French defence exports to Europe: past, present and future

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July 2022

IISS
The International Institute
for Strategic Studies

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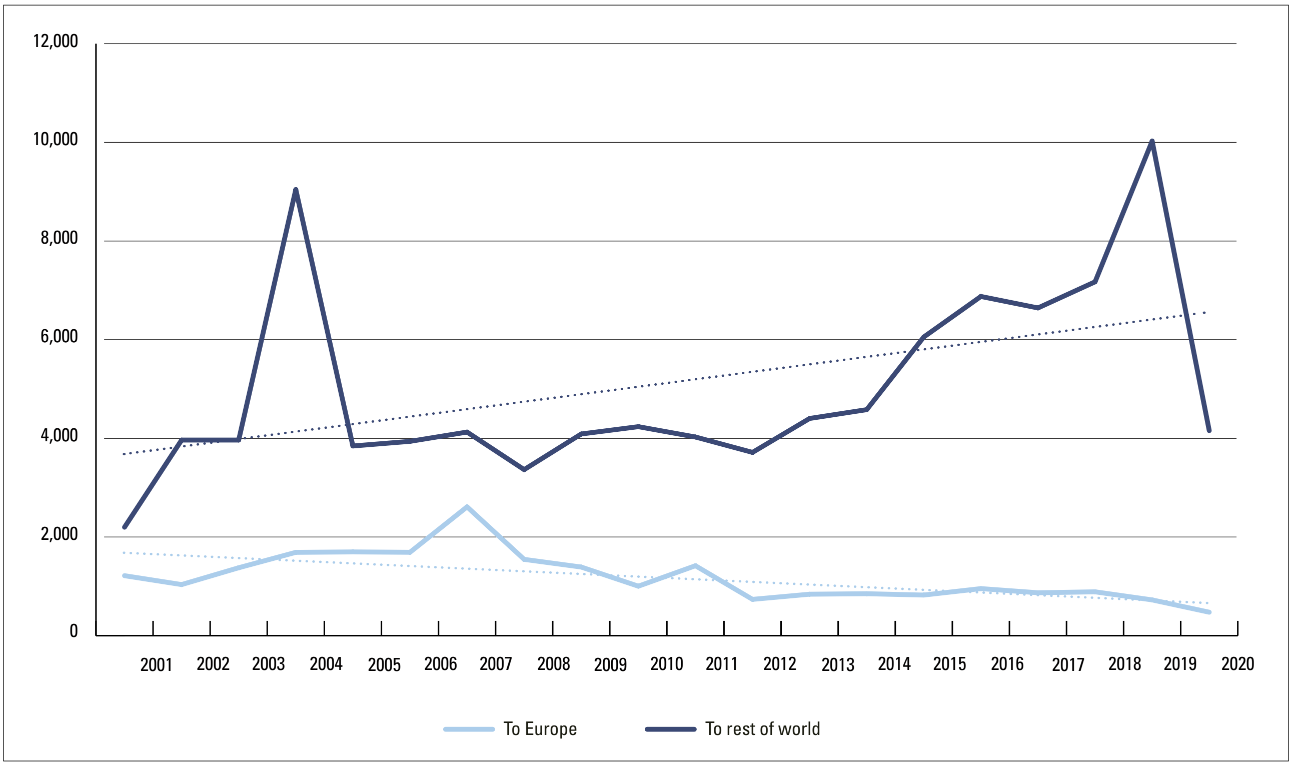
Introduction

French defence firms have recently had ample opportunities to celebrate export success, the most lucrative example being the 2021 USD19 billion package deal with the United Arab Emirates for the Dassault *Rafale* and associated weapons systems. The average annual value of French global defence exports between 2011 and 2020 was approximately USD800 million higher than in the previous decade (see Figure 1), and this sum looks set to grow further following the signing of high-value deals in the last three years.[1] However, while the value of deliveries to all other regions has grown over the past two decades, the value of those to Europe has declined despite French government policies and rhetoric aimed at boosting the figures. This is due to a variety of factors, not least because France has secured few major export sales to the region since the sale of *Mirage*s to Greece in 2000 (see Figure 2).[2] Since 2017, President Emmanuel Macron and his government have promoted a concept of 'European sovereignty' and the French presidency of the Council of the European Union has been presented as another opportunity to strengthen European defence and to define 'European strategic sovereignty'.[3] Arms sales and joint European programmes will probably be major elements of this effort, both in securing French national and supranational objectives, during the presidency and also in the longer term.

This report aims to explain France's approach to defence exports, why the value of French equipment deliveries to Europe fell during the period 2001–20, and what could happen next. It will explore how French political ambition in this area did not materialise until relatively recently, and the factors that could now facilitate greater success for French companies in Europe. While the next few years of export data are expected to show growth, it is unclear how long this is likely to last. The report will describe possible future scenarios, given the current political and economic context, and will argue that the success of the next round of European joint-development projects will probably be critical to the long-term success of French defence exports in Europe.

Figure 1: **French defence exports (deliveries), 2001–20 (USDm)**



Source: French Ministry of Defence annual reports to Parliament on arms exports
Note: Conversions to USD using in-year exchange rates

French defence exports: the political context

A persistent doctrine favourable to arms exports

For France, arms exports have always been considered a core component of national sovereignty, allowing freedom of action both in foreign and defence policy. As in other European countries, domestic orders alone are not sufficient to maintain the defence industry's high level of technological sophistication and broad capability over multiple sectors.

By the end of the 1950s, Paris already had an emerging policy on the wider role of arms exports, supported by a public consensus that remains to this day.[4] Unlike in some other European countries, such as Germany, the government does not face significant resistance from the public concerning defence-export policies. This has allowed successive administrations to commit to boosting sales, allowing France to stay among the world's major arms exporters, with some recent analyses placing it in the top five.[5]

The French arms-export-control system is structured as follows. First, arms sales and transfers are dependent on government approval. Companies must apply for export licences, which are subject to a multi-departmental approval process involving the Ministry of Defence, the Ministry of Foreign Affairs and the Ministry of the Economy.[6] All licences are assessed based on the criteria defined in the framework of European Union and international agreements. These processes have been strengthened over time. Since 2012, France has carried out *a posteriori* checks following the grant of an export licence. These checks and inspections aim to verify compliance with all the obligations that companies are required to fulfil when exporting defence equipment.[7] However, France is committed to the principle of non-interference with recipient states' sovereignty and still considers that exports should be based on mutual trust. It therefore issues end-user certificates, but unlike some other countries – such as Germany and the United States – it does not conduct post-shipment controls in the recipient country, which would involve diplomatic and practical challenges.

The Nexter factory in Roanne, France, where *Griffon* and *Jaguar* armoured vehicles undergo final assembly.

(Photo by Nicolas Liponne/NurPhoto via Getty Images)

Defence exports to achieve foreign-policy goals

From the French perspective, any defence export is, above all, a political act that supports the country's foreign-policy priorities. Following this logic, France's customers can change over time, depending on the state of diplomatic relations with potential clients. European countries (especially the United Kingdom and Greece) have always been among France's customers for defence equipment, although exports to Europe as a whole have lagged behind those to regions such as the Middle East (see Table 1) and Asia. Within Europe the value of deliveries has varied from country to country, in accordance with the international context and with French administrations' political priorities. However, since 2017, those factors have probably begun to have some positive impact on total French arms exports to Europe, which should now experience substantial growth.

At the political level, a 'European' ambition in terms of defence exports has only materialised relatively recently in France. However, at the industrial level, privatisation started in France at the end of the 1990s, allowing for the first major mergers and acquisitions of companies on a European scale, such as the creation of European Aeronautic Defence and Space Company (EADS) and MBDA in 2000 and 2001 respectively. In 2008, the French government's White Paper on Defence and National Security stated that 'for the majority of defence and security acquisitions, [the French] strategy will be in line with European interdependence'.[8] However, there was no indication that priority would be given to exports to European countries. It was not until 2013 that the White Paper on Defence and National Security stated that 'building a European approach to defence and security is a priority', although it would take until 2019 for these political statements to be translated into significant contract signings (see Figure 2).[9] During the period 2013–20, only 12% of French defence exports were to Europe, marking a clear decline in comparison with 2001–12, when the corresponding figure was 26%.[10]

