

Final report

Defense Industry in Europe

Sebastian Schulze-Marmeling
Peter Wilke
Herbert Wulf

Final Version - 20 July 2022



Contents

I. The Changed Policy Context in 2022

1. Russia's war in Ukraine: the big game changer.....	03
2. Consequences for military budgets and weapon procurement.....	05
3. EU Export of Weapons and Defence Equipment	08
4. The medium-term and long-term budget effects	10
5. EU policy initiatives in the defence sector.....	10

II. Structure of the European Defence Industry

1. The global context: ranking EU companies in SIPRI's Top 100 largest defence companies	15
2. European Defence sector - general overview	
2.1 Marine Systems	19
2.2 Aerospace Sector	24
2.3 Land Systems	27
2.4 Defence Electronics	31

III. Conclusion: Future Challenges for the European Defence Industry and Perspectives of Defence Jobs in Europe

1. Ten Take-Aways on the Present Status and Future of the European Defence Industry	35
2. Strengths and Weaknesses, Opportunities and Threats.....	38

I. The Changed Policy Context in 2022

1. Russia's war in Ukraine: the big game changer

The European defence industry was at a crossroads at the beginning of the industriAll Europe project three years ago. The industry was confronted with overcapacity, restrictive national export regulations, unclear perspectives for new procurement programmes and tense discussions on military budgets in several European countries. By then, several developments of global dimensions inside and outside the EU suggested that these challenges would require a response that would go beyond national decision-making: the “*America first*” policy within NATO, Brexit, the increasing US-China competition and their global geopolitical ambitions, disagreements within the EU about the future of the security and defence policy and the economic effects of the Covid-19 pandemic, to name only those areas that were problematised. Such times have radically changed.

The aggression of Russia with the attack on Ukraine, starting on 24 February 2022, marks a turning point in Europe's security situation. The political leaders of the EU and NATO member countries united both in condemning the Russian aggression and in assisting Ukraine. In a joint statement the members of the European Council stated: “*We condemn in the strongest possible terms Russia's unprecedented military aggression against Ukraine. By its unprovoked and unjustified military actions, Russia is grossly violating international law and undermining European and global security and stability*¹.”

Although some EU member states, especially some Eastern member states, had warned against Russia's potentially aggressive foreign and security policy in the past, the general line in the EU was focused on the traditional concept that trade could ease tensions. This concept, which was widely followed in the EU, ended abruptly. The European Union's concept of the foreign and security policies and its Russia policy have failed, and NATO's defence policy has been shaken right down to its foundations. This is the second major turning point of the last seven decades after the first watershed, which East and West experienced with the collapse of the Soviet Union, but this one has reverse consequences. The end of the Cold War heralded an era of rapprochement and agreements on the sanctity of European borders. The war of aggression taking place today is the exact opposite.

The possibilities of a peaceful settlement of disputes, which formed the core of the policy of détente and the Helsinki Act of 1975, were thrown away by the unjustifiable Russian aggression. What were the reasons for this rupture in Russia's relations with the West? Put simply, there are two contradictory explanatory patterns: on the one hand, many political analysts today claim that it was a mistake to actually have denied Ukraine and Georgia NATO membership in 2008. According to this political narrative, Russia would not have dared to start this war if these countries had also been included in NATO's eastward expansion. The counter-position is that NATO's eastward expansion has prevented the “*common house of Europe*” propagated by Mikhail Gorbachev. His concept was based on a security architecture for Europe that included Russia. “*The philosophy of the concept of a common European home rules out the probability of an armed clash and the very possibility of the use or threat of force, above all military force, by an alliance against another alliance, inside alliances or wherever it may be*².”

¹ <https://www.consilium.europa.eu/en/press/press-releases/2022/02/24/joint-statement-by-the-members-of-the-european-council-24-02-2022/>.

² “Europe as a Common Home”, Address by Mikhail Gorbachev at the Council of Europe, Strasbourg, 6 July 1989, https://chnm.gmu.edu/1989/archive/files/gorbachev-speech-7-6-89_e3ccb87237.pdf.

In reality, the development after the end of the Cold War was different, as we know today; it is characterised by an ever-increasing alienation between Russia and Western and Central Europe.

While supporters of the détente policy trusted the Russian government, the majority of today's critics assume that this was naïve, and deception right from the start. The leading politicians in the West were misled for years. President Putin was obviously interested in changing or revising what he considers NATO's "encirclement" and demanded security guarantees from the US or NATO.

At the moment, we are at war in Ukraine, after the first phase of escalation, in a period of continued heavy fighting. Different scenarios about a possible end to the war are conceivable: military victory by one of the sides, stalemate with both warring parties fighting a long-lasting war of attrition, further escalation, even the deployment of nuclear weapons that would draw NATO into the war, the overthrow of the present Russian government, permanent Russian control of Eastern Ukraine and a negotiated ceasefire or even a peace treaty. It is difficult to assess which of these scenarios is the most realistic and what are the first steps in achieving a possible end to the war. Although an end to this war is not foreseeable at present, it is important to take diplomatic action to initiate a peace process that will make it possible to reconstruct Ukraine, as industriAll Europe has emphasised in a recent statement on the war in Ukraine: *"The path to a peace agreement can only be achieved if all actors can be brought to the table."*³

"The path to a peace agreement can only be achieved if all actors can be brought to the table."

In the long term, the West will not only have to protect itself militarily from Russia, but will also have to shape its political and, above all, economic, relations differently. The consequences for the future security of Europe are fundamental. They entail both a more assertive role of the EU in defence matters as well as a drastic reduction of Europe's energy dependence on Russia. Both the

European defence and energy supply are pressing issues. Russia's military actions vis-à-vis Ukraine have boosted solidarity in NATO and the EU. Non-EU and non-NATO members are strongly in favour of joining either one or both of these two political and security alliances. The EU-member countries Finland and Sweden, have both given up their traditional neutrality status and have joined NATO after Turkey stopped its resistance against such membership.

Russia's war has revitalised both NATO and the EU. At the same time, the war has underlined the importance of the US presence for Europe's security. The division between the more transatlanticist countries and those opting for an autonomous EU security policy is presently no longer in the foreground. The EU Strategic Compass, agreed upon in March 2022, promises *"a stronger and more capable EU in security and defence"*⁴. But all too often have formula compromises in the past papered over the obvious fractures and divisions among EU member states. It remains an open question if – due to the new security environment – the EU will overcome the old divisions and find its own role in a security policy.

This new political context will have repercussions for the defence industry. It is not yet clear how defence policy will be shaped; strategic debates about the new situation are just starting and some of the old dilemmas (such as the cooperation or competition between NATO and the EU, the consequences of Brexit on cooperation in development and the manufacture of weapon systems, US priorities in Europe or in Asia) have not disappeared.

³ industriAll Europe, "Trade Unions for peace: industriAll Europe statement on war in Ukraine". Brussels 2022

⁴ https://www.eeas.europa.eu/eeas/strategic-compass-security-and-defence-1_en.

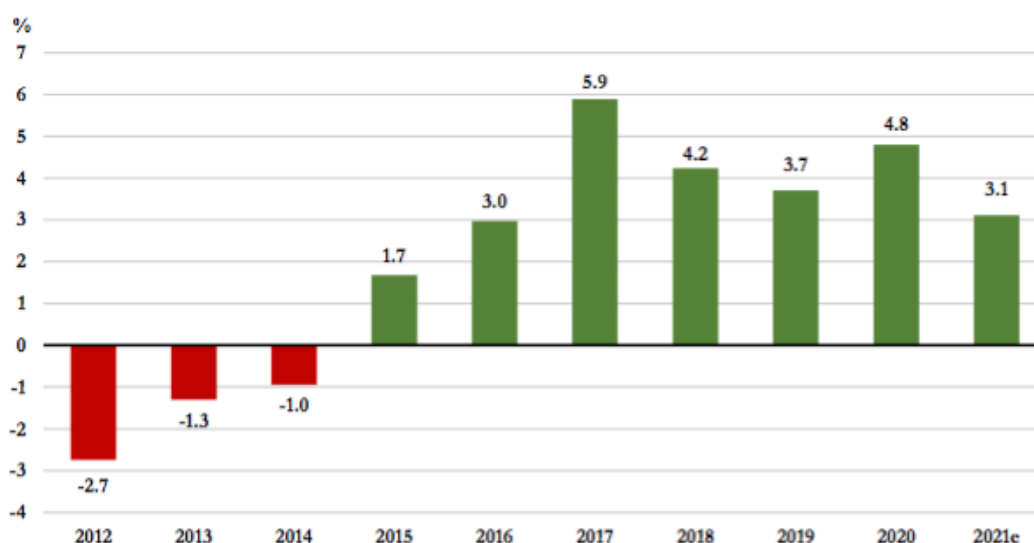
The developments confronting the EU and its member countries are primarily of a political and security dimension, but they will have far-reaching economic effects, particularly on defence firms. The landscape in which the defence industry will have to operate is entirely new.

2. Consequences for Military Budgets and Weapon Procurement

Just a few weeks ago, it would have been unthinkable that a significant amount of additional financial resources would have been made available merely by the stroke of a pen. But the political environment has changed dramatically. Governments have decided to quickly surpass NATO's aim of spending two percent of their Gross Domestic Product on defence. With the war in Ukraine, an era already years in the making has culminated into something that is once again clearly oriented towards military confrontation having consequences for military budgets.

