recent revival efforts.

Poland's post-cold war adjustment is considered the success story of the region. It possesses not only the largest arms industry, with the highest volume of exports, but also business partnerships with prestigious international weapon manufacturers. However, these accomplishments came at the high price of continuous support for the sector, in the form of direct and indirect subsidies, investments, orders, institutional arrangements and export promotion. Until the early 2000s the defence sector absorbed enormous resources without producing convincing results. Even insiders started to consider the arms industry an economic burden and questioned the rationality of dedicating more resources to the sector.¹

¹ Kinski, A., 'Malaysia, Iraq—and more . . . Would Poland increase her share in the international defence trade?', *Polish Defence Yearbook 2007: Industry, Armed Forces and Security Services*, vol. 2 (2) (Technika Wojskowa and Polish Chamber of National Defence Manufacturers: Warsaw, 2007).

The *deus ex machina* that suddenly changed the situation was the US 'global war on terrorism'. Poland participated in the wars in Afghanistan and Iraq and capitalized on the unprecedented business openings that these undertakings presented. Under US tutelage, the country sold large quantities of military hardware to the Iraqi Army and modernized and rapidly armed its own military contingents that were dispatched to Afghanistan and Iraq. These events accelerated the slow and reluctantly ongoing defence industrial restructuring in Poland and greatly increased weapon sales, retrospectively 'justifying' the intense defence industrial promotion policy of the previous decade.

By the second half of the 2000s, however, it became clear that in order to secure additional export deals, indispensable for its survival, the Polish arms industry needed to improve what it had to offer. The country sold some excellent, high-tech niche products, but most of its military exports consisted of modernized, repeatedly upgraded traditional weapons that were produced by the Warsaw Pact-origin industrial base and sold to emerging markets. The modification of this export structure would have required further large-scale investments, the intense promotion of military-related R&D and quick implementation of its results. Nevertheless, macro-economic conditions and the state of the arms industry made such a major qualitative shift unlikely. Although Poland performed remarkably well during the post-2008 global economic crisis, it had to be prudent about its future investment choices. The defence sector was far from healthy, and the success of companies still depended largely on state orders and promotion. In 2009 a US expert team concluded that 'Through this period of transition, the Polish defense industry has struggled to maintain its viability. . . . most of its factories are obsolete and unprofitable'.² Sławomir Kułakowski, President of the Polish Chamber of National Defence Manufacturers, confirmed that the state of the Polish arms industry was 'not as good as we might expect after so many years of changes and restructuring. In addition, it has been badly hit by the global recession.'³ The Tusk government's recent plans to invest more in arms making and promote widely weapon production and exports might cause economic tensions in the long run.

In the case of Slovakia, the ratio of resources dedicated to and results produced by the defence sector was better than in Poland. In the first stage of transformation, arms making was generally protected and strongly pro-

² Bialos, J. P., Fisher, C. E. and Koehl, S. L., 'Assessing the Polish defense market', *Fortresses & Icebergs: The Evolution of the Transatlantic Defense Market and the Implications for U.S. National Security Policy*, vol. 2, *Country Studies* (Johns Hopkins University, Center for Transatlantic Relations and School of Advanced International Studies: Washington, DC, 2009), p. 447.

³ See Anna Kapica-Harward's interview with Sławomir Kułakowski, President of the Polish Chamber of National Defence Manufacturers, 'Polish firms losing the export war', *Warsaw Business Journal*, 8 Nov. 2010.

moted despite the economic difficulties this policy created. However, from the late 1990s the policy guidelines of the Dzurinda government subjected the arms industry to the same radical restructuring as the rest of the economy, unlike the situation in Poland, where it had been exempted from the shock therapy. Slovakia provided targeted financial assistance to NATO-related activities and to the development of some niche products with export potential. During the years of the ‘Slovak miracle’—the spectacular increase of GDP and FDI inflows in the early 2000s—the country could have financed whole-scale reconstruction of the defence sector but chose not to do so. The new defence industrial policy superseded both the heritage of the Warsaw Pact and post-Communist nationalist ambitions, arms production lost its privileged position, and other, more profitable economic activities took its place. The renewed, significantly reduced and modernized defence sector corresponded better to the country’s security needs. Some of the successful products that resulted from the restructuring were purchased by the Ministry of Defence and sold to fellow NATO members and developing countries.

IV. The revitalized arms industry in East Central Europe

The traditional arms industry in East Central Europe

By the first decade of the 2000s a number of factors had profoundly transformed the arms industry in East Central Europe: major international changes in politics and economics, including the transformation of the global arms industry; new defence industrial policies and adjustment models introduced in the ECE countries; and various survival strategies adopted at the company level. In order to evaluate the changes that took place, it is useful to recall briefly the main characteristics of the traditional arms producing sector in the region.

National arms industries were integrated in the Warsaw Pact production and distribution system

The arms industry of East Central Europe catered to the needs of the Soviet-dominated Warsaw Pact, whose guidelines determined the size, sectoral distribution and manner of functioning of the national arms industries, which were part of this international system. Arms producers had to meet the needs of large-scale captive markets of the Warsaw Pact, cater to some of the needs of their national armed forces and provide military equipment for brother countries in the developing world.

The Warsaw Pact’s arms producers depended strongly on the technology of the Soviet Union, with most of its standards based on Soviet designs. According to the organization’s internal division of labour, in addition to

large-scale mass production of products and parts for its markets, each member country specialized in certain areas, usually based on pre-World War II traditions and comparative advantages. For example, Bulgaria focused on the computer sector, Poland produced helicopters, the Czech industry built aircraft while Slovakia produced heavy weapons, and Hungary supplied telecommunications systems. However, the Warsaw Pact's authorities often arbitrarily changed these areas of specialization in order to prevent member countries from leading their field of specialization.

Warsaw Pact directives shaped the internal structure of domestic arms production and determined which sectors would be dedicated to mass production and which would be developed to meet specialized demand. In addition, each member country produced equipment used by its national armed forces and also complemented other defence production in the Warsaw Pact in order to ensure an uninterrupted supply of military equipment. Large parallel-production capacities located in geographically distant regions were established in order to secure supplies in the event of an enemy attack or a natural disaster.

The Warsaw Pact represented a large, stable, predictable, captive external market for the arms producers of its members. Weapon companies were designed to be able to cater to maximum possible demand, but they rarely needed to produce at full capacity. Nevertheless, arms manufacturers dedicated significant resources to maintaining peak capacity production in the event of a sudden increase in demand. In addition, they maintained 'cold capacities' that could be used in the case of mobilization.

Military trade was linked to the Eastern bloc's civil trade system, Comecon

Through marketing the civil output of the arms manufacturers, most of which conducted dual-purpose production, Comecon—the Warsaw Pact's twin organization—embedded the arms industry in the civil exchange system that existed during the cold war in East Central Europe. In the complicated trade system of the Warsaw Pact and Comecon, political mediation and a barter-like system of exchange played a crucial role.

The state played a primary role in the arms industry

The state owned, protected and promoted defence industrial enterprises. The top political establishment selected their managers, and ministry departments closely controlled the companies' operations.

Military and security considerations had undisputed priority in economic and political decision making

At both the macroeconomic and company levels, military and security considerations enjoyed priority in decision making. The state fully owned and

managed the companies and bailed them out, even in the case of poor economic performance. At the company level cost, efficiency and other economic indicators played a secondary role.

At macro-level, military and security considerations functioned as a deep, invisible organizing factor in the whole economy. They affected crucial decisions on resource allocation, the geographic distribution and economic organization of production assets, workforce, infrastructure development and R&D, even in such apparently distant sectors as the public transport network and the education system.

The arms industry represented the tip of an iceberg

Even at the height of its post-World War II development, the arms industry did not represent more than 2–8 per cent of the industrial output and export of the economies of East Central Europe. However, these figures only represented the tip of an iceberg as an enormous supply network contributed to the smooth functioning of the arms industry, which usually was not counted as part of the military-related sector. To meet the needs of arms producers, the sector's supervisory officials actively intervened in the management of the suppliers' network.

The arms industry was a closed sector

The defence industry was a closed sector both in abstract and figurative terms. Arms-production sites were often fenced off and located in remote locations. The premises usually lacked even proper geographical identification information. Inside the plants military-related production was physically separated from other activities. Even the employees of a company found it difficult to get a proper picture of its activity and assets. Unlike in the Soviet Union, closed cities built around military enterprises did not exist in East Central Europe, but many cities depended completely on a single weapon-producing employer.

Defence enterprises were like 'black boxes': they absorbed enormous resources, but their apparent level of output did not correspond to these inputs. What actually took place inside them could not easily be guessed.

The main characteristics of the new arms industry in East Central Europe

The complex transformations that have taken place in the past two and a half decades have fundamentally changed the morphology of the sector.

The sector has been significantly reduced

The output, workforce, number of companies, size of production assets and premises of the arms industry in East Central Europe have significantly

diminished since the cold war ended. The defence-related production system went through a downward readjustment to meet the minimum real demand instead of the maximum potential demand of the past.

The role of the state has changed radically

From an omnipresent and omnipotent actor, the state became one of a number of stakeholders in the arms industry, albeit a crucially important one. Depending on the country's adjustment model, the role of the state varies from a distant sympathizer that occasionally might assist arms manufacturers to an active owner and manager that takes part in daily decision making. Although state agencies continue to play an active role in the sector, their actions are influenced by economic considerations as well, not just purely political ones.

The sector has become more efficient and flexible

Following the end of the cold war, defence-related firms had to react to sudden and often unpredictable changes. The scarcity of financial resources obliged them to make the best use of their assets and reserves. Activities had to be reorganized from the shop floor to top management according to strict efficiency criteria, often using the latest management and assembly-line methods, learned from leading transnational corporations.

The sector's internal composition has changed

Using the technological ladder as a vertical axis and the number and size of the companies as a horizontal axis, the visual image of the traditional defence sector would be a wide pyramid. At the bottom of the pyramid would be numerous large firms, geared for the mass production of either heavy weapons and armoured platforms or small arms and light weapons, while a few firms that specialized in high-tech telecommunications and electronics would occupy the top. The turbulent years of economic and political transformation significantly reduced the size of the pyramid and cut off its bottom and top layers. The bulk of the large arms makers, with their massive and varied product mix and wide array of social services, went bankrupt and broke up into smaller successor firms, most of which left the sector. At the top of the pyramid, many of the former high-tech flagship companies, such as the Czech and Hungarian telecommunications firms, also disappeared.

At present, the defence industrial pyramid is smaller and slimmer. Modernized heavy weapons or traditional SALW producers, at the bottom, still represent the majority of the companies, although radically reduced in number and size. The number of small- or medium-sized firms, now represented by companies that are active in aviation, instruments, communi-

cations systems and IT, has significantly increased. Some outstanding, small-scale high-tech companies that produce world class specialized equipment sit at the top of the pyramid.

The defence sector has become more integrated into the economy

The arms industry in East Central Europe has gradually opened up and blended with the civil sphere. In the past its boundaries were defined by strict security measures. The increasing commercialization of the economy, the introduction of transparency measures and the reorganization of the production base has increasingly integrated military-related activity into society and the economy. The sector's borders have become more permeable. More data exists on the arms industry and, in principle, major decisions are now open to public scrutiny. The industry's firms conduct business interactions with other economic actors and can be owned by non-state actors, including foreign private owners. They are no longer monopoly suppliers to national defence ministries, which has ended a tight mutual dependency; defence ministries can now purchase off-the-shelf products on the open market and companies can export or outsource part of their production. NATO and business confidentiality guidelines impose a degree of secrecy, but less than in the days of the Warsaw Pact.

The arms industry has ceased to be an iceberg with a large invisible part. However, the emergence of amphibian-like companies has created a nebula around the core arms producers, making the sector's boundaries difficult to ascertain.

Military and security considerations no longer organize deep economic structures

Due to the profound transformation of East Central Europe and fundamental changes in the world economy, particularly unfolding deindustrialization (i.e. steady reduction of manufacturing output and employment) and financialization (i.e. increase in size and influence of financial institutions, markets, values etc. in the economy and politics), the impact of military and security considerations on economic structures and political decisions has diminished. The arms industry can still be considered a key growth sector and a major exporter and employer, but its place and weight in the economic system have changed significantly.

The sector has become part of a new international framework

Membership in the Warsaw Pact, Comecon and the related institutional system entailed heavy economic and political subordination but ensured practically complete absorption of the output of the ECE arms industry. Membership in the EU and NATO has brought significant direct and indirect advantages but limited direct military-related demand. Most arms

manufacturers in East Central Europe have considerable excess capacities and hold large amounts of unsold products.

V. The arms industry and politics

In the past the relationship between the arms industry and politics was clear and straightforward. The arms industry served the aims of state policy and the state provided it with the means to fulfil those aims. The process was, however, not a one-way mechanical execution of orders. Although a strong vertical hierarchy existed, with directives and orders given from the Warsaw Pact's headquarters and supervising national state agencies, at every decision-making level negotiation occurred, principally through informal bargaining. While the weight and power of the actors was uneven, the result was far from predictable.

Former military personnel, who obeyed the commands of politically faithful ministry officials translating the political directives into production targets, no longer run the arms industry. The actors, channels of interaction and stakes in the complex relationship between politics and the arms industry have changed significantly. Direct political supervision has ended, but politics continues to affect arms making far more than other kinds of production.

Actors

In the past a department of the MOD and another in the Ministry of Economy directly supervised arms manufacturers. Since the end of cold war period a multitude of institutional actors has begun to play a role.

Depending on the defence industrial adjustment model followed by a country, state agencies may still retain considerable decision-making power. Specialized departments of ministries may continue to fulfil traditional supervisory functions (as in Poland and Romania) or act as administrators for certain common issues, such as issuing quality certificates (as in Hungary and Slovakia). MOEs established departments to deal with offset issues that quickly became important forums of mediation between policy-makers and business. Similar departments have been created to issue arms trade licences and supervise export deals. MODs have preserved specific departments to control, supervise and assist defence industrial enterprises (usually only those owned by the MOD) and to facilitate communication between the industry and the armed forces. Privatization agencies, or the Treasury if state ownership remained predominant, have also become powerful actors. In some countries state-run labour offices and regional development agencies play an important role in dealing with companies' assets.

State-owned defence industrial holding companies, such as the Czech Republic's former RDP Group, Poland's Bumar and ARP, Romania's Romarm, and Slovakia's DMD Group, operated at the border between politics and business. The government contributed the bulk of their initial funding and expected them to accomplish certain government policy targets, such as company restructuring, R&D promotion and employment creation, but they functioned as commercial entities.

Company-based defence industrial organizations assumed many of the former functions of ministry departments, representing the collective interests of the defence-related companies and mediating between government and industry. Depending on the nature of defence industrial developments and the strength of their leaders, these associations acted as repositories of complaints or influential lobbies.

The Polish Chamber of National Defence Manufacturers played an influential role in mediating between government agencies and companies as well as representing the arms industry outside the country. In Romania and Slovakia, in contrast, the associations' activities focused more on voicing the complaints of the companies and their employees. The Bulgarian Defence Industry Association, set up in the late 1990s, attempted to win popular support for the previously successful arms industry, which had a bad reputation due to opaque arms deals. In response, the association encouraged civil society initiatives, stressing the importance of legal and regularized defence production and trade.⁴ However, follow-up was lacking and in the early 2000s a new Bulgarian Defence Industries Association was established with the more traditional mandate of organizing, coordinating and lobbying on behalf of arms producers.

In addition to lobbying for orders, from the mid-2000s the Defence Industry Association of Hungary started to put more emphasis on changing the institutional environment of the arms industry. The association proposed to redefine the circle of arms manufacturers to include 'virtual' producers—companies with the capacity to produce for military needs but not necessarily actual arms manufacturers. This modification widened the scope of potential participants in military-related deals, including offset arrangements and international cooperation. The authorities ultimately accepted the proposal and included purely civil firms in their lists of officially recommended businesses, particularly offset partners. Géza Péter Kovács, the head of the association, also sought to create a comprehensive database of Hungarian firms, both civil and military, available to potential foreign partners.⁵

⁴ Stoykov, L., President of the Bulgarian Defence Industry Association, Interview with author, Sofia, 19 Mar. 2002.

⁵ It is worth noting that in Poland the Ministry of Economy's Offset Committee raised the issue of enlarging the circle of defence-related firms in order to include more local partners in offset projects.

Channels

Relationships among defence industrial actors have become more interactive, and additional channels have opened up through which they can influence each other.

Informal networks, a legacy of the past, survived major reorganizations of the arms industry and its structures. Because the military had always been a closed world, participants at a certain level of management knew each other personally and communicated in an informal network that remained an efficient channel to represent their interests.

Parliamentary committees became an important new scene of interest representation and lobbying for defence industrial companies and also served as a forum in which the government's defence industrial policy could be articulated or tested, with input from industry actors. Politicians and independent experts could become spokespersons or powerful allies, introducing the government's policy or the industry's agenda in public discussions.