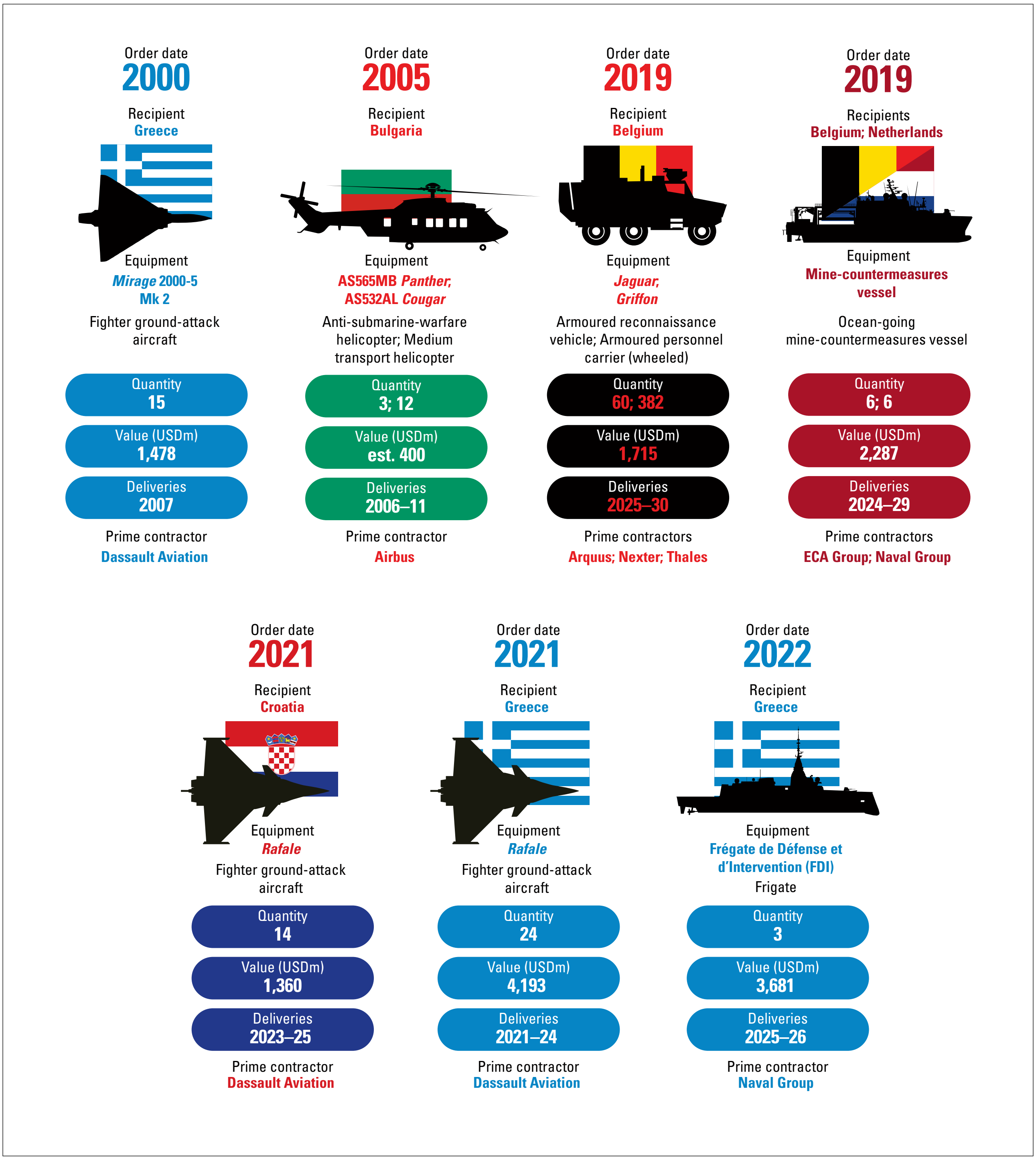
The delay in achieving positive results is in part due to the inevitable competition that French industry has faced from other European countries and from the US (especially in the combat-aircraft sector), and to the procurement cycles of specific recipient countries. As for political stimulus, even if former presidents had managed to boost French global arms exports by throwing the government's diplomatic weight behind specific negotiations, it was only after Macron's election in 2017 that the political approach began to catch up with the business impetus to export to the rest of Europe. This has led to a new, comprehensive batch of reforms in favour of European defence cooperation and boosting intra-European exports. Achieving Macron's goal of a 'sovereign, united, democratic Europe', although a relatively nebulous concept, will not only require the strengthening of joint programmes with European countries but also for those partners to choose European-made materiel, which could be French, instead of an American alternative.[11] Since Macron's election, France has promoted this as an essential component of the success of the European defence project and as a strategic choice that European countries should make.[12]

French defence exports to Europe, 2001–20

The French defence industry produces technically advanced equipment across a range of sectors, and most of these have been represented in France's global exports over the past 20 years. Sales of combat aircraft, surface combatants, helicopters and military satellites have been particularly strong. As well as these platforms that are entirely or largely designed and built in France, French manufacturers contribute subsystems and materials to products assembled in other countries, and their value is included in the annual export figures. During the years 2001–20, France exported defence equipment worth EUR98.85bn (USD124.65bn). Of this, 18% (EUR18.15bn (USD23.84bn)) went to other European nations, placing Europe third among the destinations for French defence exports, behind the Middle East and North Africa (44% (EUR43.51bn (USD53.82bn)) and Asia (28% (EUR26.98bn (USD34.36bn)).[13] By contrast, 30% (USD50.52bn) of Germany's exports during this period went to other European nations.[14] While there was an overall upward trend in total French defence exports globally in the period 2001–20, the total value of defence export deliveries to Europe declined. After growth in the early and mid-2000s, the value of French deliveries to Europe began to decrease in 2008 before dropping more steeply in 2012. The value of deliveries then remained stagnant (see Figure 1), but a return to growth is now likely over the rest of the 2020s.

During the period 2001–20, the UK and Greece were France's biggest customers in Europe, receiving equipment worth EUR2.95bn (USD3.8bn) and EUR2.88bn (USD4.06bn) respectively. Germany, in third place, received significantly less equipment (EUR1.69bn (USD2.18bn)). The value of exports to Greece was boosted by high-value sales in the early 2000s, whereas deliveries to the UK and Germany were more consistent and spread across a greater number of categories of equipment.[15] Exports to these two countries have principally consisted of subsystems and components for other products, rather than complete platforms.

Figure 2: **Major French defence exports to Europe, 2000–present**



Source: IISS, Military Balance+, milbalplus.iiss.org
Note: Conversions to USD using in-year exchange rates

Table 1: **Major French exports to the Middle East and North Africa, 2000–present***

Order date	Recipient	Equipment	Classification	Quantity	Value (USDm)	Prime contractor(s)	Deliveries
2003	UAE	*Baynunah*-class	Corvette	6	817	Abu Dhabi Ship Building Company (ADSB); Constructions Mécaniques de Normandie (CMN)	2008–17
2007	Morocco	FREMM	Frigate	1	685	Naval Group; Thales	2014
2013	Saudi Arabia	CAESAR	155 mm self-propelled artillery	97	n.k.	Nexter	2019–22
2014	Egypt	*Gowind* 2500	Frigate	4	1,329	Naval Group	2017–22
2015	Egypt	FREMM	Frigate	1	1,107	Naval Group; Thales	2016
2015	Egypt	*Mistral*-class	Amphibious assault ship	2	1,054	Naval Group	2016
2015	Egypt	*Rafale*	Fighter ground-attack aircraft	24	3,884	Dassault Aviation	2015–19
2015	Qatar	*Rafale*	Fighter ground-attack aircraft	36	7,434	Dassault Aviation	2019–ongoing
2016	Kuwait	H225M	Heavy transport helicopter	30	1,217	Airbus	2020–ongoing
2018	Saudi Arabia	HSI 32	Fast patrol boat	39	649	CMN	2020–ongoing
2019	UAE	*Gowind* 2500	Frigate	2	840	Naval Group	TBD
2021	Egypt	*Rafale*	Fighter ground-attack aircraft	30	4,812	Dassault Aviation	TBD
2021	UAE	H225M	Heavy transport helicopter	12	955	Airbus	TBD
2021	UAE	*Rafale*	Fighter ground-attack aircraft	80	19,107	Dassault Aviation	2026–30

*This does not include the sale of multinational products such as the *Tiger*, NH90 or A400M (see Figure 4 for the first two). It also does not list satellite exports (see Table 3).

Sources: IISS, Military Balance+, milbalplus.iiss.org

Combat aircraft

Following the conclusion of a USD1.48bn deal with Greece in 2000 for the sale of *Mirage* 2000-5s, France did not sign an export contract for a new-build fighter aircraft with any other country for 15 years. The *Rafale* was referred to as a failure after Morocco, the Netherlands and South Korea opted for competitors built by American companies.[16] Today, however, the narrative is very different, with Dassault expanding production in response to demand from new customers.[17] In 2015, Egypt and then Qatar ordered 24 *Rafale*s each, and those deals have been followed by additional orders from both countries (see Table 1). A major *Rafale* deal with India collapsed in 2015 due to disagreement over offsets and price, after the aircraft had been selected in preference to the *Eurofighter* in India's Medium Multi-Role Combat Aircraft (MMRCA) competition – but then a USD8.71bn deal for 36 aircraft was signed in 2016, with opportunities for further sales.[18] The largest export contract so far for the aircraft is a USD19.11bn deal with the United Arab Emirates in 2021, securing production until the end of the 2020s.

In Europe, Dassault had to wait until 2021 to enjoy its first *Rafale* export success, with contracts to supply Greece and Croatia. However, both sales involve the transfer of second-hand aircraft. The 12 aircraft Croatia is purchasing will come from the French Air and Space Force fleet, although they will be replaced later, in French service, by an order of new aircraft. Greece's acquisition comprises a mix of new-build and second-hand *Rafale*s. Although Greece has a large number of legacy aircraft to replace, its likely purchase of the F-35 to replace the F-4 *Phantom* and older F-16s, alongside an upgrade programme for its newer F-16s, could limit the opportunities for further *Rafale* sales there.[19]

Elsewhere, the *Rafale* and its European competitors the *Eurofighter* and the *Gripen* have lost numerous competitions to the American F-35, with 11 European countries having selected the aircraft (12, if the cancelled sale to Turkey is included). Alongside the success of the F-35, the US has also continued to sell the Lockheed Martin F-16 in Europe, with Bulgaria, Romania and Slovakia all selecting it. As such, there are now limited European opportunities for the *Rafale*. The remaining potential customers include the Czech Republic, which may decide on a *Gripen* replacement in the late 2020s; Austria, which is considering a *Eurofighter* upgrade or

The first of a batch of six *Rafale* multi-role fighter aircraft delivered to Greece on 19 January 2022.

(Photo by ANGELOS TZORTZINIS/AFP via Getty Images)

replacing the aircraft, although the *Gripen* is reported to be a contender; and Serbia, which has said it is negotiating to acquire 12 *Rafales*.[20] It is unlikely that all three cases will lead to contracts being signed, however.

Naval shipbuilding

France has a naval-shipbuilding industry capable of producing a wide range of platforms, including aircraft carriers, destroyers and nuclear-powered submarines. As such, over the past two decades, France has enjoyed significant and consistent export success in this area. This is perhaps best exemplified by France being the only country in the world that exports diesel-electric-powered submarines but does not operate them, suggesting a high quality of design. It is also the case that in many countries the acquisition of naval platforms is seen as less political than the acquisition of fighter aircraft, which are often viewed as solidifying political relationships. There are exceptions, however – such as Australia's attempts to acquire new submarines, where there has certainly been the aim of forging long-term relationships. French companies are also helped by the fact that large US shipbuilders often have little capacity beyond US Navy orders and are therefore unable to compete.