Despite lamentations in past years about the slow growth of military expenditure in European NATO countries, the long-term developments have been significant. US President Trump has been bluntly outspoken that too many NATO countries are free-riders and that Europe does not do enough for its own defence. This reasoning has already had its effects.

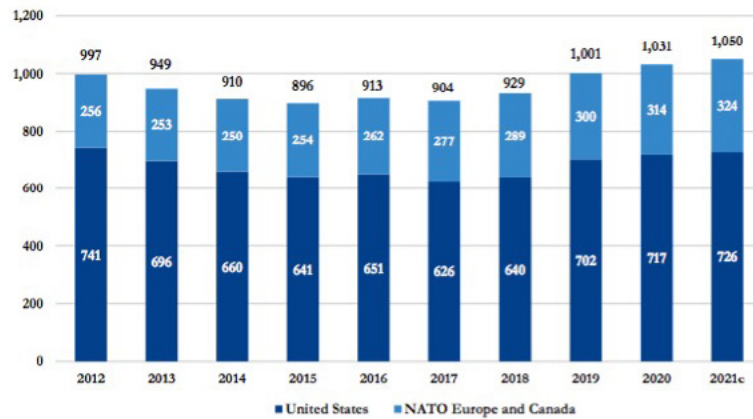
Graph 1: NATO Europe and Canada – Defence Expenditure (annual real change)



Source: NATO https://www.nato.int/nato_static_fl2014/assets/pdf/2022/3/pdf/220331-def-exp-2021-en.pdf
 Note: based on 2015 prices and exchange rates; figures for 2021 are estimates.

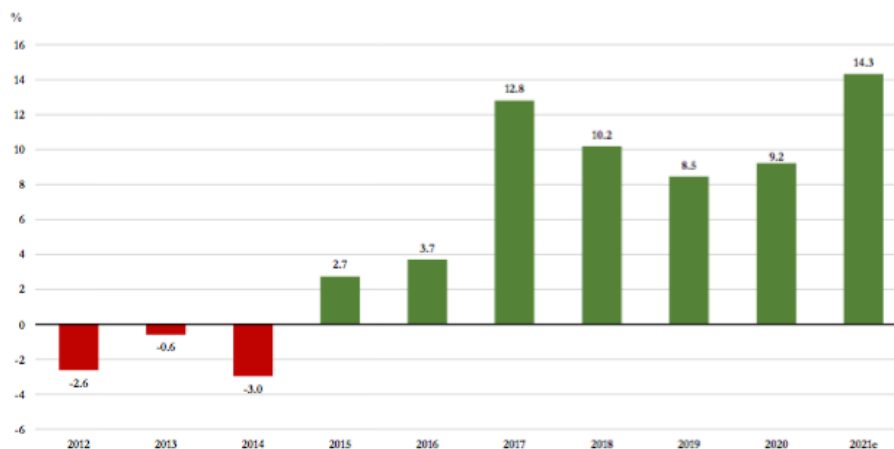
According to official NATO figures, growth of military expenditure (in real terms) has fluctuated between 1.7 and 5.9 percent per year since 2015. 2014 was a turning point: that was the year after Russia's annexation of Crimea and the year after NATO decided to aim at spending at least 2 percent of each member state's GDP on its defence budget.

European NATO countries, plus Canada, increased their budgets from a low point of US \$ 250 billion in 2014 to an estimated US \$ 324 billion in 2021. Total NATO expenditure, including the US, which experienced similar growth rates during that period, reached USD 1050 billion in 2021.

Graph 2: Defence Expenditure (in billion USD)

Source: NATO https://www.nato.int/nato_static_fl2014/assets/pdf/2022/3/pdf/220331-def-exp-2021-en.pdf
 Note: based on 2015 prices and exchange rates; figures for 2021 are estimates.

A second NATO guideline of importance to the defence industry aims at spending at least 20 percent of the defence budget on equipment. This budget category is particularly relevant to the defence industry as it represents a proxy for procurement. NATO (Europe and Canada) growth rates were extraordinarily high in the same period. They increased every year since 2014 and reached their highest growth in 2021, when the estimated rate was 14.3 percent.

Graph 3: NATO Europe and Canada – Major Equipment Expenditure (annual real change)

Source: NATO https://www.nato.int/nato_static_fl2014/assets/pdf/2022/3/pdf/220331-def-exp-2021-en.pdf
 Note: based on 2015 prices and exchange rates; figures for 2021 are estimates.

Except for Albania, literally all NATO countries increased their budget share for “major defence equipment” between 2014 and 2021. More than two-thirds (21) of all NATO member countries surpassed the 20 percent equipment guideline, and a part of them by much higher than 20 percent.⁵

Given the decisions taken or announcements made by many governments since the beginning of the Ukraine war to increase military expenditure even further, the rate of growth of the past few years is likely to be surpassed. In table 1, we have summarised the defence budgets’ decisions or announcement made in EU or European NATO countries after the start of the war in Ukraine (until end of April 2022). It is easy to glean from the table that enormous additional funds have already been spent or are planned to be spent to increase the capacities of the armed forces, partly explicitly to procure additional weapons systems.

⁵ NATO announcement, https://www.nato.int/nato_static_fl2014/assets/pdf/2022/3/pdf/220331-def-exp-2021-en.pdf, p. 3

Table 1: Announcements and Decisions for Military Budget Increases in EU and NATO Countries

Country	EU Membership	NATO Membership	Target	Announcement/Decision
Austria	●	●	1% of GDP	Aimed for in 2023
Belgium	●	●	+ € 1 bn.	To be spent on equipment
Croatia	●	●	41% increase	2021 and 2024
Cyprus	●	●	6% increase	2021 and 2024
Czechia	●	●	+ CZK 1 bn. + 19% increase	2021 and 2023
Denmark	●	●	2% of GDP	To be reached by 2033
Estonia	●	●	2.5% of GDP	In 2022
Finland	●	●	+ 70%	One-time boost in 2022
France	●	●	27% increase	2021 and 2025
Germany	●	●	+ € 100 bn.	One-time boost, 2% of GDP
Greece	●	●	17% increase	2021 and 2022
Ireland	●	●	€ 500 mn.	Annual increase in coming years
Italy	●	●	2% of GDP	Announced for 2028
Latvia	●	●	2.5% of GDP, + 100 mn.	By 2025
Lithuania	●	●	2.5% of GDP	
Luxemburg	●	●	+ € 100 mn.	
Netherlands	●	●	Increase	Proposed
Norway	●	●	+ NOK 3 bn.	On top of 13% increase, 2021-24
Poland	●	●	3% of GDP	
Portugal	●	●	Increase	Proposed
Romania	●	●	2,5% of GDP	Announced for 2023
Slovakia	●	●	24% increase	2021 and 2025
Slovenia	●	●	37% increase	2021 and 2025
Spain	●	●	2% of GDP	Announced for coming years
Sweden	●	●	SEK 300 bn. boost	27% increase 2021-2025
UK	●	●	13% increase	2021-2024

Source: This table is based on current media reports and government announcements. We would like to acknowledge the assistance in data collection by SIPRI's Milex team. Included are only countries where a decision for increases have been taken or announced.

The growing defence expenditure will lead to more procurement decisions for more and modernised weapon systems. Equipment expenditure (currently 23% of millex in NATO member states) is likely to increase faster than military expenditure. A projection shows that defence equipment expenditure might grow between 31% and 64% until 2025.

**Table 2: Projected increases in military expenditure by NATO Europe (2022 members)
In prices of 2021**

Military Expenditure	
in 2021	334 billion USD
in 2025 at 2021 millex/GDP share (1.70%)	370 billion USD
in 2025 at 2% of GDP	435 billion USD (+18%)
in 2025 at 2.5% of GDP	544 billion USD (+47%)
Equipment expenditure	
In 2021	83 billion USD (22% of millex)
In 2025 at 2% of GDP and 25% of millex	109 billion USD (+31%)
In 2025 at 2.5% of GDP and 25% of millex	136 billion USD (+64%)

Source: Defence expenditures of NATO members, https://www.nato.int/cps/en/natohq/news_184844.htm

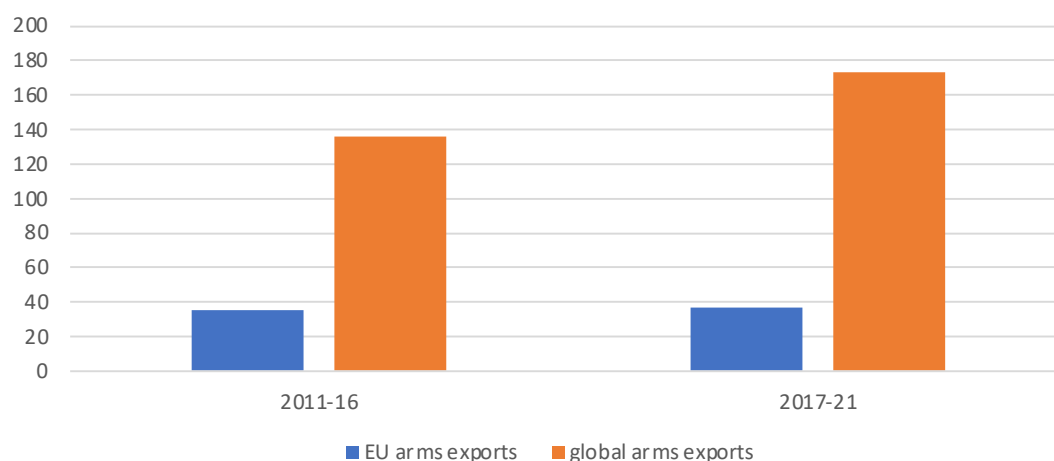
Note: Projected GDP growth 2021-2026 2.5% per year

Source: Michael Brzoska, Development of defence expenditure – European trends in a global perspective, Hamburg, Brussels July 2022

The first conclusion from this brief analysis is that there was already a political understanding among the governments of the European Union/EU NATO countries to invest more in their armed forces. This general understanding was given another significant boost pursuant to the Ukraine War.