Companies' governing boards served as another important new tool of influence. Seats on such boards rewarded the politicians who represented the companies' interests within their political parties and in the parliament. Membership of company boards also enabled government officials to represent official policy guidelines in the decision making of the companies.

Stakes

Defence industrial policy remained a key factor in determining companies' survival or demise, but they now had a greater chance to influence it than during the cold war. Policy guidelines became far less straightforward; qualitative targets replaced quantitative prescriptions and requirements were implemented more loosely. In general, government policy tended to be an often-changing combination of official declarations, postulated goals and realpolitik, the result of hidden negotiations and power struggles that took place in the offices and corridors of the ministries and the parliament between political parties and different business groups.⁶ A considerable discrepancy existed between political rhetoric concerning arms production and trade, the policies implemented, and reality, and these three dimensions often appeared distant from and almost independent of each other. Since the fall of the Berlin Wall each country in East Central Europe has

⁶ Voszka, É., 'Uniós támogatások—a redistribúció új szakasza?' [EU subventions—a new stage of redistribution?], *Külgazdaság*, vol. 50, no. 6 (June 2006); and Schoenman, R., 'Captains or pirates? State-business relations in post-socialist Poland', *East European Politics and Societies*, vol. 19, no. 1 (2005).

enacted a series of defence industrial policy projects that are far from being fully implemented. At the height of Mečiar's nationalist rhetoric, in the early 1990s, Slovak companies were busy producing NATO-compatible heavy weapons. In Hungary, politicians often appeared to be strong defenders of arms making, but in reality active measures were rarely introduced. After 2010 official rhetoric publicized triumphant reports about the 'new' defence industry, but in fact the sector was in poor shape.

Relations between government and business become more indirect and organic, and the increasing 'osmosis' between economics and politics meant that former government officials took jobs as experts in industry, and vice versa. The former head of a ministry's department specializing in defence issues was often found years later serving as the CEO of an important defence-related company or as a member of its board. Salaries were higher in business than in government, but a bureaucratic or administrative position in government could lead to a more lucrative future job in industry.

In the past, arms manufacturers had been able to exert pressure on state decision makers but within a set policy framework. Now they could have an impact on the formulation of the policy itself. Industrial actors became able to shape decisions on arms export policy, laws on public procurement, whether to sign the European Defence Agency's Code of Conduct, specific state measures of promotion or burden sharing, and even the definition of a defence-related company. In Bulgaria, Electron Progress proposed public-private partnership schemes to finance defence-related projects and the MOD, struggling under tough budgetary constraints and experiencing difficulties in meeting certain NATO requirements, eagerly adopted the idea.⁷ In Poland and Hungary official policy incorporated companies' proposals to change the definition of a defence-related firm.

In the past the supervisory authorities alone chose the companies that produced military products and determined what they would produce and under what conditions. Currently, military-related, strategic or special status is itself the result of struggles between companies and state agencies. Defence-related producers, like energy providers, still often have a 'special' status due to their specific function in the national economy, and therefore enjoy privileged treatment.⁸ Such status usually confers some form of government protection and allocation of resources to the company, but is not necessarily equivalent to state ownership. Hungary's MFS 2000 and the

⁷ Ivanov, T., Dimitrov, D. and Poudin, K. (eds), *Proceedings of the International Workshop on Private Investment Initiatives for Armaments Modernization at the University of National and World Economy* (University Publishing House Stopanstvo: Sofia, 2006).

⁸ Voszka, É., 'Állami tulajdonlás: elvi indokok és gyakorlati dilemmák' [State ownership: reasons in principle and dilemmas in practice], *Közgazdasági Szemle*, vol. 52, no. 1 (Jan 2005).

Czech firms Aero and Synthesia, for example, were privately owned, but have benefited from specific state measures.

Depending on the country's defence industrial policy, strategic status usually represented a guarantee of survival (as in Poland and Romania) and served as symbolic acknowledgement of a company's importance. Occasionally, however, it could become a burden, because the government imposed stricter restrictions on these companies than on their counterparts. It protected them from bankruptcy but simultaneously stopped them from becoming entirely privatized and obliged them to maintain certain production profiles, reserve capacities and stocks, while failing to provide sufficient financial support for them to fulfil their tasks. The difficulties encountered by Hungary's Currus ZRt in the late 2000s illustrated that sometimes not even strategic or monopoly status could secure stress-free survival. In the early 2000s the Slovak company Way Industry sought to avoid classification as a military-related company because the strict controls and time-consuming administrative procedures associated with such status complicated its foreign trade deals.⁹

Military-related companies sought at least some state orders because they represented a reliable source of revenue and provided references for export markets. In some instances, such as in Slovakia, even if the MOD could not afford to buy a company's products, the MOD's representatives participated in negotiations with potential foreign buyers in order to demonstrate official backing for the firm. Arms producers also sought to be included in the offset deals negotiated by ministry departments and to obtain direct state assistance, subsidies, financing for R&D projects or to have old debts written off. Additionally, governmental policy benefited them indirectly via export promotion, assistance in acquiring quality certificates and NATO supplier status, offset proposals, easier access to credits or by providing tax breaks for potential business partners. The state lifted some burdens from companies by, for example, granting industrial estates the status of industrial park or special economic zone and channelling government or EU funds for their development.

VI. Changes at the company level

The transformation of the defence sector in East Central Europe resulted in different country adjustment paths, but also diversified the arms manufacturers. In each country a core group, private or state-owned, provided the bulk of military-related output and was the sphere that the state's defence industrial policy could directly influence. In Poland and Romania

⁹ Ács, J., General Director, HM Currus, Gödöllői Harcjárműtechnikai ZRt, Interview with author, Gödöllő, 22 Aug. 2006; and Repko, V., Director of the Bozena department of Way Industry, Interview with author, Bratislava, 19 Apr. 2006.

state-owned holding companies united the core companies; in Bulgaria, the Czech Republic, Hungary and Slovakia the companies that belonged to the respective defence industry associations constituted the core. Despite advanced privatization, in each country the MOD also owned a group of core companies. In Hungary the MOD owned HM EI ZRt, the largest defence producer in terms of output and employment, while in Slovakia the six MOD-controlled firms employed more workers than the rest of the industry.¹⁰ Bulgaria's Terem holding company was a major actor, and the Czech Republic's VOP and Poland's WPRP were important suppliers to the MODs and emerging key partners in international cooperation deals.¹¹

Privatized former state-owned enterprises constituted the majority of the arms manufacturers. Depending on the country's economic reform package, most were owned by their managers or employees, as in Bulgaria, or by local investors, as in Slovakia. In the Czech Republic and Poland several of the major companies were taken over by foreign companies; in Romania, instead of selling them outright, state agencies preserved key companies in state ownership and set up joint ventures with foreign-owned firms. The new, private start-up firms that entered the sector represented a minority, but one of increasing importance. These firms usually emerged as niche suppliers that sold military-related products first to the MOD and then on export markets. Gradually, these technologically advanced, efficient and profitable firms with a mobile and well-trained workforce entered the traditional core of domestic arms producers and became indispensable partners. The size of each group, its position in the sector and the relationship between the groups depended on each country's defence industrial adjustment model.

During the entire post-cold war period there was a massive exit of firms from the defence sector in East Central Europe. Hence, at the company level the key indicator of success was survival. Some firms managed to muddle through the hectic post-cold war changes thanks to state intervention or simple luck, most often through a state-mediated offset deal with a foreign company. For others, survival resulted from a long restructuring and learning process. Full order books, financial stability, or at least easy access to credits, and stable external links provided further qualitative indicators of success.

¹⁰ Kunos, B., Hungarian Ministry of Defence, Deputy State Secretary of Defence Economy, Interview with author, Budapest, 1 Apr. 2005; and Balaz, M., Slovak Ministry of Defence, Director of Armaments Division, Interview with author, Bratislava, 25 Oct. 2005.

¹¹ Penchev, B., Bulgarian Ministry of Economy, Head of Defence Industry Department, Interview with author, Sofia, 25 June 2005; Kułakowski, S., President of the Polish Chamber of National Defence Manufacturers, Interview with author, Warsaw, 3 Oct. 2007; and Bączyk, N., 'Polish defense industry in search of identity', *Polish Defence Yearbook 2012: Industry, Armed Forces and Security Services* (Magnum X Publishing House: Warsaw, 2012).

The company case studies in appendices 3A–9A reveal the three indispensable factors for a company's survival and eventual success: in-depth restructuring, state backing and international links. State orders, even on a small-scale, and some form of state backing, even if only symbolic, were essential for survival and for gaining access to foreign markets. State backing varied from declarations of good faith to ad hoc interventions (including life saving, last-minute ones) to regular and substantial support that in some cases took the form of participation in day-to-day management decisions. The type of state intervention also played a significant role. Poland's Bumar Group and ARP were both state-owned but run like commercial enterprises. ARP acted as a genuine agent of change; its relative independence, knowledge of the problems and accountability considerably improved the defence industry's overall performance. In Romania, in contrast, the Romarm holding company, which was in charge of the core arms producers, functioned more as an old-style bureaucratic enterprise, leading to serious repercussions for the sector.

State backing was sufficient to guarantee survival but companies stagnated if they failed to radically revamp, as the cases of Bulgaria's VMZ, Hungary's FÉG and Poland's ZM Mesko demonstrate. However, company-level restructuring in itself was not sufficient, as the examples of the Czech Republic's Aero and Hungary's Gamma Múvek illustrate. Genuine restructuring combined with stable external links could eventually lead to success, even without significant state intervention, at least for amphibian-like companies. International links took a variety of forms, including export deals, long-term cooperation projects, access to resources, offset agreements and joint R&D projects. Some led to further market openings and additional financial resources, and usually also attracted some state support.

Other factors, such as the overall development of the economic environment and the internal cohesion of the arms industry, were important, but less crucial to a company's success. The delayed transformation process in Bulgaria and Romania, for example, slowed and dispersed defence industrial adjustment efforts and impeded even the most committed companies by complicating their entry to international production and trade networks. Comparison of Hungary and Poland (see chapter 5) reveals that internal cohesion that included smooth communication, efficient division of labour, pooling of resources, defence-related R&D and strong links with the military establishment was a significant element of success.

While marketing and language skills could be acquired relatively quickly, the key to a company's success was changing attitudes at both the shop-floor and management levels. The safeguarding of accumulated knowledge and experience, genuine teamwork, the appreciation of human resources, the encouragement of creativity, a new management culture and new work

ethic were as important factors of long-term success as the identification of new market niches or credit lines. The most successful companies synthesized heritage and new trends. In-house R&D represented another crucially important element. However, as the cases of Bulgaria's Smirna, the Czech Republic's Tesla with its Tamara passive surveillance system, Hungary's Gamma Művek and Poland's OBSRM show, R&D could only contribute to the success of a company if the broader environment was also favourable, both on the input side (financing) and on the output side (by implementing research results). The amphibian-like firms had the best track record of implementation of research results.

The ECE arms companies could also be gathered into three groups by success indicators. In each country a small group of outstanding companies provided high-tech products for the MOD and usually had close links with key international production and trade circuits. In terms of numbers, employees, and shares of output and exports, they comprised a tiny minority of companies, which could be both private and state-owned, although most tended to be private. The new private arms manufacturers usually demonstrated good performance and did not suffer from the typical bottlenecks of East Central Europe's defence sector: lack of capital, poor access to markets, dependence on the local political elite or unfavourable geographic location. Government policy had limited impact on them, but state agencies sought cooperation with them and included their products in development and export proposals. The ECE's new flagship companies—Bulgaria's Sirma Group, the members of Hungary's aerospace cluster, Poland's WB Electronics and Romania's Romsys—joined successfully restructured traditional producers, such as Bulgaria's Arcus, the Czech Republic's Sellier & Bellot, and Poland's CNPEP Radwar and ZR Radmor. An important common factor of their success was that they emphasized preserving and developing their human capital; they also persevered in R&D even during periods of financial hardship and often entered international production and trade circuits at an early stage of their development.

The second group comprised 'standard', average firms that provided employment and manufactured the bulk of military-related products, including those for export. Since the beginning of the transformation process, these firms had undertaken a slow and arduous restructuring process, significantly reducing the scope of their activities and the volume of their output, revamping their profile and introducing measures to improve efficiency and profitability. Local entrepreneurs or their own management now ran these formerly state-owned firms. Occasionally they produced excellent items, but traditional, middle-range weapons sold to their national armed forces or to emerging markets in the developing world characterized the bulk of their output. Although they managed to stabilize their position,

they remained vulnerable to external factors and financially unstable. The Czech ČZUB, Hungarian Currus ZRt, the bulk of Polish producers and most of the Romanian aviation companies belonged to this group.

The third group consisted of struggling companies. In terms of output, employment and numbers they remained important. These companies laboured to adjust to the permanently changing conditions of the market economy and often balanced at the edge of bankruptcy. They usually survived thanks to occasional or regular lifesaving assistance from the state, which they received even if they were privately owned. Companies such as Bulgaria's VMZ and Slovakia's ZTS Special exemplified this group.

The profound changes that took place at the company level can be illustrated by comparing a typical successful firm of the Warsaw Pact era with one of the post-cold war period. Slovakia's ZTS Martin, a producer of principally battle tanks but also a wide range of military and civil items, epitomized a successful arms manufacturer of the past. In the mid-1980s the company had nearly 16 000 employees and the capacity to produce 250–300 tanks per year. It ran its own R&D institute and foreign trade company, had stable domestic demand and considerable export markets inside the Warsaw Pact and in countries in the Middle East and North Africa. ZTS Martin was the principal employer in the town where it was located and also provided hot water, heating, infrastructure and numerous cultural and social services. It had close links with the political establishment, and political leaders at the national level handpicked its top managers.

The Bulgarian engineering company Electron Progress, which specializes in military and civil electronics and communications system integration and production, typifies today's successful companies. Some of its former managers run this privatized, formerly state-owned enterprise that is owned by an emerging Bulgarian capital group. Electron Progress employs 170 people, carries out its own R&D and has close links with and secure orders from the MOD, in addition to well-established civil institutional markets. Electron Progress has acquired NATO supplier status, and in 2006 it became part of the very restricted, privileged circle of NATO providers with its early-warning system.¹²

The entry of domestic financial investors into the defence sector marked a new development in that sector in East Central Europe. By the mid-2000s the first wave of the post-cold war capital accumulation process had ended and in each of the countries studied here a small domestic capital class had emerged and was in the process of consolidating its assets. These emerging entrepreneurial groups possessed diversified business empires that included manufacturing, services and real estate, and they now sought to

¹² Pingelov, K., Managing Director of Electron Progress, Interview with author, Sofia, 24 June 2005; and 'Electron Progress makes it to NATO', *Sofia Echo*, 12 Sep. 2005.

add some of the most successful of the surviving domestic arms producers to their holdings. Several of the groups with regional or international ambitions expanded their activities beyond their country's borders. Bulgaria's Kroumov group, which owned Electron Progress, the Czech Republic's Penta Investments, Hungary's Csányi group and Slovakia's Sitno Investment Holding built regional conglomerates in which military-related activity played an important role, either as one of the strategic axes or as a source of substantial revenues. The stability of these business ventures and the longevity of their interest in defence remains unclear, but they provided much-needed financial input and opened markets for their arms-producing enterprises.

The six musketeers

In an appendix to each country chapter in this book a number of relevant companies are presented in detail, among them a 'typical' company that displayed the specific elements of its country's defence industry, variations on company adjustment and the impact of general trends. All six are SALW producers: Bulgaria's Arsenal, the Czech Republic's Sellier & Bellot, Hungary's MFS 2000, Poland's ZM Tarnów, Romania's Cugir and Slovakia's ZVS Holding.

SALW production represented a typical segment of the traditional arms industry in East Central Europe and it preserved its special place after the systemic changes. Due to the combined impact of market cleansing and state intervention, by the late 2000s in each country few, and sometimes just one, SALW company survived. The trajectory of the six SALW producers highlights the factors that led to success or failure, both in country and company-level adjustment. The fate of Poland's ZM Tarnów underlines the importance of external mission-related orders and state protection in a company's survival. The ill effects of hasty privatization are manifest in the cases of Hungary's MFS 2000 and the Czech Republic's Sellier & Bellot, which illustrate that inefficient and irresponsible private owners could do as much damage as inefficient and irresponsible state owners. State intervention saved MFS 2000 at a crucial stage and the withdrawal of the state some years later paved the way for positive future developments. The history of Bulgaria's Arsenal, at the same time, confirms that prolonged state ownership without efficient asset management could only lead to postponing decisions and the erosion of assets. Romania's Cugir demonstrates that state ownership and Romarm membership created conditions sufficient for survival but not enough for a company to prosper. The case of Slovakia's ZVS Holding underlines that even relatively late, but well-founded, privatization and good management can produce true progress even under unfavourable general economic conditions.

