

V. Trends in arms production, 2019

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The 25 largest arms-producing and military services companies, 2019

Table 9.7 ranks the world's 25 largest arms-producing and military services companies ('arms companies' for short) by their arms sales in 2019—the latest year for which relevant data is available (see box 9.2). The arms sales of the top 25 arms companies totalled US\$361 billion in 2019. This represents an increase of 8.5 per cent compared with 2018 and 15 per cent compared with 2015. Of the 25 companies included in SIPRI's ranking, 19 recorded higher arms sales in 2019 than in the previous year.¹

Key developments

For each of the years covered by SIPRI's current data set, the United States was the country with the highest number of companies listed. In 2019 the 12 US companies included in the ranking accounted for 61 per cent of the combined arms sales of the 25 largest arms companies. 2019 was also the second consecutive year in which the top 5 companies were all based in the USA. Lockheed Martin, reporting the largest absolute increase in arms sales of any of the companies listed (\$5.9 billion), topped the ranking for the fifth year in a row.

The combined arms sales of the six West European companies in the top 25 made up 18 per cent of the total. Compared with 2018, the arms-related revenue of these six companies grew by 11 per cent. The French producer Dassault Aviation Group more than doubled its arms sales, thereby reporting the largest percentage increase among companies in the top 25.

The 2019 SIPRI ranking is the first to include data for some Chinese arms companies. Four were among the top 25.² Together, they accounted for 16 per cent of the total arms sales of the top 25, making China the second largest arms-producing country in the world in 2019. The combined arms-related revenue of the four companies grew by 4.8 per cent since 2018 and by 8.2 per cent since 2015, largely due to the military modernization programmes of the People's Liberation Army.

Russian companies accounted for 3.9 per cent of the total top 25 arms sales in 2019. Both of the Russian companies included in the ranking, Almaz-Antey and United Shipbuilding Corporation, recorded a decrease in revenue.

¹ Except where indicated, the information on arms sales of the world's largest arms-producing and military services companies referred to in this section is taken from the SIPRI Arms Industry Database. For a definition of 'arms sales' see box 9.2.

² Other Chinese companies might have been among the top 25 arms companies in 2019, but there was insufficient data to include them in the ranking.

Table 9.7. The SIPRI top 25 arms-producing and military services companies, 2019

Rank ^a	2019	2018	Company ^b	Country ^c	Arms sales, 2019 (US\$ m.)	Arms sales, 2018 (constant 2019 US\$ m.) ^d	Change in arms sales, 2018–19 (%)	Total sales, 2019 (US\$ m.)	Arms sales as a % of total sales, 2019
1	1	1	Lockheed Martin Corp.	United States	53 230	48 119	11	59 812	89
2	2	2	Boeing	United States	33 580	32 704	2.7	76 559	44
3	3	3	Northrop Grumman Corp.	United States	29 220	26 666	9.6	33 841	86
4	4	4	Raytheon ^e	United States	25 320	23 866	6.1	29 176	87
5	6	6	General Dynamics Corp.	United States	24 500	22 400	9.4	39 350	62
6	5	5	AVIC ^f	China	22 470	21 841	2.9	66 846	34
7	7	7	BAE Systems	United Kingdom	22 240	20 672	7.6	23 378	95
8	9	9	CETC	China	15 090	13 581	11	32 951	46
9	8	8	NORINCO	China	14 540	14 580	-0.3	65 929	22
10	-	-	L3Harris Technologies ^g	United States	13 920	13 460	3.4	18 074	77
11	14	14	United Technologies Corp. ^e	United States	13 100	9 479	38	77 046	17
12	11	11	Leonardo	Italy	11 110	9 383	18	15 432	72
13	10	10	Airbus	Trans-European ^h	11 050	11 197	-1.3	78 905	14
14	13	13	Thales	France	9 470	9 087	4.2	20 601	46
15	12	12	Almaz-Antey	Russia	9 420	9 784	-3.7	9 657	98
16	16	16	Huntington Ingalls Industries	United States	7 740	7 331	5.6	8 899	87
17	38	38	Dassault Aviation Group	France	5 760	2 812	105	8 219	70
18	18	18	Honeywell International	United States	5 330	5 529	-3.6	36 709	15
19	19	19	Leidos	United States	5 330	5 091	4.7	11 094	48
20	22	22	Booz Allen Hamilton	United States	5 140	4 765	7.9	7 464	69
21	28	28	General Electric	United States	4 760	3 716	28	95 200	5.0
22	-	-	EDGE ^f	UAE	4 750	5 000	95
23	23	23	Rolls-Royce	United Kingdom	4 710	4 561	3.3	19 732	24
24	25	25	CSGC	China	4 610	4 125	12	29 065	16
25	21	21	United Shipbuilding Corp. ^f	Russia	4 500	4 770	-5.7	5 416	83

.. = data not available; - = not ranked in 2018; AVIC = Aviation Industry Corp. of China; CETC = China Electronics Technology Group Corp.; Corp. = corporation; CSGC = China South Industries Group Corp.; NORINCO = China North Industries Group Corp.