However, French shipbuilders have not enjoyed anywhere near the same level of success in Europe as they have in Asia and the Middle East. In 2000, Naval Group, known then as DCN, sold six ex-French Navy *d'Estienne d'Orves*-class corvettes to Turkey, but it was not until 2019 that French companies were able to put pen to paper on the next naval contract of comparable significance, when Naval Group and ECA Group were awarded a USD2.29bn contract by Belgium and the Netherlands for new mine-countermeasures vessels. This has been followed more recently with USD3.68bn-worth of contracts with Greece for three frigates based on the French Navy's new *Amiral Ronarc'h*-class. Although Romania selected another Naval Group frigate design in 2019, the *Gowind* 2500, the deal is yet to be finalised and there is speculation that Romania may have changed its mind.[21]

Why has France exported so few naval vessels in Europe? The problem, as far as France (and in fact any country wishing to export surface combatants to the region) is concerned, is principally one of a fragmented industrial base, with European countries seeking to support national champions. Of the nine European countries apart from France that have commissioned new-build destroyers, frigates or corvettes

Table 2: **Deliveries of new-build destroyers, frigates and corvettes to European navies, minus France, since 2000**

Recipient	Class	Type	Quantity delivered since 2000	Builder/designer (if different)
Denmark	*Iver Huitfeld*	Destroyer	3	Denmark
Germany	*Baden-Württemberg*	Frigate	2	Germany
Germany	*Braunschweig*	Corvette	5	Germany
Italy	*Andrea Doria*	Destroyer	2	Italy
Italy	FREMM	Frigate	8	Italy
Netherlands	*De Zeven Provinciën*	Destroyer	4	Netherlands
Norway	*Fridtjof Nansen*	Frigate	5	Spain
Spain	*Alvaro de Bazán*	Destroyer	5	Spain
Sweden	*Visby*	Corvette	5	Sweden
Turkey	*Barbaros*	Frigate	1	Turkey/Germany
Turkey	*Ada*	Corvette	4	Turkey
UK	*Daring*	Destroyer	6	UK
UK	*Norfolk*	Frigate	3	UK

Source: IISS, *The Military Balance*; IISS, Military Balance+, milbalplus.iiss.org; and authors' research

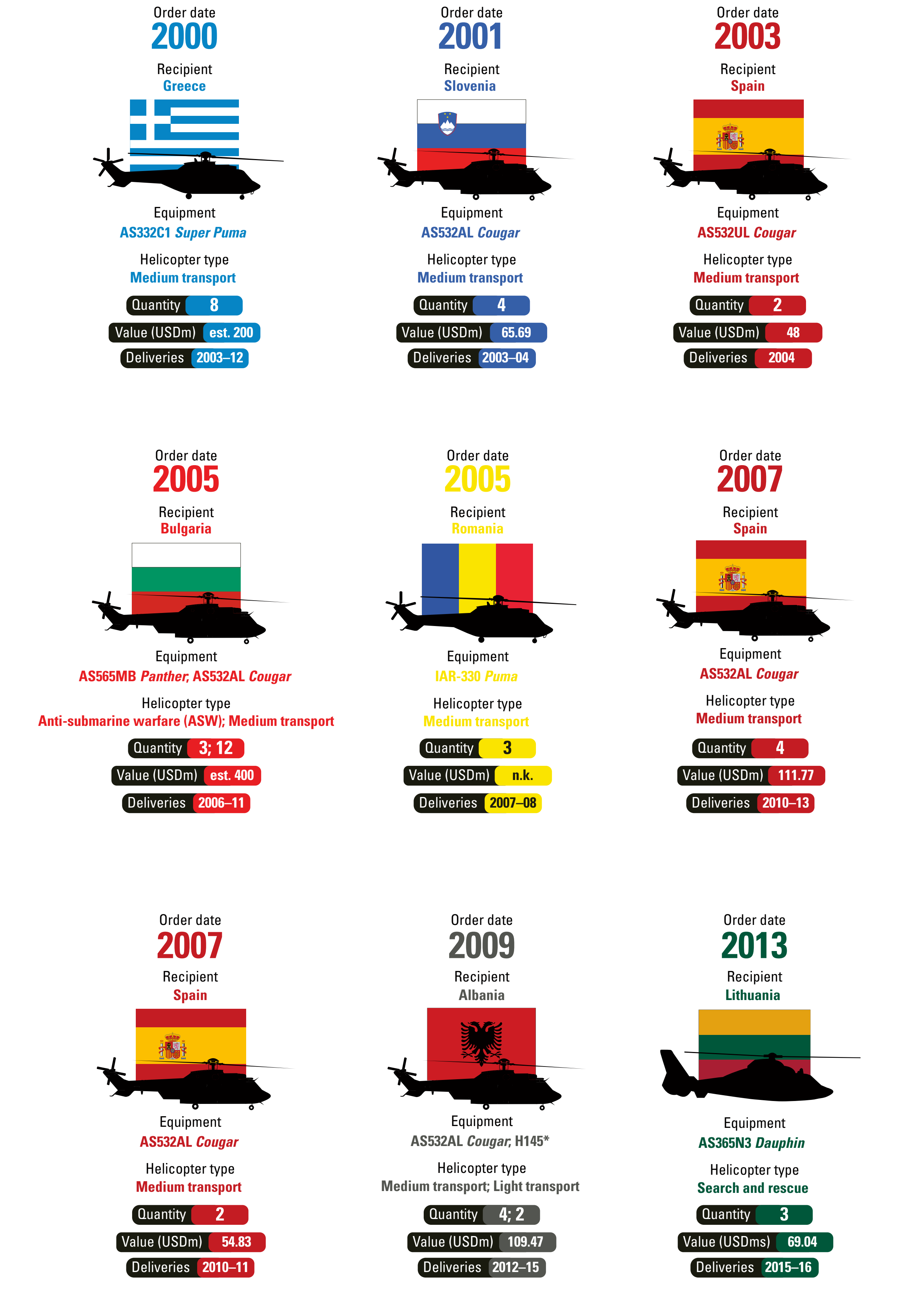
since 2000, only one (Norway) imported them from abroad (see Table 2). The other countries all built them locally – although Turkey's *Barbaros*-class has a German design, and two of its four vessels of that class were built in Germany in the late 1990s. The other European countries that commissioned these types of vessels bought second-hand ships instead.

The picture for diesel-electric submarines is slightly different in that many countries import either a design or a fully constructed boat. Germany has enjoyed the most success in Europe in that respect, having sold (or currently being under contract to sell) diesel-electric submarines to Greece, Norway, Portugal and Turkey, beating French designs in some of those instances. A joint design was also developed with Italy, with both Italy and Germany now designing improved models based on that type. Poland's *Orka* programme for three boats offers a potential opportunity for French industry to secure a rare win in Europe, although Naval Group will have to defeat strong German and Swedish competition to do so. The construction process for submarines is more complex than for surface combatants, often necessitating the import of platforms. In other regions – such as the Middle East, Asia and Latin America – there is not always the same level of indigenous naval-shipbuilding capability, which means more opportunities for European companies, although this is changing. Increasingly, naval exports to these regions involve technology transfer and local assembly or production, meaning that exports are now much more about selling a long-term partnership rather than just a platform.

Helicopters

The helicopter businesses of France's Aerospatiale and Germany's DASA were merged in 1992 to form Eurocopter, now Airbus Helicopters, in part to better facilitate the development of joint European projects such as the *Tiger* attack helicopter and the NH90 utility helicopter. However, certain Airbus designs are still largely built on either a French or German production line, giving the company both international and national identities. While there has been some success in Europe with the export of helicopters predominantly designed and built in France such as the *Cougar* and the *Panther*, these have been relatively small orders (see Figure 3). The NH90 utility helicopter, in contrast, has been ordered by six European nations as well as the four original partner nations, with many of the aircraft coming from the French final assembly line (see Figure 4).

Figure 3: **French helicopter exports to European militaries and gendarmeries, 2000–present**



*The H145 is assembled in Germany

Source: IISS, Military Balance+, milbalplus.iiss.org

Figure 4: **Export contracts for the *Tiger* and NH90 helicopters**

Order date	Country	Equipment	Helicopter type	Quantity	Value (USDm)	Deliveries	Final assembly line (quantity, if not all)
2001	Australia	*Tiger*	Attack	22	1,311	2004–16	France (4); Australia (18)
2001	Finland	NH90 TTH	Medium transport	20	455	2008–18	France (1); Finland(19)
2005	Norway	NH90 NFH	ASW	14	936	2011–ongoing	Italy
2001	Sweden	NH90 TTH	Medium transport	18	789	2007–ongoing	France (8); Finland (10)
2003	Greece	NH90 TTH	Medium transport	20	1,199	2011–ongoing	France
2004	Oman	NH90 TTH	Medium transport	20	1,000	2010–15	France
2004	Spain	*Tiger*	Attack	24	1,990	2005–20	France (6); Spain (18)
2005	Australia	NH90 TTH	Medium transport	47	2,597	2007–17	France (4); Australia (43)
2005	New Zealand	NH90 TTH; NH90 NFH	Medium transport; ASW	9	471	2011–14	France
2006	Spain	NH90 TTH; NH90 NFH	Medium transport; ASW	38; 7	3,742	2014–ongoing	France (2); Spain (43)
2007	Belgium	NH90 TTH; NH90 NFH	Medium transport; ASW	4; 4	400	2012–15	France
2018	Qatar	NH90 TTH; NH90 NFH	Medium transport; ASW	16; 12	3,529	2021–ongoing	France (16); Italy (12 NFH)

Source: IISS, Military Balance+, milbalplus.iiss.org;

With its origins in the early 1980s, the NH90 – designed by France, Germany, Italy and the Netherlands – was intended to be a utility transport helicopter for armies and air forces and a maritime anti-submarine-warfare helicopter for navies, based on a common design. An initial EUR6.6bn (USD6.1bn) production contract in 2000 was followed a year later by the first export orders, and by the time the first NH90 was delivered (to Germany) in 2006, there were more than 300 of them under contract. However, this early success disguised the fact that development of the aircraft was not yet complete. That each customer ordered a slightly different version of the base design also added to production difficulties and reduced economies of scale. This led to several renegotiations of production and development schedules, with the delays even prompting Sweden to also acquire the UH–60M *Black Hawk* produced by American rival Sikorsky. Reports of problems with aircraft availability and core-nation order cuts gave the helicopter the reputation of being both expensive and unreliable and, except for a 2018 Qatar deal, there have been no further export orders to date.