Romania's Cugir and Slovakia's ZVS Holding both received state orders that provided some security and revenues and both relied on considerable civil subcontracting work for foreign firms that improved their financial situation and provided a good learning experience. However, ZVS Holding used these elements to bridge critical stages in its development and to develop long-term future projects. Cugir, in contrast, satisfied itself with the security provided by these external factors (state orders and revenues from foreign partners) and concentrated on maintaining the status quo. In the long run ZVS Holding became successful, while Cugir continues to struggle to stabilize its position. The situation for Bulgaria's Arsenal exemplifies that of an average firm in East Central Europe. It took indispensable, but not ambitious, measures to streamline the company, but its future depended on state policy or foreign investors.

The six companies also illustrate the main global trends in their sector. SALW production has gone through a major diversification during the past two decades, which has resulted in a 'high-end' segment that produces sophisticated products, such as 'intelligent' ammunition and specialized weapons. A small group of East Central Europe's SALW companies that were often presented as the success stories of the revamped arms industry were able to manufacture such devices. The bulk of the ECE's producers, however, manufacture traditional SALW equipment that continues to have a steady demand on legal as well as grey or black markets. Romania's Cugir continued to produce and sell large quantities of its traditional hand weapons, while the Czech Republic's Sellier & Bellot and Slovakia's ZVS Holding particularly emphasized in-house R&D and the production of innovative world-class equipment that became a key to their success. Trade in SALW is particularly difficult to follow. Whatever the intentions of their producers, many SALW manufactured in East Central Europe end up in illicit markets.¹³

By the late 2000s the globalization of arms production had also reached East Central Europe: MFS 2000 was bought by the German-headquartered RUAG technology group and Sellier & Bellot by Brazil's Companhia Brasileira de Cartuchos. The latter company represents the new actors in the global arms industry—dynamic, medium-sized companies from emerging countries.

¹³ Small Arms Survey, *Small Arms Survey 2009: Shadows of War* (Cambridge University Press: Cambridge, 2010).

11. The impact of EU and NATO membership

I. The rush towards EU and NATO membership

During a short period after the end of the cold war the countries of East Central Europe sought to redefine their identities and security requirements, with some even attracted to the idea of neutrality. The Visegrád Four—the Czech Republic, Hungary, Poland and Slovakia—created organizations for cooperation and to represent their interests. However, from the mid-1990s, largely encouraged by the United States, the ECE countries hastened to become members of the North Atlantic Treaty Organization. Membership of NATO, and later the European Union, became their top foreign policy priority and also had a significant impact on domestic policy-making. EU and NATO membership represented the international legitimization of the new political systems built on the vestiges of the state socialist system. Membership was also expected to fill the security vacuum in which the ECE countries found themselves after the dissolution of the Soviet Union and the Warsaw Pact and created an enormous opportunity for an accelerated westward integration. The ECE countries also hoped to benefit from financial inflows from their new international partners, as a ‘reward’ for their democratic achievements.

Defence industrial actors and the political elite also hoped that through NATO the ailing ECE arms industry would receive increased support and access to new markets. Since NATO became the key international organization through which the ECE countries became integrated into the new institutional system, the military played a crucial role in the process. NATO was also considered as the antechamber to the EU, which promised additional political and economic benefits. These considerations led to the ‘political rehabilitation’ of the military establishment and the reinsertion of the defence-related sector into the emerging new economic and political structures with the allocation of new resources to arms making, which was again presented as one of the crucial engines of growth.

Preparation for NATO membership

During the years of preparation for NATO membership the ECE countries made significant achievements, and the steps on the road to membership became as important as achieving that goal. They participated in Partnership for Peace operations, started major reshuffling of their military sectors and modernized their armed forces. Ministries of defence were reformed, began to apply profitability and transparency criteria, and cautiously com-

menced getting used to the idea that internal and external democratic control mechanisms could be introduced in decision making. National armed forces were significantly cut back, reorganized and reformed with the aim of full professionalization. The large-scale military upgrading projects that were announced and partially launched in the mid-1990s increased the interest of global arms industry actors in the region.

The accession process mobilized the internal resources of the defence sector. Companies made significant, usually state-backed, efforts to switch to manufacturing NATO-standard equipment and to qualify as NATO suppliers. They started to introduce more efficient management methods, improve accountability and initiate market research; their personnel acquired language skills. Some companies made investments so that they would be able to supply potential future NATO partners. The most farsighted company managers understood that NATO accession was a unique, one-time opportunity and intended to make the most of it, trying to build long-term partnerships with Western companies. Some were able to use accession as a stepping stone to enter markets outside NATO as well.

Since as outsiders they could hardly have a clear picture of the institutions they were about to join, the ECE candidate countries had a vision built on the historical records of the EU and NATO and on the impressions formed during the long decades of the cold war. They endeavoured to determine the requirements that they would face, sometimes over-achieving, as in Warsaw Pact days. Before becoming a NATO member, Hungary, for example, introduced a stricter export control regime (including dual-use products in certain procedures) than was customary inside the alliance.¹

The countries that joined NATO in the second round of enlargement benefited from the experience of the first group—the Czech Republic, Hungary and Poland. The preparations of Bulgaria, Romania and Slovakia were more targeted, concentrated and efficient, and accession criteria were also more clearly defined for them.² The candidate countries conducted studies seeking to assess the costs and benefits of membership, radically transformed their ministries of defence, introduced stricter accountancy procedures and economic efficiency requirements, and adopted strict export

¹ Kocsis, G., Ministry of Economy, Deputy Head of the Export Control, Chemical and Biological Weapons Control Bureau of the Licence and Administration Office, and Bode, J., Deputy head of the Military Technology Foreign Trade Department of the Licence and Administration Office, Interview with author, Budapest, 26 Apr. 2000.

² Nicolini, M., Adviser to the State Secretary, Slovak Ministry of Defence, Interview with author, Bratislava, 21 Mar. 2005; Tagarev, T., 'Bulgarian armed forces and national security policy: shaping the security environment in South Eastern Europe', ed. C. Krupnick, *Almost NATO: Partners and Players in Central and Eastern European Security* (Rowman & Littlefield: Lanham, MD, 2003); and Muresan, L. E., 'Romania', ed. H. J. Giessmann, *Security Handbook 2004: The Twin Enlargement of NATO and EU* (Nomos: Baden-Baden, 2004).

control systems.³ They increased their military budgets and launched important modernization projects before they became members. A report on the NATO-preparedness of Bulgaria and Romania stated that they

are now more ready for accession than the new members were in 1997 and even when they became members in 1999. Furthermore, the mechanism of the conditionality of NATO accession, which, until now, has worked well as an incentive for military reform, has been preserved and even reinforced in the post-Prague [NATO Summit] circumstances in the case of Bulgaria and Romania.⁴

The USA assisted with preparations for joining NATO. Official institutions and a large array of private consultancy firms, industrial organizations and NGOs also participated in encouraging, assisting and preparing the ECE countries for membership. Military and industrial expert teams gave advice and guidance on defence ministry reforms, legal changes and the reshaping of industrial groups; US embassies contributed to the political discussions on procurement; and US-based institutions offered training for the new leaders of the military establishment. The 'aspirants' by and large identified NATO with the USA and their foreign policy also remained US-oriented after accession.

ECE defence industrial actors expected NATO membership to bring significant contracts and cooperation opportunities. However, despite their efforts, only a few ECE companies became NATO contractors, and most occupied modest and subordinated positions as third- or fourth-tier suppliers. Although reality proved distant from the often exaggerated expectations of the ECE countries, NATO served as a symbolic driver of change, creating an ambition and an ideal that served as a catalyst for long overdue changes.

Preparation for EU membership

EU enlargement was somewhat more matter of fact, and expectations related to the EU were perhaps more realistic than those concerning NATO. The ECE countries, particularly those that first became members, had long-standing historical, business and cultural connections with EU member countries and a certain familiarity with European realities. NATO was more forbidden territory, surrounded by a veil of secrecy that contributed to exaggerated expectations and subsequent bitter disenchantment. EU membership criteria were detailed, sometimes extremely scrupulous

³ See e.g. Wiczorek, P. and Zukrowska, K., *Costs of the Polish Integration with the Euroatlantic Structures*, Working Paper no. 11 (Copenhagen Peace Research Institute: Copenhagen, 1997); and Mladenova, I. and Markova, E., 'NATO's enlargement and the costs for Bulgaria to join NATO', Economic Policy Institute, Sofia, 2001, <<http://www.nato.int/acad/fellow/99-01/petkova.pdf>>.

⁴ Romanian Academic Society (ed.), *Romania and Bulgaria: Between NATO and EU* (Romanian Academic Society: Brussels, 2003), p. 4.

and more demanding than those of NATO. To gain entry to the EU, the newcomers sometimes had to pass tougher tests than the countries that already held membership.⁵ The aspirants did their best to meet the real and imagined expectations. Before their formal invitation, Bulgaria and Romania pushed for demonstrative proactive steps, such as harmonization of their legal systems, that were perceived as facilitating accession.⁶ In 2005–2006, when Romania was in the process of changing its public procurement legislation, the argument was made that the EU's Code of Conduct on Defence Procurement ought to be directly implemented as a gesture to demonstrate the country's preparedness to become a member.⁷

Beyond its symbolic value, EU membership was a vital new political and economic framework for development that also represented tangible economic gains in the form of subsidies, new markets and new resources. The ECE countries could benefit from generous EU contributions to specific projects, such as regional or infrastructure development. They became an attractive market for goods and investments, establishing an almost instant consumer society, a long-time aspiration of many citizens of the region, weary of decades of shortage economy. Western markets and business opportunities also opened up that provided further incentives for economic development. Some ECE arms manufacturers hoped that, although NATO had not brought new business opportunities, the EU would.

There was significant popular support for joining both organizations. Initially, NATO was less popular, but the region's politicians did their best to make membership of it a desirable target. Even in countries where the public was reticent at the beginning, such as Slovakia, dynamic government campaigns managed to change opinion.⁸ Many people viewed the EU and NATO as potential tools to control the nationalist and xenophobic political forces that had reappeared and regained ground throughout East Central Europe after 1989.

Twin enlargement was the fruit of specific historical circumstances. Before the 1990s neither the EU nor NATO had directly adjusted to the other's enlargement process. Each gave consideration to the other's

⁵ Nuti, D. M., *Alternative Fiscal Rules for the New EU Member States*, Transformation, Integration and Globalization Economic Research (TIGER) Working Paper Series no. 84 (TIGER: Warsaw, Mar. 2006).

⁶ Karadjova, M., 'Legal changes in Bulgaria in the perspective of EU membership', eds T. Ivanov, D. Dimitrov and K. Poudin, *Proceedings of the International Workshop on Private Investment Initiatives for Armaments Modernization at the University of National and World Economy* (University Publishing House Stopanstvo: Sofia, 2006); and Visoiu, D., 'New defense procurement rules', *Bucharest Daily News*, 12 Dec. 2005.

⁷ Bulandra, I., 'New defense procurement rules', *Romanian Daily*, 6 Dec. 2005, <<http://romanian.daily.ro/cat30760/6 Dec 2005>>.

⁸ Samson, I., 'European security and defense identity: Slovakia under the conditions of a new dimension of security', *Yearbook of Foreign Policy of the Slovak Republic 2004* (Research Center of the Slovak Foreign Policy Association: Bratislava, 2005).

rationale and rhythm of enlargement, but in East Central Europe the two processes became intertwined, mutually reinforcing each other and creating a synergy that accelerated the modernization and international integration processes launched by the post-cold war political changes. The International Monetary Fund and the World Bank played crucial roles in the changes occurring in the ECE countries. Long before EU and NATO membership appeared possible, cooperation with these international financial organizations, compliance with their standards and submission to their regular assessments was a tough learning process that also paved the way to EU and NATO membership. Since the IMF and the World Bank provided or withheld the resources badly needed for the region's reform efforts, they played a decisive role.

II. East Central Europe and membership of NATO

The countries in East Central Europe that joined the EU and NATO did so during a turbulent period for both organizations. At the turn of the century, when the first round of new member countries celebrated admission to the EU and NATO, international media and expert forums overflowed with analysis about the end of NATO, European disunion and the irreversibility of the transatlantic divide. The internal problems of the EU, NATO and Europe–USA relations had been germinating for a long time but first manifested themselves during the 1999 Kosovo crisis and culminated later in the open split over intervention in Iraq.

Reacting to the Kosovo crisis, all of the key participants took major steps, but in different directions. After long hesitation, the USA opted for unilateral military intervention. Even though later the action was placed under NATO's banner—making it the first war ever waged by the alliance—the move called into question NATO's *raison d'être*. Since then NATO has lost its monopoly as a primary international military organization, its agenda has become confused and it has been in search of a new identity.⁹ The emerging security and defence policy of the EU developed in reaction to US unilateralism and the EU's inability to properly address the Yugoslav crisis, as a response to the changing security threats that had emerged since the late 1980s and in acknowledgement that in certain conflicts the use of force, including armed intervention, could not be avoided.¹⁰ The European Secur-

⁹ See e.g. Cottey, A., 'NATO: globalization or redundancy?', Whitman, R. G., 'NATO, the EU and ESDP: an emerging division of labour?', and Sperling, J., 'Capabilities traps and gaps: symptom or cause of a troubled transatlantic relationship?', *Contemporary Security Policy*, vol. 25, no. 3 (Dec. 2004); Cimbalo, J. L., 'Saving NATO from Europe', *Foreign Affairs*, vol. 83, no. 6 (Nov./Dec. 2004); and Daalder, I. and Goldgeier, J., 'Global NATO', *Foreign Affairs*, vol. 85, no. 5 (Sep./Oct. 2006).

¹⁰ During the 1990s the USA entered one of its stages of unilateralism and gradually pulled away from NATO. See Jones, S. G., 'The rise of Europe's defense industry', US–Europe Analysis Series,

ity and Defence Policy (ESDP, later called the Common Security and Defence Policy) envisaged an EU that could undertake military and security missions, which previously had been the monopoly of NATO, and turn Europe into a global security actor—both in geographic and policy terms—with focus on prevention and peace operations.¹¹

Engrossed in their preparations for membership, the ECE countries did not pay much attention to the internal troubles of the two organizations that they so eagerly sought to join. The EU's CFSP, the ESDP and the draft European Constitutional Treaty appeared to be additional complications related to the difficult integration process. It was only after they became members that the ECE countries realized they had landed on shaky ground where they were obliged to adjust to continually changing conditions, not in a comfortable and secure haven.

Fewer than 10 days after they became members of NATO the Czech Republic, Hungary and Poland were involved in a war with a former 'comrade country', Yugoslavia. Their early experiences as NATO members taught them bitter lessons as they witnessed the destruction of a neighbouring European country and the confusion among European powers about what steps to take to defend the values they were supposed to stand for: human rights, democracy and freedom. They saw that instead of the joint action expected from NATO, the USA acted alone. The new members might have sensed, more than their Western counterparts, that the spectacular military intervention would be insufficient to bring about peace and stability.

Beyond the traumatic Yugoslav experience, the representatives of the military establishments of the new NATO members suffered a cultural shock. They had difficulties identifying the different actors and layers of decision making in the complex web of institutional, national and company interests and also often struggled with the language of discourse, both literally and figuratively. NATO's institutional environment differed strikingly from that of the Warsaw Pact, although both were strictly hierarchical, centralized organizations, where policymaking often took the form of informal bargaining. In the Warsaw Pact, military officers and government officials held talks at the state level, then visited companies, participated in exercises and had dinners with local representatives, after which the companies received orders for their products. In NATO the defence industrial actors of the new members were confused about who or what embodied the organization—government officials, military officers or

Brookings Institution, May 2005, <http://www.brookings.edu/papers/2005/05europe_jones.aspx>; and Jones, S. G., 'The rise of a European defense,' *Political Science Quarterly*, vol. 121, no. 2 (2006).

¹¹ See e.g. Gnesotto, N. (ed.), *EU Security and Defence Policy: The First Five Years (1999–2004)* (EU Institute for Security Studies: Paris, 2004); Menon, A., 'From crisis to catharsis: ESDP after Iraq', *International Affairs*, vol. 80, no. 4 (July 2004); and Nicolaidis, K., 'We, the peoples of Europe', *Foreign Affairs*, vol. 83, no. 6 (Nov./Dec. 2004).

representatives of the companies based in the member countries. Each of the actors—politicians, military personnel and businessmen—followed their own rationale, often acting independently of the others. Arms manufacturers in the ECE countries received visits from and had dinners with military representatives, consultants, advisers and managers from NATO countries, but these rarely resulted in orders. The ECE defence industrial associations participated at meetings of the NATO Industrial Advisory Group (NIAG), the NATO Maintenance and Supply Agency (NAMSA), the Conference of National Armaments Directors (CNAD), the NATO Security Investment Programme and various security-related research projects, but beyond information exchanges and personal contacts few tangible results occurred from such meetings.

NATO undoubtedly provided institutional protection. Membership considerably increased the new members' security and their perception of security and was crucial to legitimization of the new political systems that was being built in the respective countries. Former Eastern bloc countries came to be perceived as reliable security and business partners, which opened doors to cooperation with major international defence players and attracted substantial foreign direct investment to the region. Their new status also facilitated access to new markets, particularly emerging markets, which viewed NATO membership as a security and quality guarantee.