Note: Percentages below 10 are rounded to 1 decimal place; percentages over 10 are rounded to whole numbers.

^a Companies are ranked according to the value of their arms sales at the end of what SIPRI considers to be their financial year. Company names and structures are listed as they were at the end of their financial year. Rankings for 2018 are based on updated figures for arms sales in the SIPRI Arms Industry Database for the years 2015–19. They may differ from those published in any earlier SIPRI publication owing to continual revision of data, most often because of changes reported by the company itself and sometimes because of improved estimations.

^b Holding and investment companies with no direct operational activities are not treated as arms companies, and companies owned by them are listed and ranked as if they were parent companies.

^c Country refers to the country in which the ownership and control structures of a company are located, i.e. the location of a company's headquarters. ^d To allow comparison with arms sales in 2019, figures for arms sales in 2018 are given in constant 2019 US dollars.

^e Raytheon and United Technologies Corp. merged in 2020.

^f The arms sales figure for this company is an estimate with a high degree of uncertainty.

^g L3Harris Technologies is the result of a merger between Harris Corp. and L3 Technologies. Its arms sales figure for 2018 is pro forma, i.e. it is the combined 2018 arms sales of Harris Corp and L3 Technologies.

^h Trans-European refers to companies whose ownership and control structures are located in more than one European country.

Source: SIPRI Arms Industry Database, Dec. 2020.

Box 9.2. Definitions and methodology for SIPRI data on the top 25 arms-producing and military services companies

The data on the top 25 arms-producing and military services companies is from SIPRI's Arms Industry Database, which is revised annually based on new information. It replaces all data for all years in previous SIPRI publications on arms companies.

'Arms sales' are defined as sales of military goods, services, and research and development to military customers domestically and abroad.

Unless otherwise specified, all changes are expressed in real terms. Comparisons between years are based on the sets of companies included in the ranking in the respective years (i.e. comparison between different sets of 25 companies).

The comparison presented here starts from 2015, as this is the first year for which SIPRI now has sufficient data to include some Chinese companies. The new data set therefore differs from the previous data set produced for the SIPRI Top 100 ranking of arms-producing and military services companies, which does not include Chinese companies.^a

^a For further detail see Tian, N. and Su, F., 'Estimating the arms sales of Chinese companies', SIPRI Insights on Peace and Security no. 2020/2, Jan. 2020.

A third Russian company, United Aircraft Corporation, lost \$1.3 billion in arms sales and dropped out of the top 25.

The year also marked the rise of a Middle Eastern company into the list of the 25 largest arms companies. EDGE, headquartered in the United Arab Emirates (UAE), was created in 2019 from a merger of more than 25 smaller firms. Ranking at number 22, its arms-related revenue in 2019 is estimated at just under \$4.8 billion. Significant investment by the UAE Government into the domestic arms industry contributed to the rapid ascent of these smaller entities, which were then able to import technology to expand their know-how and bolster their production capacity.

Mapping the international presence of the arms industry

A simple survey of the geographical locations of the largest arms companies' headquarters suggests that they operate in only a limited number of states. However, this obscures the fact that the reach of arms companies often extends far beyond the borders of the countries in which they are headquartered, as a result of the internationalization of the arms industry. In order to study the true geographical spread of the arms industry and its activities, SIPRI has built a data set of 400 foreign entities—branches, subsidiaries and joint ventures registered in a country other than that in which the parent company is headquartered—tied to the world's 15 largest arms companies (see box 9.3).

Key findings

When expanding the scope of analysis to include foreign entities, the reach of the world's 15 largest arms companies extends across at least 49 different

Box 9.3. Definitions and methodology for SIPRI data mapping the international presence of the arms industry

The SIPRI data set mapping the international presence of the arms industry includes foreign entities tied to the world's 15 largest arms companies. The term 'foreign entity' refers to a branch, subsidiary or joint venture that is registered in a country other than the one in which the ultimate parent company is headquartered. In order to be counted, a foreign entity had to be active for more than six months during 2019 and either manufacture military goods, provide military services or sell to military customers. Entities involved solely in sales, marketing or outreach activities and entities deemed to be holding or investment companies were excluded. Moreover, to be counted, an entity had to be majority-owned and be removed by no more than two levels of ownership from the ultimate parent company.^a

^a For more information on definitions, sources and methods see Béraud-Sudreau, L. et al., 'Mapping the international presence of the world's largest arms companies', SIPRI Insights on Peace and Security no. 2020/12, Dec. 2020, p. 2

countries, 17 of which are in the Global South.³ If only the locations of the headquarters were taken into account, the international presence of the same set of companies would span just 8 countries.