The *Tiger* attack-helicopter programme also originated in the 1980s, with the first production contract, for the French and German militaries, placed in 1999.[22] Worth FRF21.5bn (USD3.5bn), the contract was to supply the two countries with 80 *Tiger*s each, with deliveries to start in 2002. As their total requirement was 427 helicopters (France 212, Germany 215), Eurocopter had the prospect of achieving significant economies of scale and challenging the Boeing AH-64 *Apache* in the export market. However, both customers subsequently revised their overall requirements and then reduced their orders. Since then, both have complained about availability rates, although it is unclear whether this is due more to design and manufacturer issues or to insufficient funding for spare parts and maintenance by the French and German militaries.[23] Given the added factor of strong competition from US designs, the *Tiger* has not enjoyed the kind of export sales originally hoped for, with Spain and Australia the only other countries to acquire the platform (and the latter planning to retire the aircraft early and replace it with the *Apache*).[24]

An *Ariane* 5 is launched on 22 April 2011 in Kourou, French Guiana, carrying a payload that includes the *Yahsat* 1A communications satellite for the UAE.

(Photo by -/CSG/AFP via Getty Images)

Table 3: **French military-satellite exports since 2001**

Order Date	Recipient	Equipment	Satellite type	Quantity	Value (USDm)	Satellite supplier	Launch dates	Launch vehicle
2003	Korea	ANASIS-1	Comms	1	167	Alcatel Alenia Space	2006	*Zenit* 3
2003	UK	*Skynet*-5	Comms	4	5,600	EADS Astrium (now Airbus)	2007–12	*Ariane* 5
2006	Germany	SATCOMBw	Comms	2	1,179	EADS Astrium (now Airbus)	2009–10	*Ariane* 5
2006	Algeria	ALSAT-2	ISR	2	n.k.	Airbus	2010–16	PSLV
2007	UAE	*Yahsat*	Comms	2	1,660	Airbus & Thales Alenia Space	2011–12	*Ariane* 5 & *Proton Briz*
2008	Chile	SSOT	ISR	1	72	EADS Astrium (now Airbus)	2011	*Soyuz*
2009	Turkey	*Göktürk*-1	ISR	1	348	Thales Alenia Space	2016	*Vega*
2010	France & Italy	SICRAL 2	Comms	1	391	Thales Alenia Space	2015	*Ariane* 5
2010	France & Italy	*Athena-Fidus*	Comms	1	364	Thales Alenia Space	2014	*Ariane* 5
2010	Vietnam	VNREDSat-1	ISR	1	73	EADS Astrium (now Airbus)	2013	*Vega*
2013	Brazil	SGDC-1	Comms	1	882	Thales Alenia Space	2017	*Ariane* 5
2013	Morocco	*Mohammed* VI	ISR	2	664	Airbus & Thales Alenia Space	2017–18	*Vega*
2014	Korea	ANASIS-2	Comms	1	n.k.	Airbus	2020	*Falcon* 9
2014	Peru	*PerúSat*-1	ISR	1	211	Airbus	2016	*Vega*
2014	UAE	*Falcon Eye*	ISR	2	1,063	Airbus & Thales Alenia Space	2019–20	*Vega* & *Soyuz*
2016	Egypt	TIBA-1	Comms	1	670	Airbus & Thales Alenia Space	2019	*Ariane* 5

Source: IISS, Military Balance+, milbalplus.iiss.org

Satellites

France maintains a national military-satellite production capability, from satellite buses through to launch vehicles, as well retaining a launch site in Kourou in French Guiana. Of the 41 European military satellites currently operational, France operates 13. These range from the *Syracuse*-series communications system to the CERES signals-intelligence satellites.[25] They are principally manufactured and launched through European companies such as Airbus, Ariane Group, Arianespace and Thales Alenia Space, all of which have a significant French component and ownership. For example, ArianeGroup (Airbus 50%, Safran 50%), the manufacturer of the *Ariane* series of launch vehicles, is primarily based in France but also has facilities in Germany.

Most of the military-satellite market is closed to foreign competition. Of the over 540 military satellites currently operational, over 470 are operated by the US, China, Russia, India, Israel and Japan. These countries all exclusively operate satellites constructed by local companies, meaning there is no opportunity for Airbus and Thales Alenia Space to make sales there, beyond supplying components. But during the past two decades a number of countries have established their first military-satellite capability, with most of those contracts either going to French space firms or involving significant work by them (see Table 3). They include Chile's SSOT and Morocco's electro-optical Earth-imaging satellites, and the United Arab Emirates' *Yahsat* communications satellite. As well as French technical capability in this area, success has also been facilitated by the US reluctance to export satellite technology, even for commercial purposes.[26]

The picture is more mixed in Europe, due in large part to a lack of demand and to strong local capabilities in other countries. Sales of Airbus satellites to Turkey (*Göktürk*-1) and Spain (*Paz*) involved the establishment of a local capability, but only the former significantly involved the French side of Airbus as the satellite bus for the latter was provided by the company's German space business. Both countries are now procuring satellites through those new local industrial capabilities. In Italy, Germany and the UK there are strong indigenous industrial capabilities, although the presence of Airbus's space business in the latter two countries and joint venture tie-ups with Italian companies (such as Thales Alenia Space) have meant opportunities for French involvement in their programmes. Other than these five nations and France, no other European country operates their own military satellite, although Poland has announced an intention to sign an agreement with France for two Earth-observation satellites.[27] This is in part because many countries derive space-based intelligence and communications through systems assigned to NATO, as well as leasing services from commercial providers.[28] It is likely that this will change in future, however, as more countries seek to establish their own sovereign capability.

Explaining the decline

The decline in the value of French defence exports to Europe can broadly be attributed to three factors: a competitive market; successive French governments' rather ambiguous political and commercial approach to sales in Europe; and the post-2008 economic and security environment, which persisted until the mid-2010s. The downward trend is likely to change over the next few years, however, as deliveries begin for major deals signed since 2019.

A competitive market

Unlike in Middle Eastern and several Asian countries, Europe's big defence spenders have large domestic defence industries that allow them to produce their own systems. As discussed previously, this is certainly the case for relatively expensive systems, such as combat aircraft and surface combatants. For example, France has exported very few armoured vehicles to other European countries over the past two decades, in part because of the large number of armoured-vehicle companies present in those countries (although another factor is that in certain categories, such as tracked armoured fighting vehicles, French producers have no systems to offer).

Sales to Middle Eastern and Asian countries often appear to be driven to a large degree by political considerations, particularly with regard to combat aircraft, where countries use acquisitions to help develop long-term strategic relationships.[29] It is also no coincidence that all the countries in the Middle East and North Africa that have acquired the *Rafale* (or the *Eurofighter*) already operated an American combat aircraft or acquired one soon afterwards. If those countries' budgets were smaller, limiting them to just one type of aircraft, would they buy from Europe or from the US, the main external guarantor of regional security? Apart from in the case of the largest spenders, it is rare for a European country to operate more than one type of combat aircraft. This means that if political logic is a significant factor driving an acquisition, it can swing towards buying American. There is also the fact that the F-35, a 'fifth generation' fighter aircraft, has won every competition it has so far entered, which gives an indication of the strength of competition facing 'fourth generation' designs, whether European or American.

France's ambiguous approach to sales in Europe

Over the past two decades the French government's approach to defence exports to Europe has been criticised for lacking a political rationale: it seems they have been driven more by a commercial logic, which contrasts with the French official discourse on European defence.[30] Offers from French and other European companies have often lacked the elements of long-term partnership that some countries have found attractive when opting for US equipment – those acquisitions often come with opportunities to train closely with the US military and to enjoy a strong level of interoperability, both in terms of equipment and doctrine, with NATO's biggest military power. France has long had an ambivalent attitude when it comes to European cooperation, promoting it in some ways while blocking it in others, as if torn between the wish to create 'European' systems and the imperative of national sovereignty.

Only more recently, during Macron's first term as president (2017–22), did French rhetoric change to incorporate an offer of long-term partnership, with high-profile sales agreed with Belgium, Croatia and Greece, although it is unclear to what extent Macron's declarations have helped produce these results. It is with this in mind that the sale of *Griffon* and *Jaguar* armoured vehicles to Belgium takes on significance. Agreed in 2019, this is France's first attempt to sell equipment using its own version of the US Foreign Military Sale (FMS) system, whereby the US government contracts industry on behalf of foreign customers.[31]

This not only takes some of the pressure off foreign defence ministries but, crucially, it increases the chance of those countries securing a lower cost for their equipment as they benefit from US military economies of scale. The sale of these vehicles, referred to in Belgium as the Capacité Motorisée (CaMo) [Motorised Capability] programme, which now includes the sale of CAESAR howitzers under a separate contract, will also see close cooperation between the two countries in terms of doctrine and training.[32] It is possible that this sale will provide a template for other French exports in the future. While it is often difficult to assess the reasons behind specific procurement decisions, it seems likely that this recent change in French rhetoric and the change in the kind of offer being made to potential customers has had an impact.