3. EU Exports of Weapons and Defence Equipment

If one wants to have an idea of the turnover of the defence industry, one will have to include EU countries' arms exports. We chose two sources for this purpose: the SIPRI arms transfer indicator and the EU annual reports on exports of military technology and equipment. According to SIPRI, EU arms exports of major weapons during the last decade fluctuated between less than 4.8 billion USD in 2012 and 8.5 billion USD in 2021.

Graph 4: EU Arms Exports, in USD m, (major weapon systems only)

Source: SIPRI https://armstrade.sipri.org/armstrade/html/export_toplist.php

The EU plays a major role in global arms exports as it accounted for roughly one quarter of global arms exports during the last decade. The bulk of the EU arms exports comes from France, Germany, Spain and Italy (and, until 2019, from the UK). The annual reports of the European Union give a good overview on the EU's arms exports.

Table 3: Top 10 EU arms exporters

	Value of licences issued in million €			Value of Exports in million €		
	2013	2018	2020	2013	2018	2020
France	9538	135641	118232	3709	6881	4243
Germany	5845	4824	6226	n.a.	n.a.	n.a.
UK	5232	3161	*	n.a.	n.a.	*
Spain	4321	11404	26552	3907	3720	3622
Italy	2149	4778	3928	2772	2457	2697
Sweden	980	825	1424	1194	1108	1557
Austria	2373	1515	1387	528	298	425
NL	963	643	702	253	572	667
Poland	858	1557	1415	336	487	391
Belgium	613	1164	2972	n.a.	n.a.	n.a.
Bulgaria	491	1048	1089	235	765	653
Total EU	36712	169057	166923	n.a.	n.a.	n.a.

Source: Council of the European Union, Twenty-third Annual Report, <https://data.consilium.europa.eu/doc/document/ST-12189-2021-ADD-6/en/pdf>
 EU, Official Journal (2014), Sixteenth Annual Report, <https://eur-lex.europa.eu/legal-content/EL/TXT/?uri=OJ:C:2015:103:TOC>
 Note: n.a. = no answer, * no longer member of EU

4. The Medium-term and Long-term Budget Effects

Covid-19 had been the dominating political (and financial) topic before the war. Keeping industries intact was a major concern of governments in all the member states. One of the properties typical of the general trend in the defence industry was that the military part often had relatively full order books that facilitated keeping civil branches afloat, particularly in the shipbuilding and aerospace industries.

The Ukraine war and, before that, the Corona crisis, have created a fundamentally new situation in many areas (i.e. political, security and economic), which had a strong impact on the European defence policies and the funds allocated to the armed forces. The defence industry has already become more important and therefore, in a sense, gained advantage from the military assistance to the Ukraine (because of the direct exports to Ukraine and the supplies for the additional deployment of weapon systems in the EU armed forces). The industry is likely to gain advantage from the new assessment of the European security situation, although it is still unclear how the wide-ranging plans to improve the armed forces' capabilities will be financed. There are a number of economic uncertainties (uncertainty that energy will be supplied or that it will be supplied consistently and fear for a recession) as well as other demands on state budgets such as the funding of climate change, energy transition, social demands and the integration of refugees, to name just the most obvious tasks.

Two budget scenarios seem possible: firstly, Europe is facing a recession and inflation increase cost. In its Spring 2022 Economic forecast, the European Commission refers explicitly to the challenges posed by the Russian invasion of Ukraine⁶. There is a prognosis by McKinsey that predicts that inflation might have a negative impact on defence spending in the US⁷. Given the budgetary pressure from the negative economic outlook and other budgetary demands, (such as Covid-19, climate change, increased energy cost, reconstruction of Ukraine and social cost) defence budgets in the EU might not grow as quickly as is presently planned. Pressure from an economic fallout might have a slowing-down effect. However, it is unlikely that there is no growth in defence budgets.

Secondly and by contrast, one can argue that the magnitude of the security and defence decisions are such that present defence budgets will experience unprecedented growth rates. The Trillion-EURO recovery plans (to compensate for the Corona fallout) and the finances allocated to assist the Ukraine and improve the capability of the armed forces in the EU, amount to slashing established budgetary rules in the EU. Although we can expect an additional strain on resources, the defence industry is likely to gain advantage from the new security situation in the coming years.

5. EU Policy Initiatives

The EU has been struggling with its role in defence matters for decades. The list of working groups, studies, institutional reforms, agreements and treaties, etc. for intensified defence cooperation, for avoiding duplication in development of weapon systems, for more efficient procurement and more competition in the defence industry is long. Efforts for intensified cooperation go back as far back as 1976 when the Western European Armaments Group (WEAG) was founded as a cooperation forum in defence production and procurement (even to the mid-1950s if one counts the failed efforts of the Western European Union). In 1978, the European Parliament already published an influential report (the Klepsch report) that called for better integration of production and procurement.

⁶ https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/spring-2022-economic-forecast_en
⁷ <https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/the-773-billion-question-inflation-impact-on-defense-spending?cid=other-eml-dre-mip-mck&hlkid=750742a6b0154bc582ad40f7027d9065&hctky=12303517&hdpid=28b644a4-d3ea-4253-b7a0-29f38577a22c>

Besides numerous bilateral and multilateral projects between member states or firms (such as the Franco-German OCCAR in 1996), there have been a few distinct political decisions that have led to slow, but gradual, change towards intensified cooperation.

One of the outstanding political decisions on defence matters was the Lisbon Treaty of 2009, which established the Permanent Structured Cooperation (PESCO). The Treaty allows member states to permanently cooperate in security and defence, even if other member states do not agree. Twenty-five EU member states have signed up to PESCO and agreement has been reached on approximately 50 projects.

Although, for a long time, the discussions in the EU for a more unified defence policy looked like one of these half-hearted processes in which two steps are taken forward and one step is taken back, it is becoming clear that there is a very slow but steady move towards more cooperation. We are of the opinion that there is no longer a realistic way back towards a national-oriented security and defence policy in Europe unless one predicts strong de-globalisation and a return to the old system of independent nation states as an alternative to the globalised economic system.

"Fragmentation is visible in Europe's weapon systems, where several variants are typically in use at any one time – in fact, six times as many as in the US."

As a report from 2020 on the "EU's Defence Technological and Industrial Base" states, the ambitions to build a thriving and innovative EDTIB were not driven by security concerns alone. They were also driven by economic worries: the slow, yet unremitting, decline in defence expenditure across many Member States, as well as the rising unit costs of capabilities⁸. Since 2013, the EU Commission has intensified its role in defence and security and

used a different mechanism: it has worked towards coordinated procurement within the internal market, it has called for a European Defence Technological and Industrial Base (EDTIB), and - with its 7th Framework Research Programme and Horizon 2020 - it has promoted research projects in the area of security⁹.

In institutional terms, the European Defence Agency (EDA), which was founded in 2004, was an important step in improving the defence capabilities of the EU member states. Duplication in development and production of weapon systems still remains a problem, however. Compared to the US, significantly more types of weapons are deployed in the EU armed forces for the land, air and sea sectors. *"The fragmentation this creates is visible in Europe's weapon systems, where several variants are typically in use at any one time - in fact, six times as many as in the US¹⁰."*

⁸ European Parliament, The EU's Defence Technological and Industrial Base, Policy Department for External Relations, Directorate General for External Policies of the Union, PE 603.483 - January 2020.

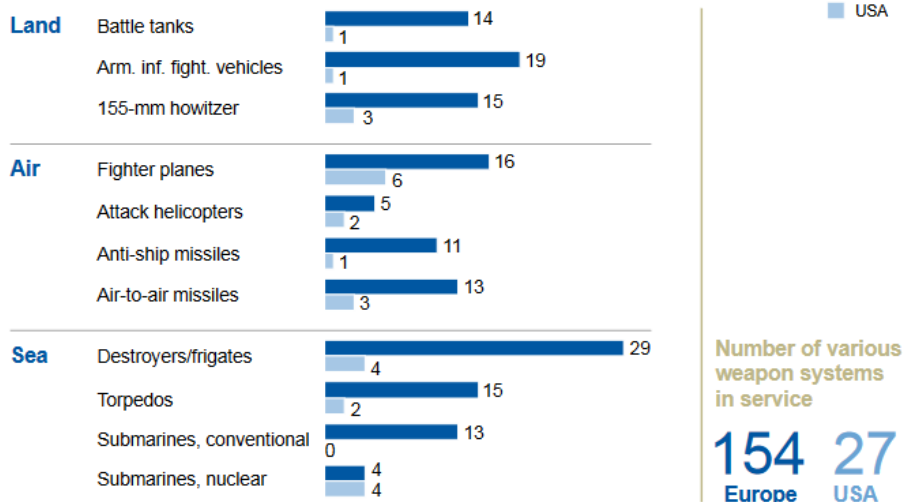
⁹ Valerio Briani, Alessandro Marrone, Christian Mölling, Tomas Valasek. European Parliament. Directorate-General for External Policies (2013), The Development of a European Defence Technological and Industrial Base (EDTIB), Brussels.