Becoming members of NATO had a direct impact on the way domestic armed forces were modernized, reorganized and re-equipped in the ECE countries that became NATO members. Governments introduced transparency and accountability requirements, and for the first time in decades, security-related economic transactions, including public procurement decisions, became public and subject to external scrutiny. Modernized, professional military forces that placed new demands on the arms industry replaced conscript-based, oversized, inefficient and authoritarian national armed forces. Large quantities of traditional weapons became redundant, while demand for high-tech NATO-compatible equipment increased. Although the ECE countries imported the bulk of new equipment from allied countries, in some cases domestic producers received preferential treatment, as in the Czech Republic, or participated in procurement through offset deals, as occurred in Poland. Domestic firms also played a role in integrating imported new systems and participated in small-scale upgrading projects for basic military equipment.

Despite their best efforts, ECE arms manufacturers barely participated in NATO procurement. Few NATO contracts transpired even for Polish arms producers, which enjoyed a privileged status within the alliance, due to their strong US ties. *Produx*, a private Wrocław-based company that specialized in data communication systems, managed to beat 144 com-

petitors and won a NATO air command-and-control system order.¹² In 2005, when PZL-Mielec received an order to produce the F-14 Tomcat combat aircraft fuselage for the US Navy, James B. Bond, the press attaché for the US embassy in Warsaw, declared that ‘the cooperation between the Navy and the factory is right in line with our mission. It is one more tie in a robust military relationship and robust commercial relationship’, uniting Poland and the USA.¹³ The order was the first time that a foreign company had contributed to the structure of a US aircraft and the first time that the US Navy had acquired a major part from a former Eastern bloc country. Poland’s Bumar Group was able to secure a range of large-scale military contracts for the Afghanistan and Iraq operations, while CNPEP Radwar and the PIT telecommunications research institute became key participants in NATO’s Alliance Ground Surveillance (AGS) system programme. In the other countries a few outstanding enterprises were able to win NATO-related military contracts. In 2006 Bulgaria’s Electron Progress entered into the privileged circle of providers with its early-warning system. The Slovak Aligator 4x4 light armoured reconnaissance vehicle and Bozena mine-clearance system were also sold on NATO markets.

Many ECE defence industrial actors felt bitter about the lack of NATO-related business opportunities. The gap between expectations and reality was large; expectations had been extremely high but NATO’s demand for ECE products was indeed modest. Lack of information and communication among potential partners, NATO’s relatively closed procurement cycles, saturation of the market by long-established providers and the inexperience of potential ECE suppliers contributed to the scarcity of deals. However, in the majority of cases the offers made by ECE companies were also not particularly attractive. After several waves of crises and bankruptcies, lacking resources, and lagging behind in R&D and innovation, few ECE companies could offer quality products that met NATO demands.

However, the few NATO deals that were reached had a significant multiplier effect. They brought ECE companies precious additional revenues, improved their public image and opened doors to both civil and military markets. Disenchantment with NATO also mobilized managers who, on realizing that large lucrative contracts were unlikely to come their way, became more active in trying to find new opportunities. Others sank into lethargy, continued to seek state assistance or decided to exit the field. Initially, NATO membership led to increased military budgets with increased modernization shares that in some form or other trickled down to even those companies that were not directly involved in NATO deals.

¹² Jeziorski, M., ‘The state of arms’, *Warsaw Voice*, 26 May 2004.

¹³ Wagner, C., ‘F-14 program builds historic business bridge to Poland’, *Transformation*, US Department of Defense, 6. Dec. 2005, <<http://www.defense.gov/transformation/articles/2005-12/tal20605a.html>>.

These factors kept the military-related sector afloat during a crucial period of transition.

NATO's strategic requirements and the related large-scale military procurement needs became the guidelines for the structural transformation of the new member countries' domestic arms industries. Each ECE country chose to develop specific capabilities and equipment to support specific tasks. This indirect 'cleansing' was most manifest in Slovakia, where the entire defence industrial base was rapidly revamped during preparation for membership. In the other countries, the branches connected to specific NATO-related tasks were developed, while other more traditional branches were not. Usually the state intended to promote high-tech and high value-added branches, such as chemical defence or aviation monitoring systems, relying often on the results of domestic R&D, which benefited the whole industry. Given the scale of military-related expenditure and the re-established status of defence, NATO membership had a major impact on the whole economy and society.

NATO's foreign mission-related orders were often mediated by US companies, and most of these orders were connected to the new member countries' participation in international missions led by the USA. Through mediation by the US company Defense Solutions, Hungary's Currus ZRt received a contract to modernize equipment for use in Afghanistan. In Afghanistan and Iraq, Polish companies initially gained access to new orders through US-based intermediaries. Due to the USA's decisive influence inside NATO and the key role played by US-based companies in mediating between defence producers and NATO military missions, a country's performance in NATO was often measured by its participation in US-led military missions. The 'best allies', such as Poland and Slovakia, received high praise and also NATO-related orders or tasks, while others, such as Hungary, received occasional criticism and fewer orders.

The timing of accession and the transformation trajectory of each country played a major role in shaping attitudes towards and inside NATO. Under the leadership of Vladimír Mečiar, Slovakia's foreign policy was inward-oriented, nationalist and confrontational, including unfriendly rhetoric directed at NATO. Nevertheless, despite fierce speeches to the contrary, preparation took place for a future invitation to join. Military expenditure gradually increased and the government encouraged companies to manufacture NATO-compatible weapons. When the political leadership changed, the process accelerated, and intense and committed preparation for membership followed that benefited from the experience of the first-round members. Slovakia's new leaders were eager to present the country as a zealous and reliable ally and, as a result, Slovakia became more rapidly and organically integrated into NATO than some of the first-round countries.

This dynamism was not lost after Slovakia became a NATO member. Joining NATO was primarily considered as a political achievement; the alliance was envisaged more as a security organization than an economic one, and security was interpreted broadly—including environmental security, natural resource management and economic security.¹⁴ Once it became clear that interest in traditional Slovak-made military equipment was limited, decision makers switched their attention to niche functions and products that corresponded to a broader interpretation of security. The combined effect of the economic recovery, a more efficient and transparent military establishment (with a revamped acquisition system), and a targeted defence industrial development policy enabled Slovak companies to develop and launch several new, NATO-compatible products that became successful on the global market.

NATO enlargement can be viewed as the last event of the cold war. It followed a kind of ‘bloc-logic’: countries were invited to join in small groups that were defined more by their geopolitical importance than their ‘transition progress’, economic development or political stability. Once in the alliance, the new members became more autonomous and began to follow individual paths. Poland, for example, strengthened by its status of ‘privileged US partner’, took an autonomous stance and declared its willingness to participate in military undertakings as an equal partner, inside both the EU and NATO. It participated actively in the Afghanistan and Iraq operations and also engaged in staffing, equipping and commanding an independent German–Polish EU battle group. The Czech Republic and Hungary had more modest aspirations and played principally auxiliary roles in foreign military missions, gradually withdrawing from several EU-led missions.¹⁵

NATO membership reconfirmed the importance of the arms industry in the emerging new economic and political systems. Before enlargement, in the early 1990s, arms making had been fading away in East Central Europe, a natural decay that started before the end of the cold war and resulted from the profound economic and political changes occurring at the time. Simultaneously, the military-strategic, economic, social and political arguments for preserving and promoting the defence-related sector had eroded and gradually lost their value. The military-strategic reasons, in particular,

¹⁴ Slovak Ministry of Economy, Department for Industrial Policy, ‘Impact of NATO and European Union membership on the Slovak defence industry’, Summary of written answers to author’s questions, 17 Mar. 2005.

¹⁵ On country strategies see e.g. Denca, S., ‘Romania and EU foreign policy’, *CFSP Forum*, vol. 7, no. 5 (Sep. 2009); Baun, M. and Marek, D., ‘Czech foreign policy and EU membership: Europeanization and domestic sources’, Paper for the 11th Biennial Conference of the European Studies Association, Los Angeles, CA, 23–25 Apr. 2009, <<http://aei.pitt.edu/33023/>>; and Zaborowski, M., *From America’s Protégé to Constructive European: Polish Security Policy in the 21st Century*, EU Institute for Security Studies (EUISS) Occasional Paper no. 56 (EUISS: Paris, Dec. 2004).

lost cogency because the national armed forces of the ECE countries were modernized with primarily imported products. The economic arguments were undermined because the sector was a massive loss maker and EU membership promised numerous attractive alternatives to weapon production. Arguments based on the sector's employment and social functions became irrelevant due to a radical liberal shift in economic thought and practice (and the ageing of the core defence industrial workforce).

This natural dismantling process could have led to a gradual phasing out of the sector in the emerging new economic model, but from the mid-1990s a new dynamic countered that process. The promise of NATO membership served as a powerful impetus to keep together and develop the military-related sector. On the basis of their expectations and interpretations of the signals that they had received, the ECE countries reshaped their defence industrial structures to meet what they perceived to be the demands of the EU and NATO. To these ends, they invested considerable resources in arms making, elaborated policy directives and established new administrative structures. By the mid- to late 2000s, when defence industrial actors and political decision makers understood how reality had changed and the genuine opportunities that the enlargements of the EU and NATO offered, the arms industry had already become consolidated and part of the new production and social structures.

III. EU membership

First and foremost, EU membership had a major economic impact. The EU's European Regional Development Fund, European Social Fund and European Cohesion Fund, the financial instruments of EU cohesion policy, constituted major new resources and incentives for the new members.¹⁶ Between 2007 and 2013 the Czech Republic received the equivalent of 19 per cent of its 2008 GDP from the EU Structural and Cohesion Funds, Hungary 26 per cent, Poland 22 per cent, and Slovakia 17 per cent. For Poland, the key beneficiary of EU cohesion policy, this will amount to a 3.3 per cent contribution to GDP by the end of 2013, the same as FDI. Investments financed by EU funds were expected to rise to some 4 per cent of GDP in 2012 and 2013.¹⁷ Enlargement has significantly improved the economic prospects of the new member countries through, among other improvements, increased FDI inflows, access to new markets that was facilitated by the 'seal of approval' of EU (and NATO) membership, and

¹⁶ Europa, 'Structural Funds and Cohesion Fund', Glossary, <http://europa.eu/legislation_summaries/glossary/structural_cohesion_fund_en.htm>.

¹⁷ Organisation for Economic Co-operation and Development (OECD), *OECD Economic Surveys: Poland 2010* (OECD: Paris, Apr. 2010), pp. 46–48; and OECD, *OECD Economic Surveys: Poland 2012* (OECD: Paris, Mar. 2012), p. 5.

new forms of cooperation and integration.¹⁸ Becoming a member had an impact even in non-EU regions; a Polish study on the consequences of enlargement registered a 30 per cent increase in exports to Eastern Europe and developing countries a year after EU accession.¹⁹

During the 1990s the arms industry was by and large left at the margin of EU enlargement-related economic activities. Arms produced in East Central Europe had difficulty entering EU markets and, due to the uncertainties of ownership structures, companies had problems attracting foreign capital and technology. Nevertheless, economic stabilization and resumed growth had an overall positive impact. As with NATO, preparations for EU membership accelerated qualitative changes at many defence-related companies and spurred them to acquire quality certificates, modernization of their internal information systems, improve their marketing and language skills, and introduce ways of functioning that conformed with EU practices. Initially, in defence industrial circles there were also vague hopes that EU membership would introduce administrative measures, such as quotas, to promote ECE arms producers.

In preparation, in countries such as Poland where the state preserved its role in the defence sector, the state conducted accelerated reorganizations because politicians were aware that the EU restricted direct state intervention in economic management. Before joining the EU, Polish authorities pushed through a series of state-financed institutional and economic reforms at Huta Stalowa Wola, one of Poland's largest military producers during the cold war that had struggled with unresolved structural problems for decades.²⁰ Some firms tried to seal international cooperation deals, fearing that higher prices and wages after joining the EU would eliminate their comparative advantages, particularly those tied to relatively low wages. The Hungarian company MFS 2000 created a joint venture with Germany's Hirtenberger group to diminish the impact of anticipated wage increases following EU membership. Some defence industrial actors articulated their fears publicly, including Romanian trade union leaders, who depicted EU membership as an additional blow for domestic arms manufacturers whose badly needed state subsidies would be curtailed, turning

¹⁸ See e.g. Plowiec, U., 'Opportunities and threats to the development of exports and the competitiveness of the Polish economy before and after Poland's accession to the EU', *Polish Foreign Affairs Digest*, vol. 3, no. 8 (2003); Clausing, K. A. and Dorobantu, C. L., 'Re-entering Europe: does European Union candidacy boost foreign direct investment?', *Economics of Transition*, vol. 13, no. 1 (2005); and Totev, S., 'Foreign direct investment in Bulgaria: advantages and disadvantages to investment', *South East Europe Review for Labour and Social Affairs*, no. 4 (2005).

¹⁹ Ratajczyk, A., 'A record year', *Warsaw Voice*, 22 Feb. 2006.

²⁰ 'Procedures relating to the implementation of the Competition Policy', *Official Journal of the European Union*, C298, 11 Dec. 2007.

Romania into a pure marketplace for Western companies, and exacerbating environmental and labour problems.²¹

The EU did indeed intervene in company management in a few instances. In 2006 EU authorities demanded that Hungary eliminate the state's 'golden share', which was deemed incompatible with EU rules, in certain strategic companies. Hungary's only aircraft repair and maintenance facility, Dunai Repülőgépgyár, appeared on the list of affected companies but by late 2009, according to its website, the state still held a symbolic golden share.²² Several state interventions in the management of Huta Stalowa Wola were also criticized by the EU.

The EU's Code of Conduct on Arms Exports had a direct impact on the ECE's arms industry by helping to promote transparency and improve and harmonize national export policies. All EU members regularly publish reports on their arms exports.²³ NATO membership had already strengthened control of the arms trade, but EU requirements were more clearly articulated and more demanding. In both cases the regulations played a strong role in increasing discipline in the candidate countries, and their integration into national legislation was an important step forward, although the attitude towards such regulations became more relaxed once membership was a fact. Since implementation remained in the hands of the member states, arms export policies were primarily shaped by internal economic and political considerations.²⁴ When asked about the controversial Slovak sale of missiles to Sri Lanka, a spokesperson for the European Commission noted 'How the Code is implemented is up to each member country.'²⁵ Nonetheless, the guidelines did serve as a standard and a benchmark for parliamentary committees, civil society organizations and independent think tanks. Referring to the EU's Code of Conduct, Saferworld's Roy Isbister stated: 'The old argument that EU countries used to make—"If we don't sell it to the bad guys, someone else will"—was invalidated by the code.'²⁶

Several arms manufacturers in the new member countries protested against the stricter arms trade restrictions imposed by the EU. Czech pro-

²¹ 'Unions: defence industry works at 10 pc of its capacity', Romanian Daily, 21 July 2006, <<http://romaniandaily.ro/cat30760/art8562480152/>>.

²² Hungary Around the Clock, 'Brussels demands axing of "golden share" rule', 29 June 2006, Caboodle.hu, <http://www.caboodle.hu/nc/news/news_archive/single_page/article/11/brussels_dem/>.

²³ See e.g. Holtom, P. and Bromley, M., 'Transparency in arms transfers', *SIPRI Yearbook 2013: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2013).

²⁴ Bromley, M., *The Impact on Domestic Policy of the EU Code of Conduct on Arms Exports: The Czech Republic, the Netherlands and Spain*, SIPRI Policy Paper no. 21 (SIPRI: Stockholm, May 2008).

²⁵ Nicholson, T., 'Slovak rockets sold to war-torn Sri Lanka: arms control bureaucrats deny breaking EU code on weapons exports', *Slovak Spectator*, 7 Apr. 2008.

²⁶ Spritzer, D. A., 'Arms' length: critics blast country's nondisclosure of weapons sales to global trouble zones', *Prague Post*, 20 Nov. 2003.

ducers were particularly vocal, regularly contesting their government's negative decisions.²⁷ A large group of ECE weapon producers regarded the EU guidelines as a nuisance, hindering them just when arms sales had started to recover after the turbulent 1990s. The managers of Hungary's Keszű Művek Fegyvergyár and FÉG, for example, blamed the EU for their difficulties.²⁸ EU requirements were often used as a pretext to cover management failures; companies that had a positive dynamic were able to comply with the stricter regulations.

Another important EU-level development was the establishment of the European Defence Agency in 2004 with a mission 'to improve European defence capabilities in the field of crisis management and to sustain the European Security and Defence Policy'. It sought to develop the EU's defence capabilities, and to promote cooperation in defence research and technology and armaments.²⁹ The EDA was actively engaged in the creation of the competitive European Defence Equipment Market (EDEM) and the European Defence Technological and Industrial Base (EDTIB).