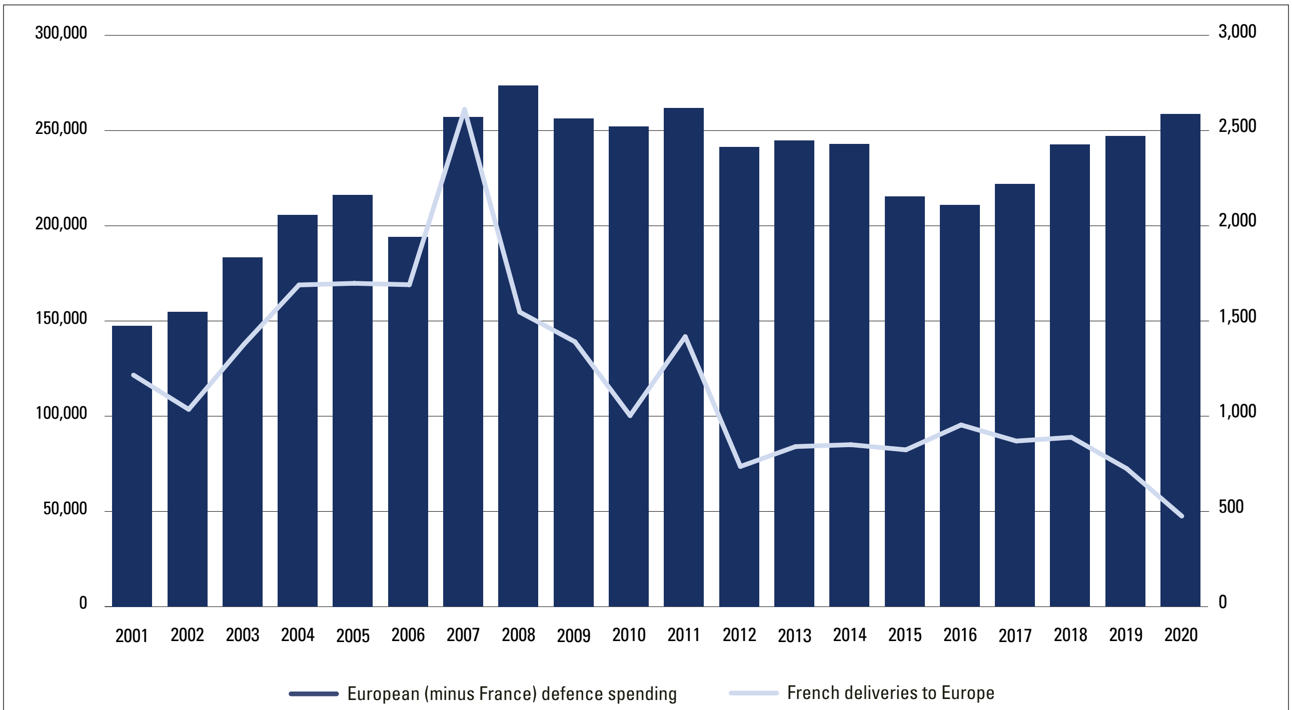
The economic and security environment after 2008

Following the 2008 global financial crisis, European countries began cutting defence budgets, including funding for procurement (see Figure 5). This was not the case in the Middle East and North Africa, Asia or sub-Saharan Africa, where defence budgets continued to grow.[33] Although European budgets began to grow again from 2017, French deliveries to the region have continued to decline. Equipment recapitalisation in other European countries since then has typically benefited local or US companies.

This decline in spending was accepted by many European countries because of the perception that their security environment was relatively benign in terms of any state-level threat. By the end of the 2000s, European countries had finished or drawn down deployments to Afghanistan and Iraq, and Russia's short war with Georgia in 2008 was not seen as a challenge to European security. The shrinking of procurement budgets meant fewer opportunities for all companies, not just French ones. For example, there was a drop in German defence exports to European countries after 2008 (with 2011 being an exception).[34] Middle Eastern and Asian countries, however, perceived their own security (whether that of the government or the country more broadly) differently and continued to increase their defence budgets, in part to finance significant equipment recapitalisation.

Since then, Russia's 2014 annexation of Crimea and its involvement in fighting in Ukraine's east, rising tensions in the eastern Mediterranean and instability in the Sahel have all changed the European calculus. In 2022, Russia's second invasion of Ukraine has accelerated this dynamic and most European defence budgets are projected to grow, although the impact of relatively high inflation will limit real-terms growth and constrain purchasing power.

Figure 5: **European (minus France) defence spending and French defence deliveries to Europe (USDm)**



Sources: IISS, *The Military Balance*, 2002–08; IISS, Military Balance+; French Ministry of Defence annual reports to Parliament on arms exports

What happens next?

Over the next decade it is likely that the value of French export deliveries globally will continue to grow. The order books of French prime contractors are currently strong and there are still many opportunities for sales around the world. For example, ongoing naval modernisation in Asia and elsewhere will create requirements for frigates and their subsystems. More countries will seek to establish a space-based military-communications or ISR capability. French companies are in a strong position to compete for these contracts, albeit in a challenging marketplace that will include not only traditional competitors but also new ones such as Japan, Turkey and South Korea. Moreover, this return to growth could be fuelled further by a more politically motivated export policy and by the emergence of new threats. The value of deliveries to Europe is also expected to increase during the 2020s as deliveries for high-value contracts signed since 2019 continue or begin. The international context, which is causing many European countries to boost defence spending, should also lead to additional procurement competitions that French companies will be able to compete in. Looking further ahead, it seems likely that many of the most significant export opportunities for France in the region will be as a result of joint programmes with other European countries, giving them an even greater importance in terms of strategic planning.

Joint European programmes: challenges and opportunities

Between the late 2030s and the end of the 2040s, not just in Europe but globally, several relatively expensive platforms are due to be retired, in particular combat aircraft and main battle tanks. As unit costs have grown disproportionately to defence spending, pressure to combine efforts to create 'European' products to compete with American and other designs has also increased. This is reminiscent of the 1970s–80s, when there were the same imperatives and motivations. With regard to combat aircraft and main battle tanks, that period resulted in European countries producing three fighters (the *Eurofighter*, *Gripen* and *Rafale*) and four tanks (*Ariete, Challenger* 2, *Leclerc* and *Leopard* 2A5), with only one of those projects, the *Eurofighter*, being a collaborative effort.

Efforts to create a joint 'European' fighter aircraft date back to the 1970s.[35] Germany, Italy, Spain and the UK would ultimately go on to produce the *Eurofighter*, and France the *Rafale*. What led France to begin its own programme were differences of opinion over aircraft role and design, and over the division of work. Similarly, France and Germany explored jointly producing a new tank in the late 1970s and then in the early 1990s (following the failure of German cooperation with the US on a joint design in the 1960s and with the UK in the 1970s), but these attempts were abandoned after initial studies, with France going on to produce the *Leclerc* and Germany a new version of the *Leopard* 2, the 2A5.[36] Elsewhere in Europe, the UK and Italy would develop their own tanks, the *Challenger* 2 and the *Ariete* respectively, both of which were entered service in the 1990s.

Today, France is participating in two programmes aimed at addressing combat-aircraft and armoured requirements: the Système de Combat Aérien du Futur (SCAF)/Future Combat Air System (FCAS) combat-aircraft system and the Main Ground Combat System (MGCS) tank. In both it is partnering Germany, with Spain also joining SCAF/FCAS in 2019. Elsewhere in Europe, the UK has its own future-combat air initiative, also called FCAS or sometimes *Tempest*, with Italian, Japanese and Swedish involvement. The same imperatives for joint development exist albeit with greater urgency today because unit and development costs have grown further. The requirements now are also more complicated, not just because of technical developments but also because both programmes comprise multiple systems and technologies as opposed to a single platform. For example, the SCAF/FCAS project consists of both crewed and uninhabited aircraft, as well as a combat cloud. MGCS will probably also include uninhabited technology.[37]

Although both programmes are only in their very early stages, tensions are already appearing between the industrial partners. As in the 1980s, issues over workshare are slowing progress and can frustrate political ambitions. On the SCAF/FCAS programme, Dassault CEO Éric Trappier has been outspoken about wanting his company to take the role of single

Germany's defence minister Annegret Kramp-Karrenbauer, French defence minister Florence Parly and Spanish secretary of state for defence Angel Olivares Ramirez sign a contract for the Future Combat Air System in Paris, 20 February 2020.