¹⁰ The Future of European Defence: Tackling the Productivity Challenge, Report, McKinsey, 2014, p. 14

Graph 5: Fragmented European Market¹¹

The fragmentation in the European market is visible in the number of various weapon systems available

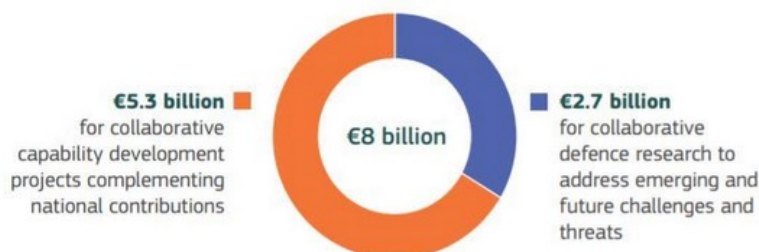
Variety of systems from selected weapon system categories in service¹



1 For Europe, the EDA members as well as Denmark, Norway and Switzerland have been taken into consideration
SOURCE: Military Balance 2012; McKinsey analysis

Whereas all the complaints that there were regarding a lack of coordination, even before the war in Ukraine, sound familiar, there is now a momentum to overcome national interests. National interests often still prevail when it comes to protecting jobs and to sharing technology. The political will for Europeanised defence has been expressed and there are institutional changes that are working to accomplish this.

In 2017, the European Commission adopted a Communication launching the European Defence Fund (EDF) consisting of “dimensions” for defence research and for capability development¹². Under the 2021-2027 multi-annual financial framework, the EDF intends to scale up the funding for collaborative research in innovative defence products and technologies and for the subsequent stages of the development cycle, including the development of prototypes. In 2022, the new budget for the EDF (European Defence Fund) is close to EUR 8 billion. EUR 2.7 billion has been allocated to fund collaborative defence research and EUR 5.3 billion to fund collaborative capability development projects complementing national contributions¹³.

Graph 6: European Defence Fund¹⁴

¹¹ The Future of European Defence: Tackling the Productivity Challenge, Report, McKinsey, 2014, p. 14

¹² European Defence Fund (EDF) (europa.eu)

¹³ https://defence-industry-space.ec.europa.eu/eu-defence-industry/european-defence-fund-edf_en

¹⁴ https://defence-industry-space.ec.europa.eu/eu-defence-industry/european-defence-fund-edf_en

The 2022 Strategic Compass, formally approved by all EU states, includes an ambitious plan of action to strengthen the EU's security and defence policies by 2030. The compass is based on the commitment of Member States to substantially raise their defence expenditure to reduce critical military and civilian capability gaps and to strengthen the European Defence Technological and Industrial Base¹⁵.

In her State of the Union address in November 2021, President von der Leyen stressed the importance of the European Defence Union and the important role of the European Defence Union, especially highlighting the missing interoperability of the weapons in the EU¹⁶. As a result, it can be expected that the Commission will play an intensified coordinating role in defence in future.

The EU roadmap for the defence sector and its Action Plan are based on several EU actions for a joint European industrial base, namely:

- Defence Procurement Directive 2009/81/EC – Limited use of Article 296/346
- Intra Community Transfer Directive 2009/43/EC
- European Defence Action Plan (2016), including proposals on European Defence Fund
- Directive on Foreign Direct Investment (FDI) 2019.
- Defence Package 220215
 - Commission's contribution to European Defence
 - Defence technology Roadmap
- Tasking by EUCO 220311
 - Joint Communication on Defence Investment Gap 220518.

In the Joint Communication 220518 on the "Versailles tasking" and its context Commission, in coordination with the European Defence Agency, put forward an analysis of the defence investment gaps by mid-May and proposed further initiatives necessary to strengthen the European defence industrial and technological base.

The principal deficits regarded by the Commission are:

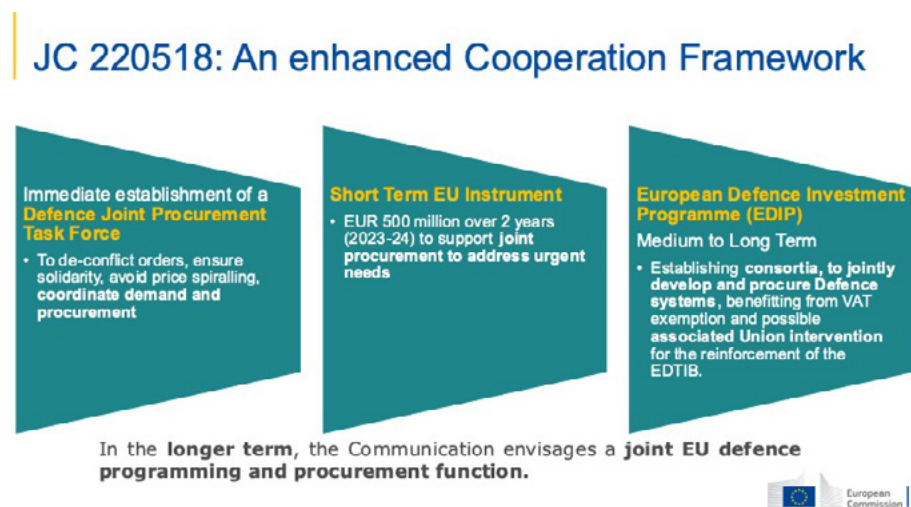
- Fragmented demand: lack of cooperative investment
- Fragmented supply: industry structured along national borders.
- Dependence on key defence equipment and raw materials
- In 2007-2016, over 60% of the European defence procurement budget was spent on non-EU military imports
- Return of high-intensity warfare scenario requires production ramp-up by European industry¹⁷.

¹⁵ https://www.eeas.europa.eu/eeas/strategic-compass-security-and-defence-1_en

¹⁶ https://ec.europa.eu/commission/presscorner/detail/en/speech_21_4701

¹⁷ Presentation by Christina Wilen, EU actions for a joint European industrial base DG DEGIS, Brussels July 2022

Graph 7: EU Cooperation Framework



Source: Presentation Christina Wilen, DG DEFIS, Brussels July 2022

When reflecting on the current political and economic situation, several trends can be predicted:

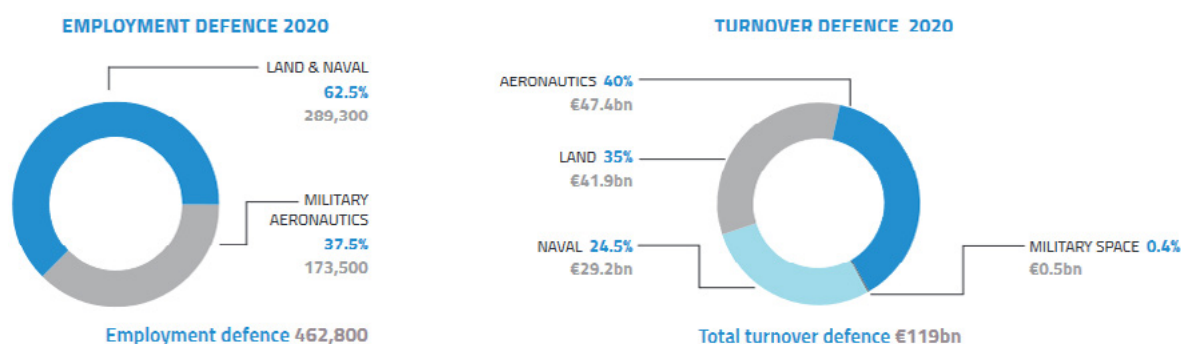
- growing insecurity about the end of the Ukraine war and the long-term relations with Russia,
- an improvement of the solidarity and unity within NATO and the EU,
- open questions about NATO's defence strategy and the EU's security and defence policy,
- an expansion of NATO pursuant to the membership of Finland and Sweden,
- increased discussion on the future demand for a more independent EU security and defence policy,
- an intensified role in defence for the EU Commission,
- a strong boost to the previously already observable trend to increase military spending among EU states,
- a growing challenge to finance European policy in the defence sector due to the high deficit spending during the corona crisis and fears for an economic recession,
- continuing uncertainty about the future role of Great Britain after Brexit, which can influence many aspects of European defence and the European arms industry,
- discussions about US defence and security priorities in Asia and Europe.

II. Structure of the Defence Industry

1. European Defence sector - a general overview

The AeroSpace and Defence Industries Association of Europe estimates that the European defence industry generated a turnover of EUR 119bn in 2020. Out of this total, EUR 95.6bn came from companies located in six countries (France, Germany, Italy, Spain, Sweden and the United Kingdom). According to ASD figures, the number of jobs in the European defence industry increased by 22,000 compared to 2019 and reached more than 462,000.

Graph 8: Distribution of size and turnover in the defence industry¹⁸



Military exports have a significant share in the total turnover and are important for the industry because the home markets are too small to reach the production volumes necessary for efficient production.