Of the 15 companies surveyed, the French producer Thales is the most internationalized, with 67 entities registered in 24 countries across 5 regions (see table 9.8). Airbus, which is categorized as a trans-European company, is also present in 24 countries with a total of 41 entities. Other front-runners include Leonardo (59 entities in 21 countries), Boeing (56 entities in 21 countries) and Lockheed Martin (28 entities in 19 countries).

Chinese and Russian arms companies, by contrast, have a limited international presence. However, open-source data for Chinese and Russian firms is often unavailable. Of the four Chinese and Russian companies included in SIPRI's analysis, Aviation Industry Corporation of China (AVIC) is the only one for which eligible foreign entities were found. AVIC is present in at least six different countries: four are Western industrialized countries—Finland, Spain, the United Kingdom and the USA—and two are in the Global South—Cambodia and Pakistan. The latter two have long participated in military cooperation programmes with China.⁴

There are several reasons why the reach of Chinese and Russian companies may appear less extensive than that of their US and European counterparts. First, both Russia and China focus heavily on domestic arms production and thus may discourage state-owned companies from

³ The 17 countries are Brazil, Cambodia, China, Colombia, Costa Rica, India, Iraq, Jordan, Kazakhstan, Kenya, Malaysia, Mexico, Morocco, Pakistan, South Africa, Thailand and Turkey. 'Global South' here refers to developing countries eligible for official development assistance (ODA). Organisation for Economic Co-operation and Development, Development Co-operation Directorate (DAC), 'DAC list of ODA recipients: Effective for reporting on 2020 flows', 2020.

⁴ Phea, K., 'Cambodia–China relations in the new decade', Diplomacy Publication, Konrad Adenauer Stiftung, 26 May 2020; and Gao, C., 'Here's how China made Pakistan into a military powerhouse', *National Interest*, 20 Mar. 2020.

Table 9.8. International presence of the top 15 arms-producing and military services companies, 2019

Parent company	Rank 2019	Location of headquarters	No. of foreign entities	No. of countries ^a	No. of regions ^b	Entities involved in manufacturing as a % of total foreign entities ^c
Lockheed Martin Corp.	1	United States	28	19	4	50
Boeing	2	United States	56	21	5	9.0
Northrop Grumman Corp.	3	United States	16	9	3	56
Raytheon ^d	4	United States	16	7	4	88
General Dynamics Corp.	5	United States	25	14	4	80
AVIC	6	China	7	6	3	86
BAE Systems	7	United Kingdom	38	18	4	42
CETC	8	China	[0]	[0]	[0]	..
NORINCO	9	China	[0]	[0]	[0]	..
L3Harris Technologies	10	United States	33	15	5	76
United Technologies Corp. ^d	11	United States	14	8	3	93
Leonardo	12	Italy	59	21	5	58
Airbus	13	Trans-European ^e	41	24	5	32
Thales	14	France	67	24	5	73
Almaz-Antey	15	Russia	[0]	[0]	[0]	..

.. = data not available; [0] = estimated number is 0 as no foreign entity matching the research criteria was found; AVIC = Aviation Industry Corp. of China; CETC = China Electronics Technology Group Corp.; Corp. = corporation; NORINCO = China North Industries Group Corp.

Note: Percentages below 10 are rounded to 1 decimal place; percentages over 10 are rounded to whole numbers.

^a The number of countries in which the parent company's foreign entities are present.

^b The number of regions (i.e. Africa, the Americas, Asia and Oceania, Europe and the Middle East) in which the parent company's foreign entities are present. On SIPRI's regional coverage see the list of conventions in this volume and the SIPRI website.

^c The percentage of the parent company's foreign entities that are involved in manufacturing activities.

^d Raytheon and United Technologies Corp. merged in 2020.

^e Trans-European refers to companies whose ownership and control structures are located in more than one European country. For this study, Airbus is considered to have headquarters in three European countries: France, Germany and Spain.

Sources: SIPRI Arms Industry Database, Dec. 2020; annual company reports; stock exchange and investment filings; company websites; press statements; media reports; and public company registrars.

establishing a presence abroad.⁵ Second, in the case of China, it could be lack of experience in organizing technology transfers that inhibits other forms of industrial cooperation with state customers. Third, efforts by Western governments to regulate foreign direct investment with the aim of thwarting Chinese ambitions to acquire dual-use and emerging technologies may act as a barrier.⁶ Fourth, opportunities for Russian arms companies to form partnerships abroad have been affected by European Union and US sanctions.⁷

Of the world's five regions, Europe hosts the highest number of entities (167), followed by Asia and Oceania (91) and the Americas (84). Home to about 56 foreign entities, the UK leads the ranking of host countries, followed by Australia (38), the USA (36), Canada (30) and Germany (29). Beyond North America, Western Europe and Australia, the countries hosting the most entities are: Saudi Arabia (24), India (13), Singapore (11), the UAE (11) and Brazil (10).