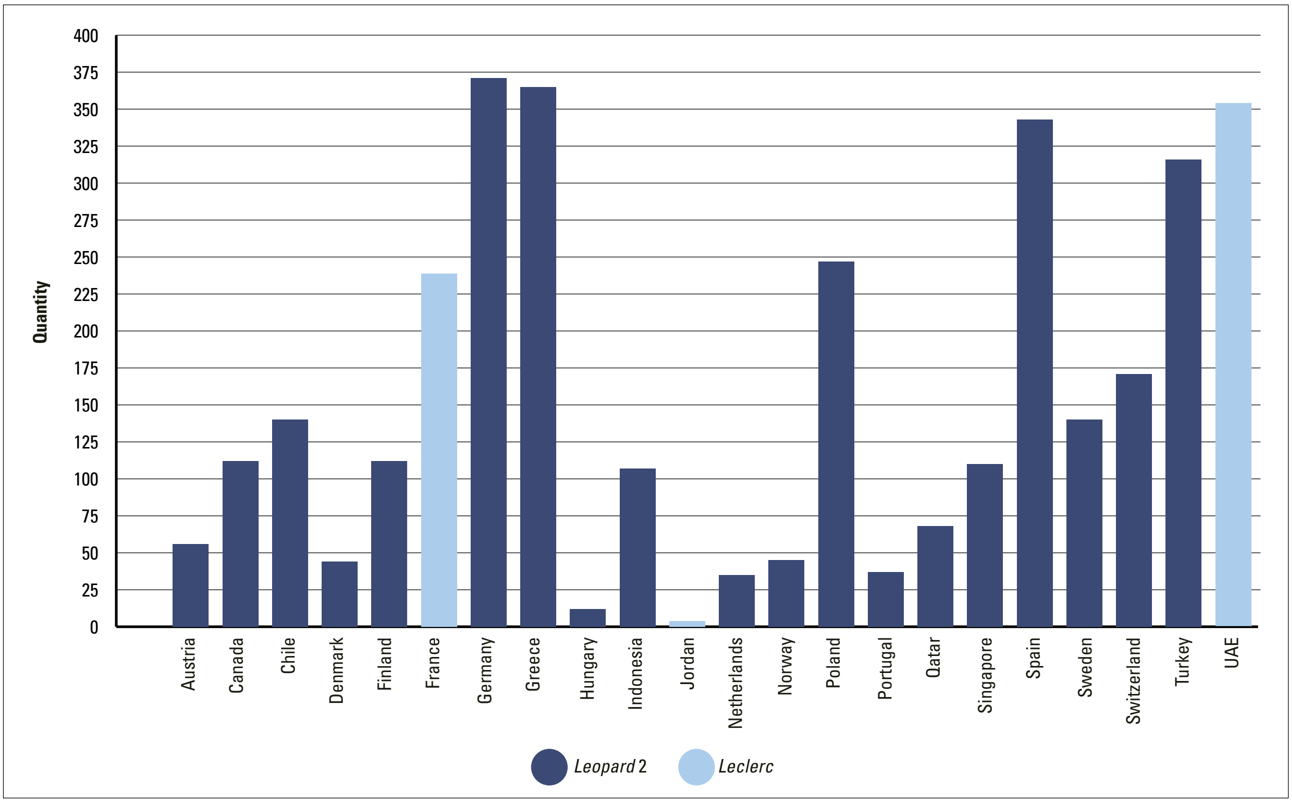
(Photo by BERTRAND GUAY/AFP via Getty Images)

industrial leader in order to direct development of the aircraft.[38] In March 2022 he said delays in signing the latest phase of development (1B) mean he has had to reallocate some personnel to other projects.[39] Probably as much a negotiating tactic as a reflection of genuine concerns, Dassault's anxiety also stems from it having a smaller share of the programme than Airbus, even if the latter's participation is divided between German and Spanish sections of its business. Germany's decision to acquire the F-35 in March 2022 has also been seen in Paris and Merignac, perhaps cynically, as a lack of commitment to SCAF/FCAS.[40] In Berlin there is concern that France wants to assign the most high-tech elements of the projects to its own companies and leave German firms with the less complex parts. Mutual suspicions between French and German industrialists were perhaps best summarised by Airbus Head of Strategy Antoine Bouvier in early 2021, when he told the French Senate that 'when we are in Germany, we sometimes hear that the French want to make a French plane financed by the German budget', but 'when we are in France, we sometimes hear that the Germans want to access French technology to develop a competing product'.[41]

The situation with MGCS is not dissimilar, although it is not being played out in public to the same extent. France and Germany agreed in 2012 to co-develop a tank to replace the *Leclerc* and *Leopard* 2 (see Figure 6), and in 2018 agreed that France should lead development of SCAF/FCAS and Germany MGCS.[42] Much like Dassault's dissatisfaction with its share of the programme, the two German companies involved, Krauss-Maffei Wegmann and Rheinmetall, face the problem that they are limited to 25% each of the programme while Nexter, as France's sole prime industrial representative on the programme, will get 50%.[43]

Delays to agreements for the earliest development work will push back the in-service date of final systems (SCAF/FCAS is planned to enter service in 2040 and MGCS in the mid-2030s), and this is before technical difficulties have been encountered. If these issues are to be solved, it will require political leadership, as well as tens of billions of euros of funding, to bridge the gaps and see these programmes through. Then there is the possibility that other countries will become involved in the two programmes, which would require a further division of workload and possibly even the merger of different multinational projects.[44] While this would further spread out the development costs, it would also add delays as new details are worked out.

Figure 6: ***Leopard* 2 and *Leclerc* operators (end of 2021)**



Source: IISS, Military Balance+, milbalplus.iiss.org

French political and industrial ambitions

At the European level, France has worked to support and shape several political initiatives over the last five years, including the launch of the European Defence Industrial Development Programme (EDIDP), the establishment of the Permanent Structured Cooperation (PESCO) in security and defence policy, and the creation of the European Defence Fund (2021–27).

With regard to the industrial component, this European dimension is meant to translate 'through the implementation of bilateral projects built in synergy with export logic' and 'through projects carried out *ab initio* in cooperation'.[45] In terms of arms exports, President Macron reiterated their importance during his first term in office. In June 2019, France's then-defence minister, Florence Parly, affirmed that in the two year's since Macron's election, French defence-exports policy had been more orientated towards Europe, the practical results of which had already been seen in 2018 when about a quarter of the total value of orders and export licences came from deals with European countries, compared to only about one-tenth on average during previous years (see Figure 7).[46] This trend is set to be borne out in the deliveries data over the coming years. Parly returned to the theme in 2021, confirming that French exports were 'resolutely turning towards Europe', which she said the government viewed as 'an industrial and a strategic success'.[47]

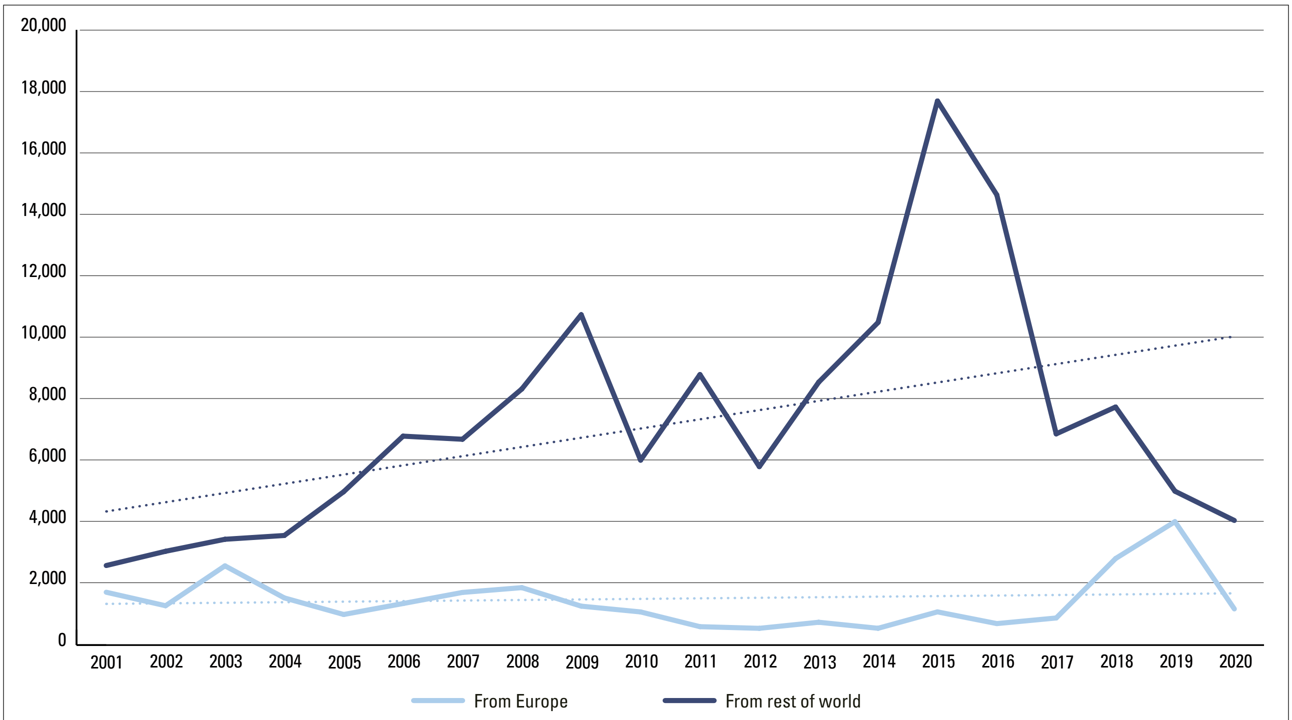
So far, one could argue that these policies have achieved mixed results. French delivery figures – a decrease in exports to Europe over the last two decades, against the backdrop of an increase in global arms exports – speak for themselves (see Figure 1). Nevertheless, there has been a significant increase in the value of orders and export licences to Europe over the last three years: from 2018 to 2019 alone, the percentage of French arms orders and export licences involving European partners rose from 25% to 45% of the total. Breaking down the 2019 figures for deals with European partners, 48% of their value came from the signing of an armoured-vehicle deal with Belgium (see Figure 2).[48] In 2020, European customers accounted for 29% of the total value of orders and export licences. With the re-election of Macron as president in April 2022, and given the latest developments on Europe's borders, France's ambitions for Europe will probably remain the same.[49] It will continue to advocate that a larger portion of the EU budget be allocated to the European Defence Fund; to promote the development of European funding for the acquisition of defence equipment; and probably to prioritise deeper European defence cooperation, especially with Germany, although tensions between industrialists could upset this.

Nevertheless, the differences of perspective between some European countries – especially between France and Germany – with regard to defence-exports policy might remain a challenge and limit sales in the future. Some would expect the Franco-German Agreement on Defence Export Controls signed on 23 October 2019 to give fresh impetus to continental cooperation and to be replicated at the European level (whether through the EU or bilaterally/multilaterally).[50] However, this is unlikely if France remains defensive when it comes to controls, which it sees as a national, sovereign prerogative. France can in fact be fiercely 'anti-European' when it comes to the defence industry, and a certain scepticism seems to remain both among industrialists and politicians. French industries may seek for a rationalisation of the Franco-German agreement – especially on the *de minimis* clause which some would argue is too restrictive – and their confidence in the European Defence Fund cannot be taken for granted. As one French expert puts it, the question is whether France will choose increased European defence cooperation, which it has long advocated, or preserve its traditional approach to arms exports.[51] For now, it seems likely that the tension between the national and the multinational orientations will remain, at least in the short term.