The top European defence companies, such as BAE Systems, Airbus, Leonardo and Thales, are actually global rather than national or European players. But when comparing turnover in global arms sales, it is clear that US companies are dominant. The American company Lockheed Martin Corp., the largest defence producer in the world, reported an arms turnover in 2020 (58 bn. USD), which is 2½ times larger than, the largest company based in Europe, namely BAE Systems. The five largest US companies reported arms sales amounting to three times as much (183 bn. USD) as the five largest European companies (61 bn. USD) and more than all the EU companies among the top 100¹⁹. These turnover figures indicate that the main US companies operate on a much larger scale than the European companies. This dominant position has increased during the last two decades.

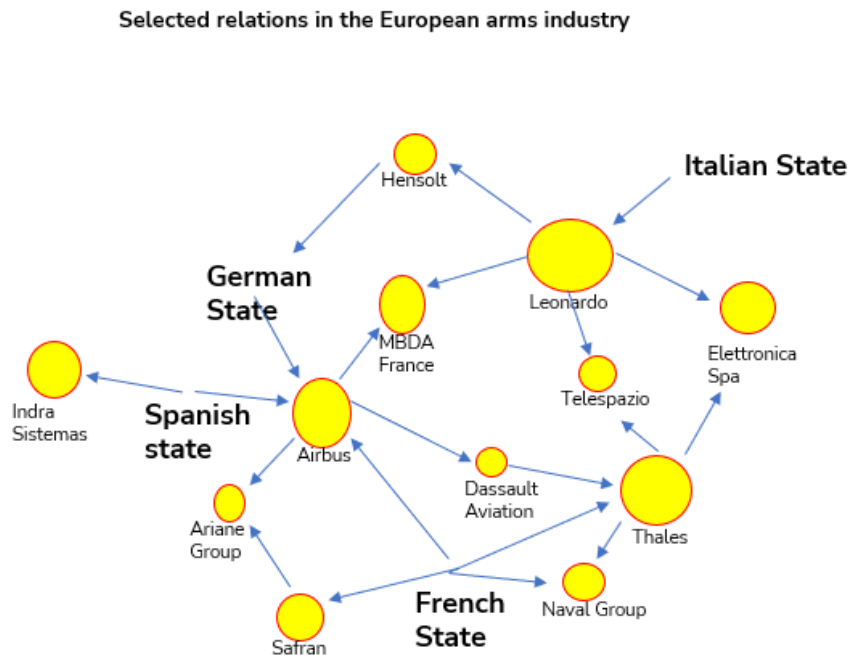
Out of a total of 100 Top defence companies, 25 are located in Europe, compared to 41 in the US. Next in the list are nine Russian and five Chinese companies. The Chinese companies are also comparatively large. All five Chinese companies are among the top 20. The defence industrial centres in Europe are highly concentrated in three countries, rather than dispersed all over the continent: UK (seven companies), France (five) and Germany (four). EU initiatives, rules and regulations have played small role in forming the defence industrial landscape. Co-operation patterns have occurred on national level, both within the EU and outside it. The turnover of the 25 major European companies reached almost USD 110 bn., which is approximately EUR 100 billion. There are no exact employment figures available for the defence sector. We estimate that approximately 500,000 people are directly employed in defence production, with a high concentration in the UK, France and Germany.

¹⁸ ASD_Facts&Figures_2021_.pdf (asd-europe.org) p.5

¹⁹ All figures are based on the SIPRI Top 100 list of arms producers: <https://www.sipri.org/databases/armsindustry>

The European states still have an important role in developing a joint European defence industrial base. They are direct shareholders in several large companies.

Graph 9: Network of the European Defence Industry²⁰



More than half of these European companies depend for more than 50% (some close to 100%) on arms sales. Some companies pursue a strategy of specializing entirely, or to a large extent, in defence production (such as BAE Systems, which specialises in a diversification of defence products, MBDA in missiles, Naval Group and Navantia in marine systems and Rheinmetall and Nexter in land systems).

Other companies, mainly larger corporations, produce more commercial than defence products (such as Airbus with its commercial aerospace divisions, Thales in communication and navigation, and Thyssen in automotive technology and a small share of defence products).

²⁰ <https://www.investigate-europe.eu/en/2022/money-for-eu-defence-development-went-to-a-small-group-of-arms-producers/>

Table 4: European Defence Companies in the SIPRI Top 100 List (in 2020)

Rank	Company	Country	Arms Sales	Arms sales as a % of total sales
6	BAE Systems	United Kingdom	24020	97
11	Airbus	Trans-European	11990	21
13	Leonardo	Italy	11160	73
14	Thales	France	9050	47
22	Rolls-Royce	United Kingdom	4870	32
25	Safran	France	4510	24
27	Rheinmetall	Germany	4240	63
30	MBDA	Trans-European	4050	99
31	Naval Group	France	3750	99
32	Dassault Aviation Group	France	3720	59
36	Saab	Sweden	3390	88
39	Babcock International Group	United Kingdom	3180	56
47	Fincantieri	Italy	2660	40
48	CEA	France	2520	44
55	ThyssenKrupp	Germany	1990	4,9
62	Serco Group	United Kingdom	1730	32
68	PGZ	Poland	1490	90
69	Melrose Industries	United Kingdom	1470	13
70	Krauss-Maffei Wegmann	Germany	1410	95
78	Hensoldt	Germany	1270	92
80	QinetiQ	United Kingdom	1240	76
83	Nexter	France	1190	95
84	Navantia	Spain	1180	95
95	Meggitt	United Kingdom	980	46
100	Kongsberg Gruppen	Norway	900	33

Table 5: Distribution of Top Companies in Europe

Country	No. of companies in SIPRI's Top 100
United Kingdom	7
France	6
Germany	4
Trans European	2
Italy	2
Sweden	1
Poland	1
Spain	1
Norway	1
Total	25

When reflecting on the current industrial and economic situation of European defence producers, several trends can be predicted:

- National-oriented security and defence policy in Europe is not a realistic option, but EU co-operation remains a slow and laborious process;
- EU defence producers' lifeline is the global market;
- US companies dominate global defence production; they are much larger than the EU producers;
- But the apparent insecurity of supply chains casts doubts on the sustainability of further increase in globalisation;
- Traditional defence producers are losing ground to newcomers as a result of the importance of advanced commercial technologies;
- The boundaries between commercial and defence technologies, as well as traditional defence producers and commercial producers are becoming increasingly blurred;
- Technology requirements add to cost increases, rising prices lead to lower production runs and lower production runs lead to underutilisation of capacities or dependence on exports;
- EU companies are highly concentrated in three countries: UK, France and Germany, the countries with the highest defence budgets in Europe.

2. Analysis of the main sectors of the industry

2.1. Naval sector

Shipbuilding has had a long tradition in many European countries. During the last fifty years, a large part of civilian ship building has been relocated step by step to countries such as South Korea and Japan. European shipyards have concentrated on specific sectors such as ferries, yachts, large cruise ships and military shipbuilding²¹.

Military shipbuilding has become the key activity for many shipyards in Europe. The following 11 European companies are currently the most important players: Babcock, BAE Systems, Chantiers de l'Atlantique, Damen Shipyard Group, Naval Group, Fincantieri, Navantia, Naviris, Saab Kockums, thyssenkrupp Marine Systems (TKMS), NavalVessels Lürssen (NVL) and Privinvest (Naval Shipyards).

Graph 10: Naval Shipyards in Europe²²



Several smaller companies specialise in service and maintenance. Regional centres for producing new frigates, corvettes, submarines and aircraft carriers are in France, Great Britain, Italy, Spain and Germany. To some degree, there are also capacities in Sweden, the Netherlands and Norway, on the one hand, and in Poland and Greece, on the other.

²¹ For the following overviews on the different parts of the defence industry, see also the study by Valerio Briani, Alessandro Marrone, Christian Mölling, Tomas Valasek for the European Parliament. Directorate-General for External Policies (2013), The Development of a European Defence Technological and Industrial Base (EDTIB), Brussels.

²² wmp consult, data from companies' websites, not all shipyards are presented here.

Table 6: Military shipyards

	Country	SIPRI Liste Top 100	Marine (TSD.Euro) 2021	Share total turnover (%) 2021	Military employment Marine	Total employment	Total Turnover (TSD Euro)
Babcock ¹	UK	39	1.474.000	30%	9.000	30.000	4.915.000
BAE Systems ²	UK	6	4.014.000	16%	18.200	90.500	25.382.000
Chantiers de l'Atlantique ³	FR	n.a.	134.000	40%	1.300	3.352	1.788.000
Damen ⁴	NLD	n.a.	900.000	50%	6.000	12.000	1.800.000
Lürssen Group ⁵	GER	n.a.	543.500	50%	1.400	2.800	1.087.000
Naval Group ⁶	FR	31	4.100.000	100%	17.373	17.373	4.100.000
Fincantieri ⁷	IT	47	2.715.000	46%	8.000	20.000	6.900.000
Navantia ⁸	SPAIN	84	867.000	80%	3.000	3.800	1.088.000
Naviris ⁹	IT,FR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
SAAB Kockums AB ¹⁰	SWEDEN	36	286.020	9%	1.600	18.000	3.718.000
Tyssen Krupp Marine Systems (TKMS) ¹¹	GER	55	2.022.000	6%	6.000	101.000	34.000.000

1) Annual & Financial Report, Deadline 31.03.2021

2) Annual Report 2021 BAE Systems plc

3) 40% Estimate from total turnover, Website

4) 50 % Estimate from total turnover, Website

5) 50 % Estimate from total turnover, Bundesregister 2021

6) Financial Report 2021 Naval Group

7) 46 % of the turnover of shipbuilding 5.903.000 TSD €

8) Annual Report 2020, Madrid

9) no figures available

10) Annual & Sustainability Report 2021 SAAB

11) Annual Report 2021 ThyssenKrupp, employment figures for tkMS and Atlas Electronics

The European sector is much smaller than the US market, which is five times larger and the centre of global naval industries. European companies in the naval sector remain smaller and they are more dispersed than global competitors from the US.