The EDA's activity had considerable impact on the ECE's arms industry via, for example, its electronic marketplace and the introduction of its Code of Conduct on Defence Procurement. Most of the new members joined immediately but Hungary, which had implemented the most liberal post-cold war defence industrial policy, refused to sign, arguing that it needed to protect the remnants of its domestic production base. In May 2007, probably realizing that staying outside might become counterproductive, Hungary revised its decision and joined the EDA's Code of Conduct and the Code of Best Practice in the Supply Chain.³⁰ Some of the pilot EDA projects involved ECE firms. In 2008 NATO launched a large-scale project to modify and upgrade Soviet-type helicopters in its new member countries. The revamped fleet of medium-sized transport helicopters was to be used to support EU, NATO and United Nations-led operations around the world. A representative of the EDA described the project as 'one of the wisest steps ever taken lately in Europe' and the agency secured generous financing for it.³¹ Reacting to the economic crisis that began in 2008, the

²⁷ Kononczuk, P., 'Weapons dealers face greater restrictions now that nation is in EU', *Prague Post*, 2 Sep. 2004.

²⁸ Márton, V., 'Bealkonyult a hazai fegyvergyártásnak' [The dawn of domestic arms making], *SecuriFocus*, 6 June 2006, <http://www.securifocus.com/portal.php?pagename=hir_obs_reszlet&i=1343>.

²⁹ European Defence Agency, 'Mission and functions', <<http://www.eda.europa.eu/Aboutus/Whatwedo/Missionandfunctions>>; and Hartley, K., 'Creating a European defence industrial base', *Security Challenges*, vol. 7, no. 3 (spring 2011), pp. 95–111.

³⁰ See European Defence Agency, 'Code of Best Practice in the Supply Chain', 17 Sep. 2012, <<http://eda.europa.eu/projects/projects-search/code-of-best-practice-in-the-supply-chain>>.

³¹ European Defence Agency (EDA), 'EDA special bulletin: helicopters—key to mobility', *EDA Bulletin*, 10 Mar. 2009. In the early 2000s some producers in East Central Europe, among them the Hungarian company Dunai Repülőgépgyár, initiated a similar project for joint helicopter modern-

EDA intensified its work on pooling and sharing resources and capabilities among its member countries.³²

EU membership offered a wide range of attractive civil alternatives to weapon production that were less risky, less codified and less difficult to enter than military-related branches and in this sense it created an incentive to convert to civil production. At the same time, through the ESDP and particularly via the EDA, the EU encouraged and partially financed defence-related undertakings. ECE arms manufacturers could also access EU resources indirectly. Military-related companies benefited from funds for regional development, SME promotion, employment creation, R&D and innovation. In 2007, for example, Poland's PZL-Mielec opened a new training facility to provide skilled labour for the growing aviation industry in Mielec and the surrounding region. The project was part of the Regional Center for Modern Manufacturing Technology Transfer (RCTNTW) initiative, which was financed with EU and national funds.³³ The high-tech small aircraft producers in the Czech Republic, Hungary and Poland actively collaborated and worked together at the regional level, and the EU's three-year Cost-Effective Small Aircraft (CESAR) project launched in 2006 bolstered their efforts. The \$49 million R&D project envisaged the development of a small commuter aircraft with low development and maintenance costs and reduced environmental impact.³⁴

As in the case of NATO, the first-round new member countries enjoyed the advantages of early arrival, while second-round countries benefited from the experience of their predecessors and carried out a more balanced and efficient preparation process. In the case of EU enlargement, the time factor seemed to act more in favour of the first round countries. Poland, for example, used its fresh EU and NATO memberships to expand cooperation and boost exports to third markets. For Bulgaria the prospect of both memberships served as a disciplining factor and led to strengthened control of arms deals. However, by the time the second-round countries entered the new international scene many windows of opportunity were already closed to them.

Poland, an active and enthusiastic NATO ally, quickly identified the internal divisions in the EU and the discrepancy between declarations and reality that gave member countries a much wider space to manoeuvre than

ization and servicing that failed due to lack of enthusiasm and financing from companies and governments.

³² European Defence Agency (EDA), 'EDA's pooling and sharing', Fact sheet, 24 Nov. 2011, <http://www.eda.europa.eu/docs/procurement/factsheet_-_pooling_sharing_-_301111_1.pdf>.

³³ Sikorsky, 'PZL Mielec to support new training center', Press release, 10 Dec. 2007, <<http://www.sikorsky.com/vgn-ext-templating-SIK/ctrndr?vcid=d666b10053e6a110VgnVCM1000001081000aRCRD&siteName=Sikorsky>>.

³⁴ Velek, V., 'Into the blue: Czech Republic spearheads EU project to conceive next-gen airplane', *Prague Post*, 5 Sep. 2007.

formal norms suggested, and was able to use them to its benefit. As in Hungary, initially both Polish Government and arms industry representatives strongly opposed the signing of the EDA's Code of Conduct, arguing that domestic arms production was too weak to endure international competition. Nevertheless, the authorities signed, explaining that abstaining would be counterproductive and hinting that even within the limits of the Code of Conduct, the state could still find ways to protect and promote Polish arms producers. A similar mixture of critical distance (bordering on obstruction several times during the Kaczyński administration) and exploration of the benefits of integration characterized both the 2009 Czech EU presidency (under the increasingly Eurosceptic Václav Klaus and a fragile government coalition) and the attitude of the government of the Hungarian Prime Minister, Viktor Orbán, during Hungary's 2011 EU presidency, when various highly contentious issues emerged.

Political leaders often used EU and NATO norms or declarations to justify painful austerity measures or disputed allocation decisions. Price dumping or stricter arms trade regulations became handy scapegoats to explain the weaknesses of the defence sector, but governments also used EU and NATO guidelines to justify a more proactive defence industrial policy. In 2002, reacting to Slovakia's expected invitation to join NATO, Slovak officials declared that special production would be rapidly modernized to meet NATO requirements and the markets of alliance partners.³⁵ In the late 2000s the EU's EDTIB initiative was used to explain why the Slovak Government again decided to invest in domestic arms production. In his contribution to a 2008 IDEB Catalogue, Lubomír Jahnátek, the Slovak Minister of Economy, declared that the 'defence industry is ... an integral part of the European defence industry. For this reason, more attention must be directed towards furthering defence development, while emphasis should remain on meeting the requirements of the Slovak Armed Forces in the context of NATO and the EU'.³⁶

The ECE countries eagerly followed, copied and adapted the structures, policies and mechanisms of the EU and NATO member countries.³⁷ Nevertheless, they also preserved patterns and mechanisms inherited from the Warsaw Pact and Comecon. The distribution of EU subsidies and structural funds was a typical manifestation of the mixture of the old and new ways. While the EU process required a formal tendering process that forced some

³⁵ 'Slovak arms makers expect NATO entry to revive armament industry', BBC Monitoring, 17 Nov. 2002.

³⁶ Szabó, S., 'Offsets in Slovakia', Presentation at the Slovak Atlantic Commission's Offsets in Slovakia: Future of Defence and Security Industry Cooperation conference, Bratislava, 28 Apr. 2008, p. 49; and International Defence Exhibition Bratislava (IDEB), *IDEB 2008 Catalogue* (Ministry of Defence and Association of the Defence Industry: Bratislava, 2008), pp. 8–9.

³⁷ See Jacoby, W., *The Enlargement of the European Union and NATO: Ordering from the Menu in Central Europe* (Cambridge University Press: Cambridge, 2006).

openness into the system, decision-making mechanisms often followed former state redistribution patterns that channelled information and resources through a complicated system of informal networks, mutual favours and compensations.³⁸ Offset deals were often managed similarly.

Enlargements had natural limitations: the economic and structural absorption capacity of the EU and NATO and the limited resources and long-standing structural difficulties of the new member countries. The ECE countries embarked on the transformation process economically exhausted. A key reason for the end of the cold war was that Eastern Europe was unable to further finance the escalating arms race between the two blocs. The major reshaping of the region's economies and societies that began after the fall of the Berlin Wall was a costly and chaotic process. Membership of the EU and NATO became a priority goal for the ECE countries not only because of the security dimensions, but also due to the attached economic benefits. After becoming members of NATO, a process that required substantial economic investments, the new members sought EU membership, making further significant investments to stabilize their economies and make progress in various other areas—from governance to infrastructure development. After becoming EU members they had to continue the efforts to balance their budgets and simultaneously stimulate growth, improve their competitiveness, and reform their health, education and pension systems. Their economies were already overstrained when the global economic crisis began in 2008.

Membership of the EU and NATO presented new opportunities for the ECE countries and put them on the fast track towards modernization, but some of their structural problems became larger. Uneven development accelerated: the development of large segments of society and the economy that had no links with EU and NATO-related spheres slowed and some regions, social groups and economic activities became completely marginalized. The highly uneven distribution of FDI, for example, increased previously existing regional and sector inequalities in the whole region.

IV. Striking a balance between the EU and NATO

Twin enlargement had a particular synergy. The two preparation processes and the changes that took place after achieving EU and NATO membership facilitated and strengthened each other, accelerating and shaping the process of ECE transformations. Nonetheless, a degree of competition remained between the EU and NATO that often took the form of tension between Europe and the USA. Once the ECE countries had become

³⁸ Voszka, E., 'Unió támogatások: a redistribúció új szakasza?' [EU subsidies: a new stage of redistribution?], *Külgazdaság*, vol. 50, no. 6 (June 2006).

members of both organizations they attempted to balance their European and US commitments, which was not always easy.³⁹ Slovakia, for example, managed to postpone some expensive military acquisitions, while simultaneously displaying its determination to participate in the 'global war on terrorism'. It fulfilled important niche functions within NATO and at the same time became the first ECE country to join the eurozone.

Political alliances and arms procurement decisions in East Central Europe mirrored the tension between Europe and the USA. Particularly in the early 1990s, at the beginning of the transformation process, a period of shrinking defence budgets in the Western hemisphere, each tender for large procurement deals led to fierce competition among Europe- and US-based arms producers aiming to secure contracts in the ECE countries. These struggles provided sobering insights into the mechanisms of free market competition. Both EU and NATO member countries attempted to influence the new members to procure their products.⁴⁰ During the heated discussions that led to Poland's acquisition of the F-16 combat aircraft Lieutenant General Tome H. Walters, director of the US Defense Security Cooperation Agency, declared: 'I told the Poles they had the potential to be front-line leaders in NATO. They could join with the U.S. Air Force and 23 other countries and 8 NATO countries that fly the F-16. Or, they could have the Gripen and have interoperability with Sweden and South Africa.'⁴¹ In some cases, the ECE countries exploited the competition between major arms manufacturers and struck advantageous deals. Often, however, they wound up buying more equipment than they needed or could afford. After having used old Soviet-origin weapons that had been repeatedly upgraded, the attraction of new high-tech military equipment was hard to resist, even if such acquisitions meant that their budgets would be burdened for decades to come.

The NATO preparation process made military-technological interoperability a key target and candidate countries frequently heard that 'The transition to NATO often means buying American.'⁴² As a US observer put it, 'political and corporate linkages . . . make the NATO expansion both a matter of strategic significance for the United States and [provide] economic advantage for its arms manufacturers'.⁴³ The USA preserved its dominant position in military affairs and invested significant FDI in the defence industry; its presence was rather significant in the military-

³⁹ Missiroli, A., 'Central Europe between the EU and NATO', *Survival*, vol. 46. no. 4 (Dec 2004); and Edwards, G., 'The new member states and the making of EU foreign policy', *European Foreign Affairs Review*, no. 11 (2006).

⁴⁰ Book, E., 'Commerce dept. promoting U.S. investment in Central Europe', *National Defense*, July 2002.

⁴¹ Wayne, L., 'Polish pride, American profits', *New York Times*, 12 Jan. 2003.

⁴² Sennott, C. M., 'Arms deals criticized as corporate US welfare', *Boston Globe*, 14 Jan. 2003.

⁴³ Sennott (note 42).

economic segment of the ECE's economies, while it played a far more modest role in the rest of the economy. EU-based investments and cooperation in the defence sector were proportionate to participation in the general economy. The strong symbolic attachment of the ECE countries to the USA, US state-backed and financed programmes, such as the Foreign Military Sales programme, and the openness and flexibility of overseas companies facilitated military business partnerships between the ECE countries and the USA. In interviews ECE defence company managers often noted that, particularly at the beginning of the transition period, West European arms manufacturers were more cautious about setting up cross-continent partnerships with them than their US counterparts.

Tensions between the EU and NATO had eased by the end of the first decade of the 2000s, as the two organizations redefined the division of labour between them. Dissent over the USA's intervention in Iraq reached dramatic proportions but gradual reconciliation occurred, which was facilitated further by the US administration of Barack Obama. Policy documents urged a more organic transatlantic cooperation, such as the coordination of EU-US policy via a transatlantic strategic council.⁴⁴ Since the defence strategies of the EU and NATO differ, the two organizations could complement each other. Thus, resource-poor ECE countries could contribute dual-use military forces and defence-related assets for use in either EU or NATO missions, depending on the needs of the two organizations.

V. Future prospects

The enlargements of the EU and NATO rapidly, albeit partially, integrated the ECE countries into the Western world, and acted as catalysts for change at the country and company levels. By the end of the first decade of the 21st century EU- and NATO-led modernization in East Central Europe had come to an end, but the question of how to pursue genuine and beneficial integration remained.

Despite the relatively modest size of the arms industry in East Central Europe, its contribution to enhancing or undermining international security has been significant. In the past two decades arms produced in the region have been involved in conflicts in Africa, Asia and Latin America, and also in such European hot spots as Georgia and the former Yugoslavia. Immense stocks of sturdy conventional weapons exist and the ECE companies still have the capacity to produce more in large quantities. Such

⁴⁴ See e.g. Gardner, H., 'Prospects for the transatlantic relationship under the Obama presidency: towards a transatlantic strategic council', Cicero Foundation Great Debate, Paper no. 09/02, 13 Mar. 2009, <<http://www.cicerofoundation.org/lectures/>>; and European Parliament, 'A closer and deeper strategic partnership with the USA', Press release, 25 Feb. 2009, <<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+IM-PRESS+20090223IPR50187+0+DOC+XML+V0//EN>>.

weapons could be used to prevent armed conflicts and in peacekeeping, peace-enforcing and post-conflict activities in the framework of EU, NATO and UN missions—depending on the role that the ECE arms producers choose to play. National, EU and NATO policies would affect that choice as would the way in which global arms production develops.

At the end of the 2000s both the EU and NATO remained in crisis and in search of new ways to define themselves. NATO developed a comprehensive Strategic Concept that aimed to re-establish it as a key global military actor, and the future direction of the organization was widely debated.⁴⁵ According to NATO's Secretary General, Anders Fogh Rasmussen, the alliance sought to concentrate its efforts on its operation in Afghanistan, its first military venture outside Europe. Rasmussen defined that operation's purpose as to 'prevent the country from becoming a hotbed of terrorism once again', a goal inspired more by security concerns than the USA's initially ideological goals. NATO aimed to gradually expand its activities to include global security tasks, such as 'cyber wars, the threat posed by pirates and the new forms of terror'.⁴⁶ The Strategic Concept highlighted the importance of international cooperation and the more active involvement of local partners, including the private sector and the civil sphere.⁴⁷ In the early 2000s NATO had often defined itself as a global security provider, but by the end of the decade it became clear that NATO would remain a primarily military actor that occasionally engaged in missions with a wider security scope.

Another key aspect of the Strategic Concept was stabilizing the status of NATO's new boundaries by improving cooperation with Russia, which was unpopular with the new NATO members from East Central Europe. The changed missile defence project, the 2008 conflict between Georgia and Russia, and Russia's use of the supply of energy or cyberattacks to exert

⁴⁵ In the Strategic Concept adopted on 19–20 Nov. 2010, the NATO member states agreed to continue the discussion of the role of defence and deterrence in NATO's strategy, including its nuclear posture. NATO, *Active Engagement, Modern Defence: Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization* (NATO: Brussels, Nov. 2010). See also e.g. Sperling, J. and Webber, M., 'NATO: from Kosovo to Kabul', *International Affairs*, vol. 85, no. 3 (2009); Feffer, J., 'If Afghanistan is its test, NATO is failing', *Asia Times Online*, 1 Oct. 2009, <http://www.atimes.com/atimes/South_Asia/KJ01Df01.html>; Mowle, T. S. and Sacko, D. H., 'Global NATO: bandwagoning in a unipolar world', *Contemporary Security Policy*, vol. 28, no. 3 (Dec. 2007); Gardner, H., 'The future of NATO', Paper presented at the An Evaluation of NATO's Past, Present and Future conference, Wesseling, 15–18 Feb. 2009; and Davis, I., 'NATO at a crossroads', *Foreign Policy in Focus*, Institute for Policy Studies, 19 Mar. 2008, <http://www.fpiif.org/articles/nato_at_a_crossroads>.

⁴⁶ 'We will stay in Afghanistan as long as it takes to finish our job', *Der Spiegel*, 19 Nov. 2010; and Daalder, I., *A Full and Urgent Agenda for NATO in the 21st Century*, Security & Defence Agenda (SDA) Evening Debate (SDA: Brussels, 8 June 2009).