The international presence of the world's largest arms companies closely mirrors ties and divisions that exist at the geopolitical level. US companies, for instance, are present in most allied and partnered countries, including Australia, Canada, Israel, Japan, South Korea, Saudi Arabia and Turkey. Transatlantic links are especially prominent. All three European companies surveyed have established themselves in the USA. Notably, the US market accounted for 43 per cent of BAE's total sales in the 2019 financial year.⁸ US companies also have an extensive presence in Europe. For example, nearly 79 per cent of United Technologies' foreign entities are located in Europe, as well as more than half of General Dynamics' subsidiaries and joint ventures abroad.

SIPRI's data set also differentiates between entities that manufacture military goods and those that provide military services. The proportion of foreign entities involved in manufacturing varies greatly from company to company. For example, only 9.0 per cent of Boeing's foreign entities are production sites. General Dynamics, on the other hand, has far more significant capabilities abroad, with 80 per cent of its foreign entities involved

⁵ Cheung, T. M., *Fortifying China: The Struggle to Build a Modern Defense Economy* (Cornell University Press: Ithaca, NY, 2009); and International Institute for Strategic Studies (IISS), 'Defence budgets, defence industry and the State Defence Order', *Russia's Military Modernisation: An Assessment* (Routledge: Abingdon, 2020).

⁶ Johnson, K. and Gramer, R., 'The great decoupling', *Foreign Policy*, 14 May 2020.

⁷ US Department of the Treasury, 'Announcement of treasury sanctions on entities within the financial services and energy sectors of Russia, against arms or related materiel entities, and those undermining Ukraine's sovereignty', Press release, 16 July 2014; US Department of State, Bureau of International Security and Nonproliferation, 'Section 231 of the Countering America's Adversaries Through Sanctions Act [CAATSA] of 2017', 2017; and Council Regulation (EU) 833/2014 of 31 July 2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L229, 31 July 2014.

⁸ BAE Systems, 'Half year results', 30 July 2020, p. 20.

in military manufacturing. Geographically speaking, the manufacturing capabilities of the largest arms companies remain concentrated in North America, Western Europe and Australia. Together, these locations account for 80 per cent of all surveyed foreign production sites.

Understanding the internationalization of the arms industry

Various factors prompt arms companies to establish entities abroad, both from a supply perspective (company strategies) and a demand perspective (national procurement and arms-industrial policies). For instance, following the contraction of domestic arms procurement markets after the end of the cold war, arms companies in North America and Western Europe had to adapt. By acquiring foreign subsidiaries and partnering with local companies, they successfully gained access to key markets with nascent arms-industrial bases.

The market has also become increasingly competitive. In response, many arms companies have forged new partnerships through mergers, acquisitions and joint ventures. Larger companies are more capable of withstanding, for example, government cuts to military spending because they can leverage economies of scale.⁹ Furthermore, by entering into joint ventures, companies pool the risks associated with the development of new weapon programmes. Larger companies can also diversify their portfolios, which makes them less dependent on one single weapon programme.¹⁰

Moreover, internationalization is driven by national policies aimed at incentivizing investment in the local military-industrial base. For example, Saudi Arabia's Vision 2030 policy sets a target for 50 per cent of arms procurement spending to be localized.¹¹ In the case of the USA, restrictions on foreign arms imports compel arms companies to acquire USA-based subsidiaries and detach the US operations from their own.¹² Together with the sheer size of the US market, this helps to explain the high number of foreign entities located in the USA.

These strategies are also relevant to many arms companies outside the top 15. Further, the enactment of arms-industrial policies by emerging arms producers will probably continue to encourage foreign arms companies to set up local branches and manufacturing entities in order to gain access to, or expand their presence in, these markets.

⁹ McKinsey and Company, *The Future of European Defence: Tackling the Productivity Challenge* (McKinsey and Company: May 2013), pp. 24–25.

¹⁰ Devore, M. R., 'Arms production in the global village: Options for adapting to defense-industrial globalization', *Security Studies*, vol. 22, no. 3 (2013), pp. 537–38.

¹¹ Saudi Arabian Public Investment Fund, 'Saudi Arabian Military Industries', Press release, 17 May 2017.

¹² Manuel, K. M., *The Buy American Act—Preferences for 'Domestic' Supplies: In Brief*, Congressional Research Service (CRS) Report for Congress R43140 (US Congress, CRS: Washington, DC, 26 Apr. 2016); and Perlo-Freeman, S., 'Arms production', *SIPRI Yearbook 2009*, p. 276.