However, the competitiveness of the European companies on the world market is high. Arms exports plays a significant role and in many companies the export share is more than 50% of their turnover. Especially shipyards from Germany, France and Italy are successful in selling frigates and submarines to other countries. Large export deals are always wrapped in a complex package which includes offset agreements (local content) and technology transfers.

The European shipyards produce a large variety of different types of military ships, including patrol boats, corvettes, frigates, mine vessels, support ships and aircraft carriers. In addition, there is a long industrial tradition of producing submarines. Nuclear-powered submarines are only built in France (Naval Group) and the UK (BAE).

Naval Group, as well as Navantia and Fincantieri, have the capacity to build conventional aircraft carriers.

Graph 11: Main Naval Shipbuilders and their product portfolio

Source: AgS-Monitoring Shipbuilding (2021)

Company	Country	Submarines	Patrol Boats	Corvettes	Frigates	Mine warfare vessels	Aircraft Carriers	Naval Support
Babcock	UK	●	●	●	●	●	●	●
BAE Systems	UK	●	●	●	●	●	●	●
Chantiers de l'Atlantique	France	●	●	●	●	●	●	●
Damen	Netherlands	●	●	●	●	●	●	●
Lürssen	Germany	●	●	●	●	●	●	●
Naval Group	France	●	●	●	●	●	●	●
Fincantieri	Italy	●	●	●	●	●	●	●
Navantia	Spain	●	●	●	●	●	●	●
Naviris	Italy, France	●	●	●	●	●	●	●
SAAB Kockums AB	Sweden	●	●	●	●	●	●	●
Thyssen-Krupp Marine Systems (TKMS)	Germany	●	●	●	●	●	●	●
Remontowa Shipbuilding	Poland	●	●	●	●	●	●	●

Submarine production is an activity related to military shipbuilding. Approximately 34% of investments in the new construction of naval platforms in Europe will go toward submarines.

Table 7: Submarine building capacities in Europe²³

Country	Preferred Builder	Sub Acquisition Cost as % of Country's Total Naval Platform Cost (2020-2040)
France	Naval Group	65
UK	BAE Systems	59
Germany	TKMS	7,5
Norway	TKMS/Kongsberg	82
Sweden	SAAB	53
Netherlands	SAAB/Damen	23
Poland	tbc	18
Italy	Fincantieri	14
Spain	Navantia/Naval Group	20
Romania	tbc	35

Most companies in this sector concentrate on fighting ships and are not active in other defence sectors. This is the case for Naval Group in France, Babcock in the United Kingdom, Fincantieri in Italy, TKMS in Germany and Navantia in Spain. Among the larger companies, BAE is the only company that is also active in other related areas. Therefore, the companies are highly dependent on military and defence contracts. When comparing the main naval shipyards in Europe, one can say that especially family-owned shipyards have a diversified product portfolio and are active in the naval sector as well as in the merchant shipbuilding sector. Therefore, their dependence on naval contracts is significantly lower than in the other naval-focus ed shipyards mentioned above.

The share of the turnover in the naval sector going into the production of the hull and vessel represents only a very small part of a military ship. For example, the hull represents only approximately 20% of the total cost of a frigate. The combat system (electronics, radars, navigation and weapons systems) represents 60%-70% of total costs. The shipyard is the prime contractor and system integrator which has to organise a large number of a diversified network of subcontractors.

The high percentage of supplied parts means that there are several important First Tier suppliers in military shipbuilding, such as Thales, Raytheon and Atlas Electronics which equip ships with electronics and integration services. Other companies such as Rolls Royce and MTU, manufacture engines for military ships. From an employment perspective, direct employment in military shipyards generates 3-4 times more employment in supplier industries.

Over the last decades there have been several attempts to achieve more cooperation and consolidation in European military shipbuilding. The general impression is that consolidation in the naval sector is less advanced than in other segments of the defence industry in Europe. But there has been some consolidation which reduced the number of 17 larger companies with capacities for building naval vessels to 11 over the last decade.

²³ Presentation by AgS, Naval Shipbuilding in Europe, 22.4.2021

This consolidation mainly took place on the national level. For example, in the UK, the shipbuilders VT and Babcock merged, and Babcock acquired Devonport shipyards. For the new UK aircraft carriers, all remaining shipyards and suppliers have been consolidated into a national alliance.

In France, Thales and Naval Group were restructured. Naval Group took over Thales domestic naval business. Thales, DCNS and Finmeccanica have joint ventures on underwater warfare. In addition, the French Naval Group and Italian Fincantieri created the equal share joint-venture NAVIRIS as part of a Franco-Italian government agreement. The principal activities of Naviris concern export acquisition projects and some projects under the Franco-Italian programmes, such as the mid-life renovation of the four Horizon air-defence frigates and R&T projects such as the European Patrol Corvette light frigates by 2030.

In Germany, all three shipyards (TKMS, Lürssen and German Naval Yards) are involved in joint programmes and are talking about cooperation. TKMS and Lürssen in Germany have been forced into collaboration for the Type 130 Corvette and the Type 125 Frigate.

Recently, Lürssen announced that it wants to enter into a permanent cooperation in naval shipbuilding with German Naval Yards Kiel. The previous activities in military and governmental surface shipbuilding could be incorporated into a joint company under the leadership of the Bremen-based Lürssen Group in future.

Thyssenkrupp is currently exploring several strategic options for its warship unit, ranging from combining it with Italy's Fincantieri to creating a national champion with German peers. Overall, TKMS is aiming to consolidate the shipyard industry in Germany and Europe and wants to take a leading role in this. Initially, a German champion could be formed with Lürssen or German Naval Yards, for example. This has been announced against the background that TKMS has taken on a historically large number of orders until 2030.

Against the backdrop of the Ukraine war and with a view to the announced EUR 100 billion special fund to expand the Bundeswehr, TKMS would have to build up additional capacities and the company announced that it will take over parts of the insolvent MV shipyards in Mecklenburg -Western Pomerania.

At European level, there is a large number of cooperation projects consisting of bi-national programmes in the EU, such as the Horizon and FREMM frigates, as well as transatlantic consortia. There is the European Maritime Force, *"a non-standing, pre-structured, multinational maritime force"*, and the Spanish-Italian Amphibious Battlegroup.

Co-operation and capability integration on bilateral and multilateral levels has also developed, including maritime domain awareness regimes such as:

- Surveillance Cooperation Finland-Sweden, the Sea Surveillance Cooperation Baltic Sea, the European Defence Agency's long-running Maritime Surveillance Project;
- Naval arrangements such as the UK-led Joint Expeditionary Force, the Swedish-Finnish Naval Task Group, the Belgian-Dutch BeNeSam naval integration etc.

Three multinational armaments programmes were coordinated and managed by OCCAR, including three naval programmes:

- Frigata Europea Multi-Missione Programme - FREMM;
- Logistic Support Ship - LSS;
- Multipurpose Patrol Ship Programme - PPA.

In addition, the EDA manages 123 ad hoc R&T and capability programmes and projects, as well as some 240 other activities.

Conclusions

The pressure to consolidate military shipbuilding capacities on a European level has shaped the discussions for the last decade. And the pressure is increasing in the face of the consolidation steps in shipbuilding in South Korea, Japan and China. Implementation repeatedly failed due to national interests mainly in France and Germany. This has partly changed during the last two years: first, Brexit has complicated cooperation between EU and UK companies, as well as between the governments. And recently, the war in the Ukraine has added high volumes on the demand side.

The general finding is still that the sector has excess capacity and too many small companies, which means that economies of scales cannot be used. However, EU member states supported their naval industries to remain independent in the past. All options for a more consolidated sector in Europe will depend on political decisions. In France and Italy, a substantial part of the consortium led by Naval Group, Navantia and Fincantieri is owned by their governments.

There still many political challenges facing Europe: governments must formulate security and defence policies that clearly state their level of ambition regarding military strategies. Naval strategies have to be linked with corresponding modernisation and procurement programmes. Consolidation and future developments can be supported by the dynamics of the FED and PESCO, EDIPD and Horizon Europe. It is necessary to anticipate and integrate future cooperation programmes and priorities, for example through MODs, in PESCO projects.

2.2 The Aerospace Sector

Europe has a strong and competitive civil and military aeronautics industry with more than 462,000 employees a total revenue of EUR 146.7 billion (ASD 2021). Defence markets have a share of 40% of the total turnover, with 173,500 jobs depending on military spending. The military aeronautics industry in Europe produces a broad range of manned and unmanned aerial systems, including combat aircraft, drones, transport aircraft and helicopters.