⁴⁷ In the broad discussion of NATO's new strategy relatively little was said about the ECE countries. For a resume of reactions in the region see Górká-Winter, B. and Madej, M. (eds), *NATO Member States and the New Strategic Concept: An Overview* (Polish Institute of International Affairs: Warsaw, May 2010).

political pressure revived historical fears related to this powerful neighbour. In the summer of 2009 leading intellectuals and former politicians wrote an open letter that expressed their feelings of insecurity, abandonment and fear of being sidelined. Significantly, the letter was addressed to Obama, not Rasmussen, and stated ‘Despite the efforts and significant contribution of the new members, NATO today seems weaker than when we joined. In many of our countries it is perceived as less and less relevant—and we feel it. Although we are full members, people question whether NATO would be willing and able to come to our defense in some future crises.’⁴⁸ The letter also noted the ECE countries’ efforts to meet the demands of its new allies. NATO and US officials reacted quickly to the letter and some of the points raised, such as reaffirming the importance of Article 5 of the North Atlantic Treaty in the new Strategic Concept, were included in internal discussions on the future of the alliance.⁴⁹

The EU’s greater difficulties with enlargement left it in a weakened position when the first wave of the economic crisis reached it. The ongoing eurozone crisis, the severe economic problems of several European countries and the EU’s poor management of important political occurrences—from the Arab Spring to the resurgence of extreme right, nationalist and xenophobic movements in its member countries—had a profoundly corrosive impact on the organization. The EU also had serious difficulties to establish a military-security agenda based on its own views on security, democracy and human rights.⁵⁰ Nevertheless, at the end of 2011, with the euro crisis deepening, the European Commission set up a task force to strengthen the European arms industry. According to its Internal Market Commissioner, Michel Barnier, Europe needed ‘a competitive industry in the world market to avoid becoming a mere consumer of imported goods’ and without a stronger defence base, it ‘risked undermining the trust of the United States and weakening the NATO alliance’.⁵¹

⁴⁸ Adamkus, V. et al., ‘An open letter to the Obama administration from Central and Eastern Europe’, Radio Free Europe/Radio Liberty, 16 July 2009, <http://www.rferl.org/content/An_Open_Letter_To_The_Obama_Administration_From_Central_And_Eastern_Europe/1778449.html>; and ‘America, NATO and Eastern Europe: disquiet on the Eastern Front, can a distracted America remain a bulwark for Eastern Europe?’, *The Economist*, 26 Nov. 2009.

⁴⁹ North Atlantic Treaty, signed 4 Apr. 1949, entered into force 24 Aug. 1949, <http://www.nato.int/cps/en/natolive/official_texts_17120.htm>.

⁵⁰ See e.g. EU Institute for Security Studies, *ESDP Newsletter*, ESDP@10, Special Issue, Oct. 2009; Albrecht, U. et al., ‘A European way of security: the Madrid report of the Human Security Study Group’, Madrid, 8 Nov. 2007, <http://www.world-governance.org/IMG/pdf_0078_A_European_Way_of_Security.pdf>; Howorth, J., ‘What Europe badly needs is a “Grand Strategy”’, *Europe’s World*, autumn 2009; Toje, A., *The EU, NATO and European Defence: A Slow Train Coming*, European Union Institute for Security Studies (EUISS) Occasional Paper no. 74 (EUISS: Paris, Dec. 2008); and Brzoska, M. and Croll, P. J., *Promoting Security: But How and for Whom?*, Bonn International Center for Conversion (BICC) Brief no. 30 (BICC: Bonn, 30 Oct. 2004).

⁵¹ Ames, P., ‘New task force to strengthen European defence industry’, *Europolitics*, 10 Nov. 2011, <<http://www.europolitics.info/sectoral-policies/new-task-force-to-strengthen-european-defence-industry-art317704-13.html>>.

In addition to temporary or permanent budget cuts the ongoing economic crisis is likely to lead to significant changes in the world's military industry. The major players in the global arms industry have reacted with a series of proposals including the promotion of hybrid systems, emphasis on maintenance and upgrading plans, asset pooling and intensified horizontal cooperation as ways to lower costs and increase efficiency. Simultaneously, arms producers intend to expand the scope of the sector offering products for domestic and environmental security, natural disaster prevention and relief, military logistics, border control and identification systems.⁵² These new approaches suggest ways to address the current crisis and focus on the need to treat security holistically. They correspond to recent EU and NATO proposals that aim to improve European defence and call for tighter cooperation between the EU and NATO by pooling assets and resources.⁵³

These various possible future directions of EU, NATO and global defence industry development might represent new openings for ECE arms manufacturers. If the EU defines itself as a 'general security provider', its approach to armed conflicts and weapon production will differ significantly from that of a European defence industrial competitor to the USA. The choice between the two options—general security provider or defence industrial competitor—would determine how European military forces would be used and the kind of equipment needed to accomplish their tasks. If NATO-related international military missions were to dominate the agenda of the ECE countries, the most active and loyal partners could possibly count on a demand for their updated low-tech military products. They could also carry out special niche tasks and provide specialized equipment, logistical support and some high-tech products, such as monitoring or early-warning systems. If EU and UN-type missions instead were to prevail in the ECE countries' future strategic options, with an emphasis on crisis management, peacekeeping, peacebuilding and conflict prevention, such missions would potentially generate demand for traditional equipment and also require more personnel on the ground.

The ECE countries have the potential to play a role in redefining the EU and NATO and in building bridges between them. They have a strong Atlanticist commitment, but their roots, values, traditions, economic and cultural ties, and geographic locations connect them to the EU. They could mediate between the different 'security providers' by helping to define the EU's security and military goals in a way that would be complementary to that of NATO and the USA. Their history and traditional links with the rest

⁵² See e.g. 'Defence', *Financial Times*, Special report, 8 Sep. 2009; and 'Defence', *Financial Times*, Special report, 13 Sep. 2011.

⁵³ Fogh Rasmussen, A., 'Security policy in an era of budgetary constraint', Speech at conference on Security and Defence Agenda, Brussels, 21 June 2010, <http://www.nato.int/cps/en/natolive/opinions_64563.htm>; Witney, N., *Re-energising Europe's Defence and Security Policy* (European Council of Foreign Relations: London, 29 July 2008); and 'Defence' (note 52).

of the world, which is not burdened by a colonialist or imperialist past, could enable these countries to act as mediators between the EU or NATO and the rest of the world as well. Since enlargement, the ECE countries have served as a strategic buffer zone between NATO and its immediate environment. In the future they could also serve as an area of communication, a filter rather than a buffer. East Central Europe has long been a natural meeting point between East and West. Its arms industry has traditionally combined elements and know-how from both the Warsaw Pact and NATO. It could gradually become a platform for hybrid systems that integrate elements from the systems of Eastern and Western Europe, the USA and emerging markets. It could also host multinational training, repair and service centres.⁵⁴

However, all these options depend on the directions that the EU and NATO choose to take, on national policy directions and on available resources. The ECE economies were hard hit by the global economic crisis. With the exception of Poland, economies declined and several countries continue to suffer a serious recession. State budgets, including defence expenditure, were radically cut, large-scale modernization projects and procurement tenders were postponed, and military commitments were revised.⁵⁵ The economic crisis has not modified the key features of the countries' adjustment models, although various governments have tended to favour certain elements, such as significant cuts in Bulgaria and renewed promotion of the arms industry in Slovakia and Hungary.

Since defence budgets are likely to diminish further, the sector's general prospects are not promising, although some segments of it might benefit from the opportunities created by changes in the international political environment, new EU and NATO guidelines, and the paths being taken by the global arms industry. ECE arms manufacturers are well able to participate in upgrading, service and maintenance projects, with the most advanced firms suited to become partners in exploring new directions, such as those related to early-warning or surveillance systems and the identification of alternative energy sources. The increasing reliance on the

⁵⁴ Raggio, B., 'Coopération civile-militaire dans les opérations humanitaires' [Civil-military cooperation in humanitarian operations], Kohl, R., 'Coordination civile et militaire dans la gestion des crises de l'UE' [Civil-military coordination in crisis management in the EU], and Gan Pampols, F. J., 'L'expérience afghane en coopération civile-militaire: un exemple pour la Méditerranée?' [The Afghan experience in civil-military cooperation: an example for the Mediterranean?], *VIème Séminaire International sur la Sécurité et la Défense en Méditerranée: Sécurité Humaine* [Sixth international seminar on security and defence in the Mediterranean: human security] (Spanish Ministry of Defence, Fundación CIDOB and Dirección General de Relaciones Institucionales: Barcelona, Nov. 2008).

⁵⁵ NATO Parliamentary Assembly, 'The global financial crisis and its impact on defence budgets', 2009 Annual Session, 178 ESC 09 E rev 1, information document, <<http://www.nato-pa.int/default.asp?SHORTCUT=1928>>; and European Defence Agency, Defence data portal, 'Defence data of EDA participating member states in 2009', 31 Mar. 2011, <<http://www.eda.europa.eu/defencefacts>>.

results and networks of civil production might also open new opportunities for purely civil firms and amphibian-like firms, which have been among the most prosperous and dynamic ECE companies. Future prospects also depend on the focus taken by these latter firms that usually operate at the high end of the sector.

In the past decade many small- and medium-sized ECE enterprises—both amphibian-like and strictly military-related companies—have formed professional clusters and created communication, exchange and cooperation links that have significantly improved the performance of each company. These clusters have often been able to enter global markets and attract foreign investors; they could become important elements of the SME-based horizontal, professional and economic networks that the EU intends to promote.

ECE arms producers plan to improve their chances in tenders and joint projects by teaming up with other ECE actors or major international players, and joint regional projects have considerable development potential. Poland's Aviation Valley—a loose association of companies in the middle of the country where its aviation industry was traditionally concentrated and one of the fastest growing regional clusters—has served as a positive model for Czech and Hungarian producers, who created their own aircraft clusters. Learning from the procurement and offset experiences of each other, which were not always positive, has led to increased readiness to pool resources. The few cases of intraregional procurement, such as Hungary's 2007 purchase of the FlyEye UAV system from the Polish company WB Electronics, and the intensified cooperation between the emerging aviation and telecommunications clusters are promising signs of more organic regional development. If political developments do not alienate the ECE countries from each other, joint procurement and joint repair and service centres, currently rare, could multiply to the mutual benefit of the concerned partners.

Even in the best-case scenario for ECE arms makers, a significant increase in world demand for their products appears unlikely in the foreseeable future. Only the most competitive firms will be able to take advantage of the opportunities offered by recent developments in the field, while those that are struggling economically will probably be forced out. While smaller and less dramatic than that in the 1990s, the exodus from the sector would probably involve a significant number of firms. Such firms should look for radically different alternatives before their assets dissipate completely. Current trends indicate that companies working with IT, communication, transport and new materials have the best chance to succeed. EU and national industrial policy should encourage the ECE arms manufacturers to adopt new profiles and move towards these areas.

12. Conclusions

I. The arms industry in East Central Europe today: its nature and status

This concluding chapter addresses the issues raised in the first chapter. It summarizes the key features of the revitalized arms industry, its place in the new economic and political systems of East Central Europe, its position in the global arms-producing networks and its contribution to world security and, finally, presents some general lessons about the global defence industry that were learned through the experience of the ECE countries.

In the past the arms industry functioned as a pillar of the politico-economic system that shaped basic economic structures and mechanisms. In the first stage of post-cold war transformations, when the countries in East Central Europe advocated a neoliberal policy in which the market was equated with freedom and the free play of market forces guaranteed equilibrium, examination of the arms industry served as a litmus test of the depth and nature of changes. It provided glimpses behind the rhetoric to show how the deep-rooted economic structures and management patterns of the arms industry lingered on, modifying the rules of market economy. At present, the state of the sector reveals some key features of the new ECE socio-economic systems that are in the process of consolidation.

Since the end of the cold war the arms industry has become far more open and integrated into the socio-economic system than in the past, and its transactions and actors have become more transparent. It is also leaner and more efficient and has lost most of its traditional distinctive features. Its principles, discourse and way of functioning increasingly resemble other business activities. The narrative concerning the sector has also changed: new business discourse has rapidly replaced the political language of the past. Arms makers and military organizations are now called 'security providers', while large expensive weapon acquisitions are termed 'security investments'.

Nevertheless, arms production remains a particular, profoundly politicized, segment of the economy. Government policy continues to be the key driver and the industry is geared towards a specific market. Defence industrial policy defines the relationship between the national armed forces and the domestic arms industry and determines the share of procurement of domestically produced arms. The amount and nature of resources dedicated to the sector and the assistance provided by state agencies depend on how political decision makers define the link between economic growth and defence industrial development. Governments tend to protect their

arms manufacturers because of their political significance. If they happen to be good performers, their economic strength is used to justify special protective measures; if they have problems, those become the reason for intervention. In the ECE countries, in particular, the state has remained an important actor in the entire production cycle, although to varying degrees and as defined by each country's adjustment model.

During the stormy years of transformation a large number of companies went bankrupt and parallel capacities disappeared; the surviving firms usually enjoy a near monopolistic status. Today little competition exists among domestic firms. State agencies aim to stimulate (or simulate) competition via tenders and regulations, but results tend to be modest. In Poland and Romania, where large-scale state-owned holding companies manage the sector, competition has centred on selecting core arms makers. Enterprises have made significant efforts to improve their performance in the hope of gaining entry into one of the state-owned capital groups that would guarantee their survival and promotion.

Fierce competition for supplier positions has occurred since foreign partnerships promised new markets, investments or takeovers. In Poland in the early 2000s the aviation companies competed against each other hoping to be chosen by foreign, principally US, firms, for international cooperation. State agencies that mediated or institutionalized these international connections had a strong impact on these company-level battles. They had a similar role on international markets, where state backing or active promotion was a crucial factor of success. The arms firms of different ECE countries, which shared a similar industrial heritage, have competed with each other on export markets, particularly in developing countries. (They also had to face Russian, Commonwealth of Independent States and Chinese firms whose offers were comparable.) In the early to mid-1990s several of the ECE countries carried out simultaneous modernization projects for the Soviet-designed T-72 main battle tank, which absorbed significant resources but did not lead to a major market breakthrough. A decade later Poland and Slovakia competed in the production of light-weight, flexible armoured vehicles, while the Czech Republic, Hungary and Poland sought to win markets for their light aircraft. Each country also promoted a handful of innovative electronic and communications products.

The importance of the revamped arms industry in the new economic systems of the ECE can be measured by the number of defence-related companies, the size of the workforce, the volume of output and exports, and their share in the total industrial output, employment and exports. Other indicators of the status of the industry include defence budgets and indirect government provisions, such as R&D assistance and funds channelled to SME, employment creation and regional development. According to these difficult-to-determine quantitative indicators, the sector's signifi-

cance is modest but its status and role reveal its importance. Depending on the type of macro-adjustment model, the arms industry has been either reintegrated into the core of the new economic system or has become a neutral production branch.

In the first case, arms making has again become embedded in the deep structures of the economy, with a wide network of interdependent horizontal and vertical structures and firm political backing. The system's growth induces defence industrial expansion and vice versa, similar to the mechanisms of the former Soviet model and those of the US economy.¹ Changing or modifying these mechanisms would require immense economic efforts and strong political determination.

In the second case, when the arms industry becomes a relatively neutral economic activity, its development and status in the production cycle are not taken for granted, its interests not automatically given prominence and its growth not tied intrinsically to general economic growth. The sector occupies a neutral and far less privileged status than in the past, and its importance depends on principally economic factors and specific political developments. Depending on its nature and performance, it can contribute to overall development or become a burden on it; it can become a leading technological sector or a crisis-stricken branch. Companies can choose to focus on arms production, but this remains an individual decision that affects the firm, and eventually the sector, but not the entire economic system. A neutral status often forces companies to become more flexible and efficient and to acquire the ability to react rapidly to changing situations, while enjoying a special position often provides a comfortable shelter. In Poland the arms industry remained a specific and key economic sector that was deeply embedded in the new system. In contrast, in Hungary it became a more marginal, neutral economic sector.