At the same time, opportunities for French defence exports to Europe will also depend on other European countries' foreign-policy and defence-industry priorities, as well as on potential customers' specific requirements and on how French products fare against their rivals in competitions. Since becoming president, Emmanuel Macron has called for Europe to end its dependency on American defence systems and platforms. The war in Ukraine could now add to this impetus, or instead lead European states to invest further in their relationship with the US. The war has revitalised not only NATO but also a European spirit that extends beyond the EU itself (as evidenced, for example, by the UK's continuing engagement on the issue, alongside the EU). This new context will drive equipment recapitalisation in a significant number of European countries, creating opportunities for defence companies in Europe and elsewhere.

It is therefore possible to envisage at least three possible scenarios. European countries might continue to

Figure 7: **France: defence-export orders and licences, 2001–20 (USDm)**



Source: French Ministry of Defence annual reports to Parliament on arms exports
Note: Conversions to USD using in-year exchange rates

acquire a significant proportion of their defence materiel from US companies, shunning what France refers to as 'European strategic autonomy'.[52] If so, the expected growth of French deliveries in the region may not prove to be long term. Alternatively, the current context could support a shift towards greater European strategic independence, and European countries might choose to diversify their arms procurements accordingly. This scenario would be more favourable for French companies. Or the countries of Europe could opt for the middle ground, preserving both their European and transatlantic relationships. This would mean strengthening both their strategic defence partnership with the US and their industrial workshare on certain joint-European development programmes. Indeed, the export success or failure of the next round of joint-European development programmes will impact significantly on the outcome. Political ambitions are likely to slowly materialise at the EU level with the implementation and development of new initiatives – including the European Defence Fund, launched in 2021, and the recent call for new measures to strengthen the European defence-industrial and technological base.[53] However, if ongoing and upcoming multilateral programmes are to progress and succeed, it will also require industrial partners to overcome ongoing tensions in order to meet political ambitions.

Conclusion

As Europe's security situation continues to evolve at a rapid pace, the extent to which other European capitals share Paris's conception of what is required for continental security is unclear. Some but not all of the dynamics that have caused the value of French exports to decline over the last 20 years are changing. Through the 2020s, it seems likely that global French defence exports will continue to be healthy and that systems designed and built mostly or entirely in France will be created that will give rise to sales opportunities in the 2030s and 2040s. However, it also seems likely that the most expensive platforms, which would significantly affect the total value of French defence exports, will be jointly developed with other European countries. For those projects to succeed, political will, industrial compromise and tens of billions of euros will be required.

Notes

1 In this report, unless otherwise specified, French defence 'exports' refers to the value of equipment delivered annually, as published by the French government, rather than to the value of export licences/orders issued or agreed within a particular year.

2 For the purposes of this report, 'major' will be defined as sales worth at least USD400m.

3 Conférence de Presse d'Emmanuel Macron, Président de la République, sur les priorités de la présidence française du Conseil de l'Union européenne (PFUE) [Press conference of Emmanuel Macron, President of France, on the priorities for the French Presidency of the Council of the European Union], Paris, 9 December 2021, https://www.touteleurope.eu/presidence-du-conseil-de-l-union-europeenne/emmanuel-macron-devoile-les-priorites-de-la-presidence-francaise-du-conseil-de-l-ue-pfue.

4 Lucie Béraud-Sudreau, *French Arms Exports: The Business of Sovereignty, Adelphi* 475–476 (Abingdon: Routledge for the IISS, 2020), p. 23.

5 SIPRI Arms Trade database, TIV tables, https://armstrade.sipri.org/armstrade/page/toplist.php.

6 The names of the French ministries change regularly. As of June 2022, the full names of these three ministries are the Ministry of the Armed Forces, the Ministry for Europe and Foreign Affairs, and the Ministry of the Economy and Finance. For the sake of simplicity, they are referred to in this report as the Ministry of Defence, the Ministry of Foreign Affairs, and the Ministry of the Economy.

7 In practice, the first checks consist of an administrative inspection conducted by the dedicated Office for Off-Site a posteriori Control (Bureau du Contrôle *a posteriori* sur Pièces – BCP). On-site inspections are conducted directly on the companies' facilities by the Office for General and Global Licences and for On-Site Control (Bureau des Licences Globales et Générales et du Contrôle sur place – BLGC), usually when the French authorities have noticed an anomaly in the company's report. Since 2012 the Ministry of Defence has received mandatory half-yearly reports from the

companies, summarising their orders and shipments. On-site inspections can lead to sanctions in cases of significant or repetitive non-compliance. Examinations and decisions are made at every monthly meeting of the Ministerial Committee for A Posteriori Control (Comité Ministériel du Contrôle A Posteriori – CMCAP), which is chaired by a member of the Armed Forces Inspectorate (Contrôle Général des Armées – CGA).

8 France, 'Défense et Sécurité nationale: Le Livre Blanc' [White Paper on Defence and National Security], June 2008, p. 264, https://www.vie-publique.fr/sites/default/files/rapport/pdf/084000341.pdf.

9 France, 'White Paper on Defence and National Security', April 2013, p. 62, http://www.livreblancdefenseetsecurite.gouv.fr/pdf/the_white_paper_defence_2013.pdf.

10 France, Ministry of Defence, 'Rapport au Parlement sur les exportations d'armement de la France', 2001–2021, https://www.vie-publique.fr/sites/default/files/rapport/pdf/280174.pdf.

11 Déclaration d'Emmanuel Macron, Président de la République, pour une Europe souveraine, unie et démocratique [Statement by Emmanuel Macron, President of France, for a sovereign, united and democratic Europe], Paris, 26 September 2017, https://www.elysee.fr/emmanuel-macron/2017/09/26/initiative-pour-l-europe-discours-d-emmanuel-macron-pour-une-europe-souveraine-unie-democratique.

12 After Belgium declared its intention to buy combat aircraft from Lockheed Martin instead of Dassault Aviation or Eurofighter, President Macron stated: 'I regret the choice made. There was not only the Rafale offer, there was also the Eurofighter, a real European offer. The decision is linked to a Belgian procedure, to the political constraints of the country, but strategically goes against European interests.' 'Macron "regrette" l'achat de F-35 par la Belgique, "contraire aux intérêts européens" [Macron 'regrets' the purchase of F-35 by Belgium, 'contrary to European interests'], *Le Figaro*, 26 October 2018, https://www.lefigaro.fr/flash-eco/2018/10/26/97002-20181026FILWWW00176-macron-regrette-l-achat-de-f-35-par-la-belgique-contraire-aux-interets-europeens.php.

13 The 'European' nations comprise Albania, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, North Macedonia, Malta, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

14 Germany, Federal Ministry of Economy and Climate Protection, 'Bericht der Bundesregierung über ihre Exportpolitik für konventionelle Rüstungsgüter' [Report on Military Equipment Exports], 2001–20, https://www.bmwk.de/Redaktion/DE/Publikationen/Aussenwirtschaft/ruestungsexporte-bmwi-070221.pdf?__blob=publicationFile&v=12.

15 Official Journal of the European Union, 'Common Military List of the European Union', adopted by the Council on 11 March 2013, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XG0409%2801%29&from=EN.

16 Joshua Levine, 'The Big Engine That Couldn't', *Forbes*, 8 February 2008, https://www.forbes.com/forbes/2008/0225/082.html.

17 Domonic Perry, 'Dassault plans Rafale rate rise to cope with export success', FlightGlobal, 4 March 2022, https://www.flightglobal.com/defence/dassault-plans-rafale-rate-rise-to-cope-with-export-success/147796.article.

18 India, Press Information Bureau, Ministry of Defence, 'Year End Review 2016', 31 December 2016, https://pib.gov.in/newsite/PrintRelease.aspx?relid=156049.

19 'Greek F-35 Buy Certain, U.S. Ambassador Says', *Aviation Week*, 4 February 2022, https://aviationweek.com/defense-space/aircraft-propulsion/greek-f-35-buy-certain-us-ambassador-says#:~:text=February%2004%2C%202022,before%20Athens%20will%20receive%20aircraft.

20 Jakub Samek, 'The Future of the Czech Supersonic Air Force: Gripen or F-16?', *Czech Army and Defence Magazine*, 5 March 2021, https://www.czdefence.com/article/the-future-of-the-czech-supersonic-air-force-gripen-or-f-16; 'Bundesheer will Eurofighter aufrüsten' [Army wants to upgrade Eurofighter], Puls 24, 19 March 2022; 'Saab bietet sich als Alternative zu Eurofighter an' [Saab offers itself as an alternative to Eurofighter], *Die Presse*, 7 April 2022, https://www.diepresse.com/6122217/saab-bietet-sich-als-alternative-zu-eurofighter-an#:~:text=%C3%9Cber%20eine%20Amortisationsdauer%20von%2015,den%20Gripen%20nur%2023.000%20Euro; Aleksandar Vasovic, 'Serbia considers purchase of Rafale jets from France, president says', Reuters, 11 April 2022, https://www.reuters.com/world/europe/serbia-considers-purchase-rafale-jets-france-president-says-2022-04-11/.

21 Le marquis de Seignelay, 'Forțele Navale Române : nouveau délai pour signer le contrat 4 corvettes Gowind 2500 + modernisation 2 frégates Type 22' [Forțele Navale Române: new deadline for signing contract for 4 Gowind 2500 corvettes + modernization of 2 Type 22 frigates], *Le Fauteuil de Colbert*, 3 February 2022, https://lefauteuildecolbert.blogspot.com/2022/02/fortele-navale-romane-nouveau-delai.html.