There are five prime contractors which integrate and offer complete systems and services (Airbus, BAE Systems, Leonardo, Dassault and Saab) and a larger number of tier-1 and tier -2 suppliers who produce engines, radar, air frame structure, electronics, software and mechanical components.

Large parts of the industry are concentrated in the UK, France, Germany, Italy, Sweden and Spain. Development, as well as part-ownership in the industry is still strongly influenced by national industrial policy and state ownership (in France, Spain, Sweden, Italy and partly also in Germany). The aeronautic sector has several subsectors for fixed-wing aircraft, helicopters, missiles, space and engines.

Table 8: The Major Aerospace Companies

Company	Country	SIPRI Ranking Top 100	Defense News Top 100	Turnover Mil. aerospace (TEuro) 2021	Share total turnover (%) 2021	Military employment aerospace	Total employment	Total Turnover (TEuro)
BAE Systems ¹	UK		6	9.911.000	39	29.700	90.500	25.382.000
Cobham ²	UK	n.a.	n.a.	700.000	30	2.500	8.000	2.540.000
Diehl ³	GER	n.a.	n.a.	285.000	9	1.300	16.866	2.979.000
Indra ⁴	Spain	n.a.	100	636.000	19	8.000	52.000	3.390.000
Leonardo (former Finmeccanica) ⁵	IT	13	13	7.800.000	55	8.000	50.413	14.135.000
Safran ⁶	FR	25	28	6.325	42	25.000	76.765	15.257.000
Saab ⁷	Sweden	36	36	1.164.000	31	5.000	18.000	3.718.000
Airbus ⁸	EU	13	12	10.186.000	19	24.034	126.495	52.149.000
Thales ⁹	FR	14	16	2.950.000	40	20.000	83.000	16.200.000
Melrose ¹⁰	UK	69	62	2.989.000	28	4.200	15.000	8.816.000
MTU ¹¹	GER		n.a.	1.200.000	25	2.500	10.508	4.188.000
RollsRoyce ¹²	UK	22	25	2.000.000	24	6.600	44.000	12.920.000
Dassault Group ¹³	FR	32	34	5.281	50	6.000	12.371	7.200.000
Meggitt ¹⁴	UK	95	78	728.000	50	4.500	9.000	1.749.000
MBDA ¹⁵	GER	30	n.a.	3.200.000	100	11.000	11.000	3.200.000
Patria ¹⁶	FIN	n.a.	n.a.	190.000	30	1.300	3.000	547.000
Total				43.950.606		159.634		

1) Annual Report 2021BAE Systems plc

2.) Cobham Group Limited Annual Report/ financial statements for the year ended 31. December 2021. Before sale of aerial refuelling business to Eaton according to Annual Report

4) Indra Investors Presentation

5) Leonardo Annual Report 2021

6) FY 2021 RESULTS February 24, 2022 All numbers for Aircraft Equipment, defence and Aerosystems (including civilian activities, but without Aerospace propulsion, which also has military business)

7) Saab Annual & Sustainability Report 2021

8) Airbus FY Results 2021: Sales for Defence and Space 2021 according to annual report, but excluding military part Helicopter

9)Thales 2021 Universal Registration Document including the Annual Financial Report. Total turnover Aerospace 2021 4.4 Mrd. €, thereof 65% estimate military share

10) Melrose Industries PLC Data according to Annual Presentation 2021 for Aerospace Sector

11) MTU AERO ENGINES AG Geschäftsbericht 2021

12) Annual Report 2021 Rolls- Royce Holdings PLC. Total turnover defense 2021: 2.854 bil €, thereof 50% air systems

13) Annual Report 2021 Dassault Aviation

14) Annual Reports & Accounts 2021 Meggit

15) Annual Performance Summary Fiscal Year 2020

16) Annual Report Annual Review 2021 Patria

We estimate that almost 160,000 people are directly employed by the top companies in this military sector. Many companies serve as both the commercial and military markets. On average, dependence on defence is between 40% and 50% of total turnover. Only Saab and BAE have a clear focus on military aircraft. In addition, there are a number of specialised companies with a high share of military turnover, such as Cobham (UK), a producer of electronic and communication equipment, and MBDA (Germany), a missile producer.

The European aircraft industry has come a long way in integration and collaborative defence programmes. There is a large network of co-operation by companies and joint ventures, which resulted from consolidation processes supported by the states (for example, the creation of the former EADS and now Airbus).

Especially in the aeronautic sector, national governments have come to acknowledge that the developing and producing modern weapon systems are too expensive to be dealt with by individual countries. Therefore, governments have pushed for sharing the costs for development and production, and companies have adjusted their strategies accordingly.

As a result, joint weapon programmes have become common practice in Europe and almost all military aircraft procurement projects are joint initiatives by several European states. Such procurement programmes have been the UK-FR JAGUAR aircraft, Tornado jets, Typhoon/Eurofighter jets, the A400M and others, usually with participation of the UK, Germany and Spain.

MBDA is, alongside Airbus, an example of a large transnational merger in the European aeronautic industry. It was created in December 2001 and brought together former competitors from different European countries. At the time of the merger, the European market environment in the missile sector seemed to encourage stronger cooperation for a number of reasons. The companies' landscape was highly fragmented. International competition increased from established actors, especially from the US (Raytheon and Lockheed Martin), other European players (Thales, Diehl and Saab), as well as companies from other parts of the world (Russia and emerging market economies).

At the same time, internationalisation and exports became increasingly important in the light of sluggish domestic demand. Finally, new technology required higher investment in R&D and, at the same time, companies had to finance increasingly more projects from their own budget. Hence, the missile sector appeared to be a fitting candidate for a major transnational merger in the European defence sector. The political backup from London and Paris eventually led to the 2010 Lancaster House Treaties and first joint missile projects co-financed by both countries (ANL/FASGW in 2008 and FCASW in 2017).

Graph 12: Formation of MBDA²⁴



After the consolidation phase following the merger, the company is now established and competitive with a turnover of EUR 3.2 billion and 11,000 employees.

However, other merger initiatives and looser co-operations failed. The most prominent was the attempt of the former EADS CEO, Thomas Enders, to merge EADS and BAE in 2012. From an industrial and technical logic, the idea of one European programme across crewed and uninhabited combat systems is very convincing. Synergy effects and decreasing procurement costs are possible, but the discussion on the next Future Combat Air System (FCAS) shows that there is still a long way to go. Apparently, not all governments in the countries concerned were convinced or afraid of losing technology control, so they vetoed the proposed merger.

Important Programmes

FCAS

There are still exist two competing initiatives for the next generation fighter aircraft: Tempest and Future Combat Air System (FCAS). The Tempest project includes BAE Systems, Rolls-Royce, MBDA and the British arm of Italian defence group Leonardo. It has a budget of EUR 2.4 billion, which was authorised by the British government until 2025 and EUR 1 billion from the companies for the same period. Tempest plans to replace its Eurofighter Typhoon jet as from 2040.

²⁴ <https://www.mbda-systems.com/about-us/history/>

At the same time, France, Germany and Spain are working on the FCAS project to replace France's Rafale and German and Spanish Eurofighters. The second phase of FCAS will cost a total of EUR 3.6 billion. It is still an open question whether the two programmes might merge in the future.

Early in 2022, Germany decided to buy 35 U.S. F-35 fighter jets to replace its ageing Tornados. Germany declared that this decision will not influence the development of FCAS, the joint Franco-German fighter jet that is supposed to be ready in the 2040s or even 2050s.

European Drone

A second important programme for the industry is the Eurodrone, a project amounting to EUR 7.1 billion by a consortium of France, Germany, Italy and Spain and the companies Airbus Defence and Space, Dassault Aviation and Leonardo. The first deliveries of the UAV (unmanned aerial vehicle) are expected in 2029.

Conclusions

The European Union's defence-aerospace ambitions are clear but industrial fragmentation and conflicting national imperatives continue to complicate all decisions. The European defence industry is much larger than just the five system integrators. It is heavily dependent on future European procurement programmes. There is a generational problem for fighter aircraft in particular because current programmes are not advanced enough to replace ageing generations of fighter jets in time.

This is also true of other programmes besides fighter jets. Airbus A400M transport will end production well before the end of the decade. Also, key European military helicopter production programmes are coming to an end. While these programmes are being shut down, it remains unclear how the existing capacities of the industry can be utilised.

The prospects of the European aeronautical industry strongly depend on new joint procurement programmes, as well as on successful corporations and even new consolidation initiatives. It goes without saying that European manufacturers cannot maintain the existing research and production capacities on a purely national basis. The necessary expenditure is too high for any national government and the national market is too small. Even with currently announced defence spending in the light of the war in the Ukraine, these facts have not changed.

2.3 Land Systems: Main European Companies

Land-based armed forces are traditionally an important pillar of the defence policy in all European NATO states. Therefore, the military industrial base for producing and maintaining equipment exists in many European states. There are approximately 10 important companies in the land armament sector. Six of these companies are all listed among the SIPRI top 100 defence companies. There are facilities and smaller maintenance sites in many EU countries. However, the main production sites and the company headquarters are located in the UK, Germany, France, Italy and Finland.

The most important manufacturers of heavy weapon systems such as tanks, artillery and armoured vehicles are BAE Systems, Rheinmetall, KNDS (KMW and Nexter) and Leonardo. It has to be mentioned that the US company General Dynamics also has manufacturing capacities in Europe. In addition, companies such as Patria from Finland, Thales and Diehl are suppliers for arms systems and ammunition for the land forces.