The experience of the six ECE countries studied here demonstrates that path dependence is not an immutable law; it is possible to change deep-rooted, fundamental patterns. The weight of structural and institutional heritage is certainly important, but conscious state policy is the most

¹ See Cooper, J., *The Soviet Defense Industry: Conversion and Economic Reform* (Council on Foreign Relations Press: New York, 1991); and Cooper, J., 'Transforming Russia's defence industrial base', *Survival*, vol. 35, no. 4 (1993). On the ECE see Brody, A., 'A hon védelmeről' [About defending home], *Valóság*, no. 6. (1990); Germuska, P., 'A haditechnikai termelés és az új gazdasági mechanizmus' [Arms production and the new economic mechanism], ed. J. M. Rainer, *Hatvanas évek' Magyarországon, Tanulmányok* [The sixties in Hungary, studies] (National Széchényi Library: Budapest, 2004); and Germuska, P., 'Military-economic planning in socialist Hungary: the history of the general organisational department of the National Planning Office, 1948–1971', *Europe-Asia Studies*, vol. 60, no. 5 (July 2008). On the place of the arms industry in the US economy see Markusen, A. and Yudken, J., *Dismantling the Cold War Economy* (BasicBooks: New York, 1992); Markusen, A. R. and Costigan, S. S. (eds), *Arming the Future: A Defense Industry for the 21st Century* (Council on Foreign Relations Press: New York, 1999); and Kaldor, M., *The Baroque Arsenal* (Hill & Wang: New York, 1981).

important element that defines the status of the sector in the emerging new socio-economic models. The case of Slovakia illustrates this point. After the end of the cold war, political decision makers prioritized preservation of the traditional arms industry, but in the late 1990s they radically altered their guidelines introducing a mix of selective promotion and laissez faire policy. Arms-making structures radically changed and the sector, while it remained politically and economically important, lost its special status and place in the economy. Hungary was equally able to detach itself from the cold war patterns but, due to the inconsistencies of state policy, the results were less satisfactory than in Slovakia. In Poland, in contrast, the past's patterns prevailed; the arms industry preserved its privileged status and continued to enjoy special privileges, occasionally even when such a course was economically irrational.

The status of the arms industry in the new system has depended principally on the chosen macroeconomic adjustment model but, increasingly, external factors have also affected this position. Military-related R&D projects financed by the EU or the USA or cooperation with EU or US actors have reinforced the sector's importance and have usually augmented state support to the companies involved in the projects. FDI, arms trade, procurement and offsets have played a similar role.

II. The East Central European defence industry in the global production and trade of weapons

East Central Europe as an arms market

In the past two decades ECE arms producers have started to participate in international arms production and trade as buyers, sellers, suppliers and cooperation partners.

Until the mid-1990s ECE markets did not particularly interest Western arms manufacturers, but the promise of NATO membership for the ECE countries and the possibility of gaining market shares in a world of shrinking demand woke their interest. From the perspective of large exporters, ECE markets were and remain modest.² Nevertheless, the comparatively small ECE market became an important new scene on which transnational defence giants competed with each other. Offset deals, political pressure and opaque arrangements became key factors in this competition and left their mark on the emerging political and economic systems of the ECE countries. With few exceptions, leading international players won major procurement projects for modernization of the ECE national armed forces.

² For comparisons see Jackson, S. T., 'The SIPRI Top 100 arms-producing companies, 2011', *SIPRI Yearbook 2013: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2013); and SIPRI Military Expenditure Database, <<http://www.sipri.org/databases/milex>>.

These large arms deals wove technical, military, political and financial ties between the ECE countries and the international military establishment, with long-term financial obligations and a long-lasting impact on future development alternatives.

The twists and turns of procurement

According to the 'old truths' of the cold war, the origin of military equipment determined its political use. However, during the past two decades the 'political pedigree' of the products has undoubtedly been weakened by the accelerating, large-scale proliferation of arms production, worldwide smuggling, copying, subcontracting and massive reselling of arms, including the most sophisticated ones. Nonetheless, arms sales continue to serve as significant displays of political loyalty, in addition to being important business transactions. Each of the major arms procurement decisions taken in the ECE countries in the past two decades has prompted fierce battles among the major sellers, which are based in politically allied countries, and each has been guided by political considerations more than economic logic.

The governments of the competing bidders have used various methods, from attractive business proposals to outright political manoeuvres, to put pressure on decision makers, and ambassadors and corporations with a presence in the buyer country have often acted as mediators. Discussing Poland's acquisition of the F-16 combat aircraft, most analysts agreed that the choice occurred principally as the result of political pressure and the attractive financial offers provided by the USA.³ On several occasions ECE governments would have preferred to choose hybrid systems—modernized Warsaw Pact platforms upgraded with high-tech Western items—but the strong pressure to buy new weapons rather than upgrade the existing ones usually meant that they did not even contemplate such alternatives. Sellers perceived Romania's choice to upgrade instead of buy new equipment and Slovakia's intention to postpone its combat aircraft tender as evidence of their reluctance to cooperate.

ECE decision makers justified the acquisition of expensive military equipment by stressing long-term positive security and economic benefits. The security aspect was self-evident: weapon purchases could be interpreted as tribute paid to NATO for the right to belong. Nevertheless, the enduring economic impact of such acquisitions is less clear. The ECE countries took major procurement decisions on a primarily political basis, but those choices have had subsequent economic consequences. The projected

³ For a thorough analysis of Poland's acquisition of the F-16 combat aircraft see appendix 3A, section VI, in this volume.

domestic workload and related benefits, including offsets associated with large-scale procurement deals, have usually been more modest than promised and expected. Arms acquisitions have regularly turned out to be more expensive than they appeared to be when contracts were signed. The overall cost of the combat aircraft bought in the 1990s by the first group of the ECE countries admitted to NATO (the Czech Republic, Hungary and Poland) has far surpassed the initial figures because of the need to equip the aircraft with sophisticated weapons, the cost of integration, the rise of component prices and continuously emerging update needs.

The ECE countries took decisions about hosting military bases driven by the conviction that providing available assets, such as land, and making investments in infrastructure would be highly advantageous financially and would open up new markets and access to high-tech military technology through cooperation with the foreign troops stationed on their territory. Experience suggests that this was more the exception than the rule.

Offsets

Offset deals are often presented as a tool that enables poor countries to obtain top-notch military equipment and attract foreign investment. In the ECE countries offsets have been widely used in the hope of attracting FDI, generating growth, creating employment, opening up new markets and leading to possible cooperation between domestic firms and foreign investors. From the late 1990s Hungary and Poland required offsets by law, while Bulgaria and Slovakia took several years to formulate their respective regulations. The domestic arms industry's level of development, the strength of the military lobby and the negotiating skills of the respective ministry officials defined the extent and conditions of investments that were channelled back to the host economy.

Despite generous offset offers, a discrepancy often existed between promises and fulfilment in the ECE countries. Both the Czech Republic and Hungary expressed satisfaction with the offset performance associated with the Gripen combat aircraft deal, for example, but cases like Bulgaria's corvette deal, when offsets failed to materialize or were much lower than initially projected, were more typical. The complicated system of measuring offsets and their impact made it difficult to control their implementation. The ECE countries had limited ability to make large purchases and their political influence was restricted, thus they could not easily use sanctions against companies that failed to meet the terms of the offset contracts. The long-term 'distant horizon' of offset deals contrasted sharply with the short-term political cycles and considerations of the region's political and economic actors. Often several changes of government, and of personnel at the ministry that had been designated to review the

final accounts, had occurred by the time that offset obligations came due.

In addition to insufficient fulfilment of offset deals, the special financial and economic mechanisms attached to such arrangements distorted economic realities. The International Monetary Fund and the World Trade Organization criticized the seller countries for providing cheap credits to promote arms exports as that contributed to indebtedness and violated fair market competition. The EU and the USA also criticized offset deals but tolerated the practice and often used this tool to promote their own arms sales. In October 2008 the European Defence Agency proposed to introduce a Code of Conduct on Offsets for EU member governments that aimed to limit the use of offsets.⁴ As of late 2013 the code had been signed by all EDA participating members except Romania.

Offset arrangements also facilitated a new form of redistribution through which state agencies distributed external resources to economic sectors and actors that they wished to promote. Using the traditional mechanism of channelling resources, they dispensed favours and rewarded loyalty. Offset agencies became important hubs of action and negotiations where elements of old style solidarity and new style competition mixed. Through these decision-making and distribution mechanisms, offset deals contributed to the preservation of hierarchical power relations and economic structures that, in principle, they could have helped to eliminate.

Offsets and the associated financial offers and deals gave the impression that the buyer country could 'get something for nothing', as a US official put it.⁵ However, the final outcome was often the opposite.⁶ Attractive weapon sale offers accompanied by generous offset deals have often pushed decision makers to buy beyond their means and needs, placing a considerable economic burden on future potential for development. The scarce resources of the ECE countries will have to be used to pay for expensive weapon acquisition deals for decades and will limit future options.

Having entered the game, the ECE countries followed a similar pattern in relation to arms buyers. Poland, for example, offered Malaysia a complex package of military hardware, software and services topped with generous offset and financial agreements. Such a deal could create a chain reaction of military-related acquisition and military-based economic cooperation in a

⁴ See the European Defence Agency's Code of Conduct on Offsets portal, <<http://www.eda.europa.eu/offsets/>>.

⁵ Johnson, R. F., 'Maintaining a base: trouble in Poland's defense industry', *Weekly Standard* blog, 16 Jan. 2008, <<http://www.weeklystandard.com/Content/Public/Articles/000/000/014/600iwxjf.asp>>.

⁶ On the economic impact of offsets see Brauer, J. and Dunne, J. P., 'Arms trade offsets: what do we know?', University of the West of England, School of Economics, Economics Discussion Paper Series no. 9, July 2009, <<http://carecon.org.uk/DPs/0910.pdf>>.

country whose use for a large and heavily armed army has been questioned.⁷

At the beginning of the post-cold war transformations, ECE defence industrial actors had hoped that offset deals would lead to an efficient, fully modernized, internationally integrated sector. More than two decades later it is clear that offsets have not brought about a miraculous breakthrough and have not turned the arms industry into a source of growth, jobs and technological excellence. In some cases, however, offsets have contributed to the recovery of the sector and have helped a few ECE arms makers to become integrated into international production circuits. Offsets can be considered more a symptom of the deficiencies of the defence equipment market than a problem in itself. Small- and medium-sized countries often use them to secure access to large system integrators' supply chains, which may represent the only chance of survival for their arms makers.⁸

East Central Europe as an arms exporter

Despite increased defence expenditure, national defence orders have remained relatively modest in the ECE countries. The bulk of military budgets has been spent on personnel costs and equipment maintenance, and on professionalization of the armed forces and reducing its size. Defence equipment modernization has taken place principally through imports. In the few cases when a domestic company has won a major procurement deal—such as the L-159 multi-role combat aircraft project in the Czech Republic, aspects of the military vehicle tender in Hungary, and certain upgrade projects in Poland and Romania—the domestic content of the product has often been very low.

ECE arms production has remained primarily export-oriented but, in contrast to the Warsaw Pact period, access to export markets has become far more difficult. In the past national security had been defined in terms of the collective security of the Warsaw Pact and its needs had been met by the domestic arms industry and arms trade within the pact. Any surplus was sold on external markets. After the ECE countries became NATO members their collective security was assured by the alliance and their national armed forces became part of its integrated military structures. The artificial economic protection of the Warsaw Pact days disappeared and ECE arms makers faced the challenges of surviving on an open market.

⁷ In the early 2000s, the time of the first Polish military sales to Malaysia, due to human rights considerations, the UK and the USA were reluctant to sell arms to the country. Eng Goan, O., 'America, Britain won't sell arms to RI, but Poland will', *Jakarta Post*, 8 Nov. 2002.

⁸ Ianakiev, G. and Mladenov, N., 'Offset policies in defence procurement: lessons for the European defence equipment market', *Défense Nationale et Sécurité Collective*, no. 15 (Oct. 2008).

However, in the global arms industry, with its strict hierarchy, uneven playing field and frenetic rhythm of changes, and restricted NATO and NATO-related markets, the ECE firms' chances were not good.

By the mid-2000s, when ECE arms makers and their governments realized that EU and NATO markets were unlikely to absorb large volumes of their military output, they began to search for alternative markets. However, while they pinned their hopes on deals secured via the EU and NATO, they amassed further delays in the competition for supplier contracts on the world market, where the struggle for positions had become extremely fierce. Remaining in the field meant making serious renewed efforts to catch up.

Although arms exports have generated badly needed revenues, they have also contributed to the replication of former production structures. ECE arms producers have sold primarily medium- and low-level, traditional weapons that have been upgraded with upscale Western or, more rarely, domestically produced equipment principally to emerging Asian and some Latin American markets. They have offered relatively affordable and reliable products, in small- to medium-sized batches, willingly adjusting their offers to meet the need of their customers, and often being more accommodating than large defence industrial players. Their comparable level of economic and technological development has created a certain affinity with their business partners and enabled them to create attractive offset proposals. These types of weapon have usually been produced by the revamped traditional companies that were thus able to continue their activities without a pressing need to renovate.

A small segment of the industry was able to produce high-tech and high-value-added items, usually in enclave-type units with limited links inside the domestic economy. Occasionally these sophisticated, domestically developed products could find their way to developed markets, but ECE producers have been seriously handicapped on these markets. Not only have their output and financial resources been limited, but their less advanced economic background and political weakness have also often hampered them.⁹ Success in entering these markets has usually occurred through joint ventures or other forms of alliance with more powerful international partners. Despite stricter and more efficiently implemented arms trade controls, ECE arms producers have occasionally sold unsophisticated traditional products, such as small arms and light weapons, to non-state actors or also to states with dubious credentials.

The persistent export-orientation of the ECE arms industry has created tension between domestic arms producers and the national armed forces, and the most developed segments of the domestic industry have sometimes

⁹ See the case of the VERA surveillance system in appendix 6A, section II, in this volume.

produced higher quality items than those used by the national armed forces. Governments, however, have usually attempted to buy at least some sample products in order to provide the national arms manufacturing firms with indispensable references for use on export markets, as happened in Poland and Slovakia. In other cases the level of domestic production has not been able to meet the new demands of the armed forces. In Bulgaria and Hungary, for example, domestic production was able to meet standard maintenance needs but, except in rare instances, not those of NATO-compatible armed forces.

The status of the ECE arms manufacturers in the global supply chain

At the beginning of transformation, privatization had been considered a panacea to quickly resolve the ECE countries' economic problems and FDI came to be viewed in a similar manner. Promising new business opportunities and generous government incentives had led to a wave of foreign investments in the early 1990s, but many entrepreneurs rapidly departed, sometimes leaving their domestic partners bankrupt. States offered to sell their best performers but foreign buyers exhibited little interest, even though at this stage the region's flagship companies—such as the electronics and telecommunications companies that both the Czech Republic and Hungary hoped to sell—were in a relatively good state. At the end of the 1990s the Czech company Aero Vodochody's cooperation with Boeing appeared promising, but Boeing failed to deliver on its promises. Foreign investors hesitated to invest in Poland until defence-related production became relatively consolidated thanks to significant sacrifices at the state and company level. The entry of FDI strengthened the sector's status, legitimized state support and contributed to the further restructuring and growth of arms making.

In the 2000s a select group of ECE arms makers began to participate in the global arms supply chain. In the early to mid-1990s foreign direct investment was scarce and erratic in the sector and often aimed at realizing quick high returns instead of establishing long-term, stable business relations. From the mid-2000s, however, strategic investors became interested in the region. They sought to solidify their positions in the rapidly changing global defence industrial network and began to 'shop around' for cheap and competent suppliers, subcontractors, cooperation deals and business partners among the competitive survivor companies in the ECE countries. By this stage, after 15–20 years of market and state cleansing, only a fraction of the sturdiest ECE arms companies had survived—thanks to their own efforts and state help. Key transnational players were able to harvest the fruits of two decades of painful transformations.

The big transnational corporations chose the most outstanding ECE companies and integrated them into their international supplier chains, usually at a low level. Industrial cooperation has brought with it significant advantages, such as financial infusions, technology transfer, advanced know-how and new management methods, but has also often meant dependence and insecurity for ECE firms. Vulnerability, and in some cases lack of profitability, have characterized the lower levels of the supplier chain, and companies have often needed to invest significant resources to fulfil their cooperation obligations. Nonetheless, they have considered foreign supplier status to be an asset and such status has often led to some form of state protection and assistance or new business opportunities.

Only a handful of the most outstanding companies have achieved high-level cooperation deals with relatively stable future prospects, and many of these agreements have led to a foreign takeover. In Poland, EADS CASA bought PZL-Warszawa-Okęcie, a small aircraft producer; Pratt & Whitney purchased WSK PZL-Rzeszów, an aircraft engine manufacturer; and Agusta Westland took over the PZL-Świdnik aviation company. Such acquisitions have usually led to fundamental restructuring and occasionally to complete profile changes to facilitate the integration of the ECE producers into their new owners' international production circuits. After the acquisition of PZL-Mielec by Sikorsky, the company's internal production structure changed radically to adjust it to Sikorsky's company profile. Previously, PZL-Mielec had been emerging as the centre of a regional development hub, but after the takeover it became an element of Sikorsky's global supply chain. Sikorsky has aimed to establish regional bases for component manufacturing and service centres for its entire product line. Sikorsky has presented the S-70i Black Hawk helicopter, assembled by PZL-Mielec and to become its principal product, as 'a global product for a global marketplace'. New partners in this supply chain have also included India's Tata Advanced Systems and Germany's RUAG.¹⁰

Major international arms producers have selected individual ECE business partners and established connections with them via exclusive channels. Companies whose activities have become centred on specialized tasks within the external supplier's circles have become more isolated from their national context. This selective integration has contributed to the further disintegration of the domestic defence base. However, as the comparison of the Hungarian and Polish cases demonstrates (see chapter 5), the arms

¹⁰ van Leeuwen, M., 'S-70i™ Black Hawk helicopter debuts at MSPO exhibition', Aviation-News.eu, 7 Sep. 2010, <<http://www.aviationnews.eu/2010/09/07/>>; 'Sikorsky adds key link to international supply chain', *High Performance Composites*, July 2009; and Sikorsky, 'Sikorsky Aircraft and RUAG sign letter of cooperation for aftermarket services in Germany', Press release, 8 June 2010, <<http://www.sikorsky.com/About+Sikorsky/News/Press+Details?pressvcmid=6df613643b319210VgnVCM1000004f62529fRCRD>>.

sector's internal cohesion, synergies and efficient division of labour represent major development assets.