22 Eurocopter, 'Production Contract for 160 Tiger Signed', 18 June 1999, archived web page 23 August 2004, https://web.archive.org/web/20040823113356/http://www.eurocopter.com/publications/FO/scripts/newsFO_complet.php?lang=EN&news_id=151.

23 Dominic Perry, 'Germany lifts Tiger helicopter grounding', FlightGlobal, 26 September 2017, https://www.flightglobal.com/helicopters/germany-lifts-tiger-helicopter-grounding/125525.article; Michel Cabirol, 'Disponibilité des hélicoptères militaires : c'est cataclysmique !' [Military helicopters' availability: it's cataclysmic!], *La Tribune*, 16 May 2017, https://www.latribune.fr/entreprises-finance/industrie/aeronautique-defense/disponibilite-des-helicopteres-militaires-c-est-cataclysmique-713146.html.

24 Nigel Pittaway, 'Australia selects Boeing Apache as next armed reconnaissance helicopter', *Defense News*, 19 January 2021, https://www.defensenews.com/global/asia-pacific/2021/01/19/australia-selects-boeing-apache-as-next-armed-reconnaissance-helicopter/.

25 Charlotte Le Breton, 'France's signal ambition for space-based intelligence', IISS *Military Balance* blog, 9 December 2021, https://www.iiss.org/blogs/military-balance/2021/12/frances-signal-ambition-for-space-based-intelligence.

26 John Hoffner, 'The Myth of "ITAR-Free"', Aerospace Security, 15 May 2020, https://aerospace.csis.org/the-myth-of-itar-free/.

27 Mariusz Błaszczak (@mblaszczak), tweet, 23 March 2022, https://twitter.com/mblaszczak/status/1506575621073383426.

28 'NATO begins using enhanced satellite services', NATO/OTAN News, 12 February 2020, https://www.nato.int/cps/en/natohq/news_173310.htm.

29 IISS, 'The Defence Policy and Economics of the Middle East and North Africa', 2022, pp. 30–32. https://www.iiss.org/blogs/research-paper/2022/05/the-defence-policy-and-economics-of-the-middle-east-and-north-africa.

30 From authors' interviews with a retired French military official, 2022.

31 Michel Cabirol, 'Comment Paris a élaboré son FMS à la française pour vendre 442 blindés à la Belgique' [How Paris developed its French-style FMS to sell 442 armoured vehicles to Belgium], *La Tribune*, 25 March 2019, https://www.latribune.fr/entreprises-finance/industrie/aeronautique-defense/comment-paris-a-elabore-son-fms-a-la-francaise-pour-vendre-442-blindes-a-la-belgique-811609.html.

32 'Les ministres belge et français de la Défense signent CaMo 2 et l'achat de neuf CAESAR NewGeneration' [Belgian and French Ministers of Defense sign CaMo 2 and purchase of nine CAESAR NewGeneration], *La Défense*, 13 May 2022, https://beldefnews.mil.be/les-ministres-belge-et-francais-de-la-defense-signent-camo-2-et-lachat-de-neuf-caesar-newgeneration/?lang=fr; 'CaMo : Un partenariat stratégique unique' [CaMo: A unique strategic partnership], *La Défense*, https://www.mil.be/fr/l-evolution-de-la-defense/camo-un-partenariat-strategique-unique/.

33 Lucie Béraud-Sudreau, 'A ten-year global defence-spending review: from economic crisis to security crises', IISS *Military Balance* blog, 21 May 2018, https://www.iiss.org/blogs/military-balance/2018/05/global-defence-spending-crisis.

34 Germany, Federal Ministry of Economy and Climate Protection, 'Bericht der Bundesregierung über ihre Exportpolitik für konventionelle Rüstungsgüter', [Report on Military Equipment Exports], 2008–20, https://www.bmwk.de/Redaktion/DE/Publikationen/Aussenwirtschaft/ruestungsexporte-bmwi-070221.pdf?__blob=publicationFile&v=12.

35 Douglas Barrie, Bastian Giegerich et al., 'European Combat Air Power: A Snapshot', IISS Research Papers, 1 March 2022, pp. 12–15, https://www.iiss.org/blogs/research-paper/2022/03/european-combat-air-power-a-snapshot.

36 Richard Ogorkiewicz, *Tanks: 100 Years of Evolution* (Oxford: Osprey Publishing, 2015), pp. 192–8.

37 'Neues Bodenkampfsystem: Nächste Schritte beraten'[New Ground Combat System: Discuss next steps], Bundesministerium der Verteidigung, 12 March 2022, https://www.bmvg.de/de/aktuelles/neues-bodenkampfsystem-naechste-schritte-beschlossen-221664.

38 Christina Mackenzie, 'Dassault boss Trappier floats "Plan B" considerations for the troubled FCAS warplane', *Defense News*, 5 March 2021, https://www.defensenews.com/global/europe/2021/03/05/dassault-boss-trappier-floats-plan-b-considerations-for-the-troubled-fcas-warplane/.

39 Gareth Jennings, 'FCAS/SCAF stalls as industry fails to agree on Phase 1B terms', JANES, 7 March 2022, https://www.janes.com/defence-news/news-detail/fcasscaf-stalls-as-industry-fails-to-agree-on-phase-1b-terms.

40 'Lockheed Martin F-35: Das Mehrzweckkampfflugzeug der neuesten Generation' [Lockheed Martin F-35: The latest generation of multi-role combat aircraft], Bundesministerium der Verteidigung , 14 March 2022, https://www.bmvg.de/de/aktuelles/f-35-das-mehrzweckkampfflugzeug-der-neuesten-generation-5371316.

41 France, Sénat, 'Audition de MM. Antoine Bouvier, directeur de la stratégie, des fusions-acquisitions et des affaires publiques d'Airbus et de Dirk Hoke, président exécutif (CEO) d'Airbus

Defence and Space' [Hearing of Mr Antoine Bouvier, Director of Strategy, M&A and Public Affairs of Airbus and Mr. Dirk Hoke, Executive Chairman (CEO) of Airbus Defense and Space], *Comptes rendus de la commission des affaires étrangères, de la défense et des forces armées*, 30 May 2022, https://www.senat.fr/compte-rendu-commissions/20210315/etr.html.

42 'Conseil des Ministres franco-allemand : l'Europe de la défense avance' [Franco-German Council of Ministers: Defense Europe is moving forward], Communiqué de Florence Parly , ministre des Armées, 19 June 2018, https://www.france-allemagne.fr/Communique-de-Florence-Parly-Conseil-des-Ministres-franco-allemand-l-Europe-de.html.

43 Pierre Tran, 'An Update on KNDS: June 2021', Second Line of Defense, 19 June 2021, https://sldinfo.com/2021/06/an-update-on-knds-june-2021.

44 Vivienne Machi, 'Will the FCAS and Tempest jet programs merge? Germany's top Air Force officer hopes so', *Defense News*, 12 July 2021, https://www.defensenews.com/industry/techwatch/2021/07/12/will-the-fcas-and-tempest-jet-programs-merge-germanys-top-air-force-officer-hopes-so/.

45 France, Ministère des Armées, 'Rapport au Parlement sur les exportations d'armement de la France 2021' [Report to Parliament on French arms exports 2021], June 2021, p. 22, https://www.vie-publique.fr/rapport/280174-rapport-au-parlement-2021-sur-les-exportations-darmement-de-la-france.

46 Déclaration de Florence Parly, ministre des Force armées, sur l'industrie d'armement française et européenne [Statement by Florence Parly, Minister of the Armed Forces, on the French and European arms industry], Paris, 17 June 2019, https://www.vie-publique.fr/discours/269136-florence-parly-17062019-industrie-darmement-francaise-et-europeenne.

47 Florence Parly (@florence_parly), tweet, 30 September 2021, https://twitter.com/florence_parly/status/1443618447007625222?s=20&t=fRq9rtDbSpz9RztpjOyL_g.

48 'Ventes d'armes : la France se tourne vers l'Europe' [Arms sales: France turns towards Europe], 24 June 2020, https://www.vie-publique.fr/en-bref/274748-ventes-darmes-la-france-se-tourne-vers-leurope.

49 Déclaration d'Emmanuel Macron, Président de la République, à l'occasion de la Conférence sur l'avenir de l'Europe [Statement by Emmanuel Macron, President of France, on the occasion of the Conference on the Future of Europe], Strasbourg, 9 May 2022: 'The project of a Europe in control of its destiny, free to make its own choices, of a Europe as a power open to the world, but where we want to choose our partners and not depend on them, is at the heart of our mission. ... In terms of defence, to invest even more heavily, to identify the capabilities that need to be built and to build European industrial sectors for this. … Faced with a new risk, a new threat that has changed in recent weeks, it is our duty', https://www.elysee.fr/front/pdf/elysee-module-19623-fr.pdf.

50 This agreement sets out the rules and procedures for export controls on defence products in three cases: intergovernmental programmes, industrial cooperation, and products for integration that are developed independently of such cooperation. It also includes a more specific 'de minimis' rule to facilitate transfers of items from one manufacturer to another, applicable below a threshold of 20% and accompanied by simplified licence-issuance methods. France Diplomacy, 'Franco-German Agreement on Defence export controls', 14 November 2019, https://www.diplomatie.gouv.fr/en/country-files/germany/events/article/franco-german-agreement-on-defence-export-controls-14-nov-19.

51 Béraud-Sudreau, *French Arms Exports: The Business of Sovereignty*, pp. 137–48.

52 France, 'Strategic Review of Defence and National Security', 12 October 2017, p. 58. https://www.diplomatie.gouv.fr/IMG/pdf/2017-rs-def1018_cle0b6ef5-1.pdf.

53 European Commission, High Representative of the Union for Foreign Affairs and Security Policy, 'Joint Communication to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions on the Defence Investment Gaps Analysis and Way Forward', Brussels, 18 May 2022, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022JC0024.

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