FDI, military exports, procurement and offsets deals—the most important links that tie the ECE countries to the globalized defence industrial network—have contributed to reintegration of the arms industry into the region's new economic system and to maintaining important elements of the traditional patterns that have dominated it for decades.

III. General lessons and insights from East Central Europe

The transformation of the ECE countries offers valuable lessons on defence industrial adjustment that can be particularly useful in the current economic crisis. Twenty years ago ECE arms makers found themselves in a situation similar to that of many defence and other industrial producers today: the sudden collapse of their comfortable world and a drastic change to their economic, political, social and cultural environment. Most ECE arms producers, including many of the most important and influential, could not meet the challenge and went bankrupt, although some companies have survived and a small number have become successful. The reasons for success or failure may have implications for today's decision makers, both in politics and industry.

As far as company-level adjustment is concerned, the ECE firms that accomplished a thorough, in-depth restructuring have succeeded. Human capital represented their most important development asset, and the firms that preserved and developed their core workforce, made use of accumulated know-how, continued with R&D and stimulated teamwork could face the new challenges and adapt quickly. Some form of state backing and stable external links were also indispensable to their success. At country level, the most successful adjustments have tailored the domestic arms sector to the country's security needs, instead of developing the entire sector, and have combined elements of selected defence industrial promotion with *laissez faire* policies.

Seen through the prism of the experience of the ECE arms industry the statements about the nature of the global arms industry that are outlined in chapter 2 appear valid. To summarize, the arms industry represents a highly hierarchical system, with an uneven playing field, where the mechanisms of uneven development systematically regenerate inequalities. Its structure and mechanisms distort fair competition; uneven development reinforces inequalities, concentrates power and preserves instability. The bigger, stronger and more powerful players can impose their rules and interests. Decisive factors for success include the size of a company, its political backing, and formal and informal networks, which can be more important than efficiency and flexibility.

The importance of defence industrial policy

At the macroeconomic level the ECE experience has demonstrated that, whether a state opted for promoting or for abandoning its arms industry, it had to implement a consistent policy to deal with the consequences of that decision. Even if a government chose to leave the sector to the mercy of market forces, it still had to address the problem of freed assets, workforce, technology and industrial estates or they would create major economic burdens and security hazards. With a conscious, long-term and efficiently implemented defence industrial policy, the massive losses of the early 1990s could have been diminished, fewer development opportunities would have been missed and the sector would be far better prepared to handle the new challenges it currently faces.

A balanced mix of government regulation and market adjustment may lead to healthy development.¹¹ Targeted industrial policies should also be harmonized with other types of government intervention or policies will contradict each other, as occurred with the ECE policies on management of the labour force and the defence sector. All governments need long-term policies to plan development and also to diminish the problems caused by unforeseen changes in the social and natural environment.

Long-term government policy and short-term electoral cycles may clash and could lead to significant problems if newly elected government officials automatically revise existing policy guidelines. In Poland and Romania a degree of continuity of defence industrial policy has existed despite frequent changes of governments that represented various political factions. New governments have regularly changed or modified previously approved tenders or projects, but without altering the key policy guidelines. This has created a relatively stable background for companies to make adjustments. In Hungary a similar continuity of passive government policy prevailed for most of the post-cold war period, forcing companies to search for solutions on their own. In the Czech Republic, after the first fundamental policy shift in the early 1990s, subsequent governments have only changed the degree of their involvement with the military sector. Government changes in Bulgaria and Slovakia, at the same time, gave immediate 'stop' or 'go' signals to defence-related production. As a result of policy shifts following changes of government, privatizations were frozen or liberalized, subsidies were cut or reallocated, and companies were assisted or abandoned. When the nature of the transformation process has changed, a radical change in the treatment of the arms industry has also occurred.

¹¹ The US defence industrial consolidations of the 1990s illustrated that market forces did not ensure the efficient and healthy functioning of the sector. State actors had to intervene repeatedly to correct or channel spontaneous market movements that failed to guarantee the desired cost cuts and gains in efficiency.

Defence industrial policy has to be elaborated and implemented at the supranational level as well. Long-term macro-level policy on behalf of the common good of security and sustainable development should be consistently carried out by international institutions, such as the EU, NATO and the United Nations. However, both at the level of national governments and supranational institutions, politics has been increasingly captured by business interests. Simultaneously with the retrenching of the state, companies have gained greater leverage over policymaking in the countries where they are based, but in the past two decades their influence has also become far more decisive at the international level. The EU, NATO and the UN are currently absorbed with their own crises, which makes them increasingly vulnerable to the pressure of business groups allied with politicians who use a wide array of institutional and informal channels to shape key policy measures in order to advance their special interests. National and international decision making should become more open and transparent in order to avoid benefiting particular groups.

The latest manifestation of the increasing influence of business over politics is the financialization of the arms industry. The process started with the gradual opening up of the sector to private capital and financial investors and has now reached the stage where financial interests can easily outweigh political and security considerations. This new development can have two possible outcomes: first, the (unlikely) dismantling of the sector in order to achieve increased flow of capital and productive assets and greater profit. In 2009 an economic advisor to the British Prime Minister, Gordon Brown, stated: ‘Defence, aerospace, manufacturing and engineering have no real value to us. Only high-quality professional services, financial services and the City of London have any real value and they should be supported at all costs. The rest of the country can be turned over to tourism.’¹²

The second, more likely and probably riskier, outcome is that arms production would be run on a purely financial basis. Defence companies increasingly depend on capital infusions from financial investors that inevitably shift their goals from security-based to financial considerations. Handing over the evaluation and, ultimately, the management of defence-related firms to financial experts and investment funds might represent serious security hazards. As the chief financial officer of a large US firm with significant defence business put it, ‘the core issue . . . is the difficulty in

¹² Rayner, G., ‘Gordon Brown adviser says City all-important—and “rest of the country can be turned over to tourism”’, *Daily Telegraph*, 2 Mar. 2009.

matching the heavy demands of customers against the ambitious financial returns expected by investors.¹³

Weapon production and economic growth

In the current economic crisis, arms makers and some politicians have proposed promoting the sector, claiming that the revamped arms industry could be used as a lever to help pull the ECE countries out of recession. Similar arguments were made in the 1990s when the post-cold war changes led to a profound economic crisis. However, the ECE experiences of the past 25 years have shown that promotion of the arms industry is an inadequate tool for crisis management: while it can contribute to economic growth once a growth path is established it can also slow and distort developments.¹⁴

In Poland in the early 2000s, when the economy failed to recover, the promotion of arms making did not help but instead added yet another burden on efforts to restructure. The intense support of the arms industry during most of the 1990s did not improve the general state of the economy in Slovakia either. In both cases the arms industry appeared to be a bottomless pit that absorbed precious resources without contributing to economic recovery. Only when economic growth resumed in both countries did the arms industry make a contribution, like any other prospering productive branch. It is important to separate the periods of recovery and growth. Economic growth resumed by the late 1990s but arms exports did not increase until the early 2000s, due to Poland's efforts in the 'global war on terrorism'. No causal connection existed between the two processes. In Slovakia an impressive economic recovery took place in the early 2000s, yet arms production remained sidelined. Slovakia recovered without promoting the arms industry, and Poland recovered despite its intense promotion of arms making. Foreign investors had started to invest in defence-related companies at a later stage, by the time the ECE economies stabilized, and their activity reinforced the importance of the sector, again creating the false impression that defence industry promotion and growth were intrinsically related.

Since arms production requires large investments and has long maturation cycles and limited links inside the economy, questions can be raised about its potential to tackle a crisis and contribute to long-term growth.

¹³ Quoted in Levy, R., 'Defense industry access to capital markets: Wall Street and the Pentagon', Annotated brief, Center for Strategic and International Studies, Defense-Industrial Initiatives Group, Apr. 2011, <<http://csis.org/publication/defense-industry-access-capital-markets>>.

¹⁴ The state of the US economy, after nearly 2 decades of intense promotion of arms production and 2 wars, also brings into question the role of the sector as an engine of growth. See Bilmes, L. J. and Stiglitz, J. E., *The Three Trillion Dollar War: The True Cost of the Iraq Conflict* (W. W. Norton & Company: New York, 2008).

Arms manufacturing has typically developed in semi-isolation within the economic system; in the ECE countries the most advanced sectors have often remained enclaves. Even inside the companies, weapon production is often kept distinct from other activities. Investments and offsets tend to flow back to the sector; the results of military-related R&D take a long time to spread; and the productive synergies created inside the arms industry have limited impact on the rest of the economy. The military aviation industry has been one of the most outstanding segments of the Romanian economy, where FDI was allowed to enter even before the post-cold war changes occurred, contributing further to the creation of a technologically and economically advanced sector. However, the benefits of this development remained limited because avionics continues to be a special zone inside the economy.

The arms industry and soft budget constraints

In the past 25 years fundamental changes have taken place in the world's arms industry, profoundly modifying its boundaries, nature and way of functioning, but it has remained extremely lucrative. As discussed in chapter 2, profitability does not necessarily equate to efficiency. Arms production and trade usually generate extra revenues for those involved but are also a permanent drain on resources that weakens overall economic performance. Since major development and procurement decisions are taken primarily on political grounds, and budgets and transactions are not subject to true scrutiny, the arms industry is prime territory for soft budget constraints.¹⁵ Soft budget constraints are not exotic features that disappeared with the command economy; they persist and flourish in certain segments of all economic systems. In principle, their presence in the defence sector is explained by the fact that it provides the means to achieve the precious common good of security; thus, it cannot be run on exclusively profitability criteria. The advantages and exceptional status that stem from this special position can become questionable when, instead of promoting security, they serve the interests of particular interest groups.

Military-related procurement is a typical domain of soft budget constraints. Large acquisitions are justified by security considerations that also tend to limit the transparency and accountability of the deals, and decisions are often taken hurriedly and under enormous political pressure. Exclusive mutual dependence no longer exists between the state and its entitled defence industrial firms. Depending on other political and financial con-

¹⁵ On soft budget constraints see Kornai, J., *A hiány* [Economics of shortage] (Közgazdasági és Jogi Könyvkiadó: Budapest, 1982); and Kornai, J., *The Socialist System: The Political Economy of Communism* (Princeton University Press: Princeton, NJ, 1992). See also Kornai, J., Maskin, E. and Roland, G., 'Understanding the soft budget constraint', *Journal of Economic Literature*, vol. 41, no. 4 (2003).

straints, governments can look for alternative suppliers in the same way that companies can look for alternative markets. In general, however, the bulk of the defence market remains captive; companies either produce for their defence ministry or for other, also state-backed markets, to which they have access because of political intervention. This creates special conditions that can also easily become conducive to shady deals and corruption.

The military-related segment of the economy remains an island of soft budget constraints through which significant resources leak from the economy. In addition to the factors that characterize defence production—large fixed assets, long production cycles, a skilled workforce and significant buffers to guarantee security of supply—large-scale waste and inefficiency related to soft budget constraints make it particularly expensive. The presence of soft budgets also has a corrosive impact on the whole economy. Its mechanisms, practices and values have an impact like genetically manipulated seeds: invisibly, they make their way into other fields and contaminate the crops.

This, of course, is not unique to the ECE countries. The current economic crisis has highlighted these basic features of the sector to such an extent that even representatives of the US military establishment have called for greater efficiency and transparency. Criticizing the management of the US military industry's key strategic programme, the development of the F-35 (Joint Strike Fighter) combat aircraft, the US Secretary of Defense, Robert Gates, talked about the lack of financial discipline in the US Department of Defense during the presidency of George W. Bush (2001–2009) and the failures of Lockheed Martin and its partners. He stressed that 'the culture of endless money that has taken hold must be replaced by a culture of restraint'.¹⁶ Speaking about the need to create more security with fewer means, Jacques S. Gansler, former US Under Secretary of Defense for Acquisition, Technology and Logistics, called for a fundamental change inside the military establishment and in the relationship between the government, the DOD and industry: 'the government's laws, regulations, and practices . . . increasingly have served to isolate the military from the best available performance and lower cost of goods and services in the commercial and global markets'.¹⁷

Reacting to the current crisis, particularly the diminishing military budgets, representatives of the arms industry have expressed their intention to improve the sector's performance by introducing strict efficiency requirements, improving synergies and reducing waste. Rationalizing existing assets and available resources would be an indispensable first step.

¹⁶ 'The last manned fighter', *The Economist*, 14 July 2011.

¹⁷ Gansler, J. S., 'Solving the nation's security affordability problem', *Issues in Science & Technology*, vol. 27, no. 4 (summer 2011).

However, these intentions might be short-lived rhetorical exercises if the military establishment, including the arms industry, is not subjected to strict external control mechanisms. Independent professional organizations, government institutions and civil society movements should supervise defence-related interactions more efficiently and guide companies towards greater transparency and activities that enhance global security.

The arms industry and security

The early 21st century has been characterized by geopolitical insecurity and a multifaceted crisis that are a far cry from the promises of peace and prosperity that emerged at the end of the cold war. After terrorist attacks on the USA in 2001, Madrid in 2004 and London in 2005 and the ensuing 'global war on terrorism', security considerations have regained priority in world politics. Before the current economic crisis, even countries with limited financial resources appeared willing to accept increased defence expenditure. There is, nevertheless, a growing sense of generalized insecurity that manifests itself in the re-emergence of nationalist, xenophobic politics, strong anti-migration sentiments and willingness to sacrifice some personal and political freedoms and rights for the sake of stricter security measures introduced by the state. The crumbling welfare system in most European countries, the increasingly sinister signs of climate change and the vulnerability of the global economic system have also contributed to feelings of instability and vulnerability.

Unfortunately, the measures introduced thus far under the banner of enhancing security have served to increase environmental, economic and political instability in the world. The military interventions in Afghanistan and Iraq have not resolved the security threats they were intended to address. Quite the contrary, they will have a long-term negative impact on global security. Fundamental reinterpretation of the basic notions of security and related policies and implementation of new policies are urgently needed to counter these trends.

Reacting to the current economic crisis, arms industry actors have started to use a new formulation of defence industrial identity, defining themselves as global security providers that focus on such new aspects of national security as homeland and environmental security and natural disaster prevention. The participation of business in ensuring global security can be a welcome development provided that the supremacy of security as a common good is respected and that security is not perceived as yet another saleable product. The new notion of comprehensive security proposed by defence industrial players should not be a simple manoeuvre to capture alternative budget headings in the current period of financial meltdown and decreasing military budgets. A genuine reinterpretation of

security as a universal common good that encompasses human and environmental security is an inescapable urgent task. Such a new security concept and the policies needed to implement it would bring about a fundamental change in the defence establishment, similar to that of the revolution in military affairs. For the time being this change only appears in verbal declarations. Two or three decades ago leading arms producers presented themselves as system integrators, moving away from the simple production of weapon platforms. Today they describe themselves as 'global partners building global security'.¹⁸ A Lockheed Martin representative noted that the company was expanding its activity in such fields as air traffic control, post-automation systems, state-building, peacekeeping and mission readiness: 'We are transforming from large systems integration and defense to a global security enterprise'.¹⁹

ECE arms manufacturers that are in search of long-term development opportunities could actively participate in the redefinition of the security industry. In 2008, shaken by the devastating impact of the world economic crisis and the lack of government help, desperate Bulgarian arms makers threatened to leave the sector and switch to the energy industry. Without realising it, they formulated a possible and desirable future for the sector. Former and present defence industrial companies could become key actors in exploring and investing in new fields of production and research, fighting against the most tangible dangers that threaten humankind: hunger, climate change, pandemics and the exhaustion of natural resources, such as water, arable land and energy.

¹⁸ Stevens, R. J., Chairman, President and Chief Executive Officer, Lockheed Martin Corporation, 'Global partners building global security', Remarks at Paris air show media dinner, Le Bourget, 14 June 2009, <<http://www.lockheedmartin.com/us/news/speeches/global-partners-building-global-security.html>>.

¹⁹ Maraghy, S., Lockheed Martin Vice President Corporate Business Development, quoted in 'From security to nation building: in search of global partners', American Chamber of Commerce in Poland, 25 Feb. 2009, <http://amcham.pl/index.php?mod=page&page=6_c.defense_2009_02_25>.

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