Table 9: Major Land Systems Companies

Company	Country	SIPRI Ranking Top 100	Turnover Land sector 2020	Turnover Land sector (Euro) 2021	Share total turnover (%) 2021	Military employment land sector	Total employment	Total Turnover (Euro)
BAE Systems ¹	UK	6	3.445.000	3.720.000	16	14.500	90.500	23.251.000
Chemring Group ²	UK	not listed	315.640	291.000	62	1.550	2.500	463.700
Diehl Defence ³	GE	not listed	571.000	n.a.	19	2.797	16.866	2.979.000
General Dynamics Europe ⁴	US	5		900.000	100	2.500	100.000	36.506.700
Leonardo ⁵	IT	13	6.500.000	6.944.000	50	25.000	49.882	13.400.000
KMW/ Nexter ⁶	GE/FR	70	2.400.000	2.400.000	100	8.270	8.270	2.400.000
Patria ⁷	FIN	not listed		284.000	50	1.500	3.097	547.700
Rheinmetall ⁸	GE	27	3.019.000	3.116.000	55	13.200	23.945	5.658.000
Thales ⁹	FR	14		2.624.000	30	12.900	83.000	16.200.000
Total						82.217		

1) Annual report 2021 BAE Systems

2) Annual report 2021 for Chemring Defence total turnover, no share for land system available

3) Annual 2020 Diehl Defence: numbers for Diehl Defense total turnover; no share for land system available

4) Annual report 2021 GD, turnover land systems Europe own estimate

5) Annual 2020 Leonardo (turnover defense electronics & Security)

6) Website KNDS

7) Annual report 2021 Patria, Land Systems including Service ammunition

8) Website and annual report 2021 Rheinmetall, numbers for Land system include only weapons and ammunition

9) Annual report 2021 Thales, turnover for defense and security segment 54%, thereof land systems own estimate 30%

In 2021, BAE, the largest defence manufacturer in Europe, was also the largest company for land systems. However, all figures on turnover and employment in a specific sector like land armament systems are only rough estimates. Many companies like Leonardo are not separate from armed forces divisions and are included in the military electronics and ammunition in the reported figures.

Direct employment figures are estimated at approximately 100,000 – 110,000 people in the land defence sector. The numbers of direct employment for the nine prime EU companies add up to a total of 65,900 jobs. From a regional perspective, the largest production capacities are located in France, Great Britain and Germany.

The European companies in the land sector are manufacturing a broad spectrum of competitive modern weapon systems including Artillery, MBT, AIFV, small weapons and ammunition. Many of the companies have been extremely successful in exporting arms. In fact, in the past, the demand by the European states has only called for small numbers of tanks to be manufactured, for example. Therefore, export was always a precondition to achieve large production series. Compared to the total demand by Europe during the last 30 years, there were too many manufacturers having extremely small production lots.

Although there have been some processes of consolidation and mergers (the most prominent of which is the cooperation of Nexter and KMW), the European market for land equipment is dominated by national procurement decisions and national demand. Consolidation processes took place mainly within national borders. The two exceptions were, firstly, the acquisition activities of General Dynamics, which started in 2001 with the acquisition of Santa Barbara Systema in Spain, Mowag in Switzerland in 2004 and EWK Kaiserslautern and FWW Fahrzeugwerke Berlin in Germany in 2018, and, secondly, the merger of Nexter (France) and KMW (Germany) in 2015. Apart from these mergers, there are several cooperation structures in many of the larger procurement projects, which include almost all companies, for example, the cooperation between Rheinmetall, KMW and Nexter on the future Main Ground Combat system (MGCS) or the joint venture between Rheinmetall and BAE in the company Rheinmetall BAE Systems Land Limited.

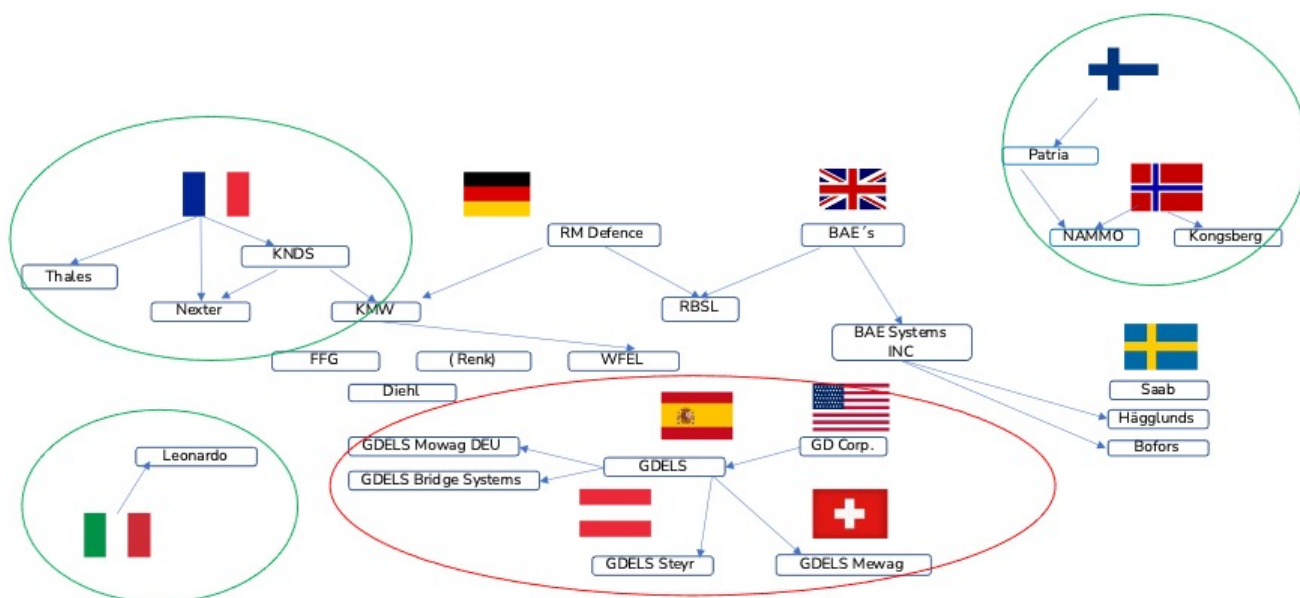
By the end of 2021, there were some rumours that KNDS was interested in buying the companies OTO Melara and Wass from the Italian arms company Leonardo.

The question of ownership is relevant in all these cases,. There is not much foreign ownership among EU-based companies: The exceptions are BAE Systems, who have acquired Swedish Haggelunds and Bofors, and the previously mentioned activities of General Dynamics (ownership of MOWAG (Switzerland), Santa Barbara Spain, Santa Barbara Germany, FWW and Steyr Daimler (Austria). State ownership is relevant for the industry in France, Italy and Finland. Compared to the large US companies, the industrial structure in Europe is still dominated by medium sized players with many SMEs as suppliers. These land companies are often highly dependent on defence revenues. However, German companies such as Diehl and Rheinmetall also own large shares of civilian products.

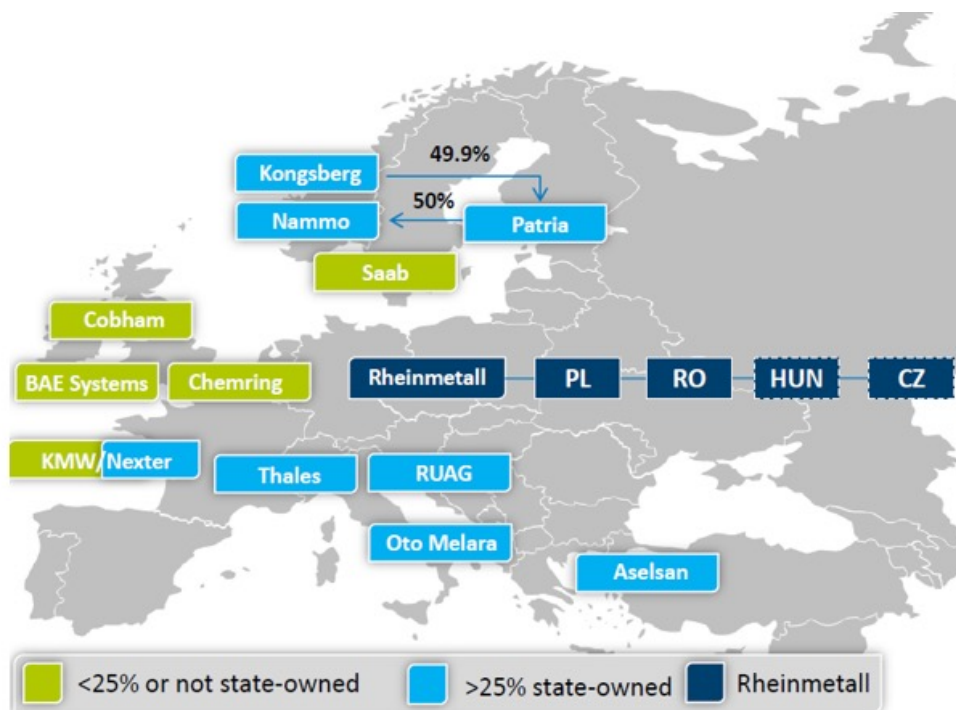
The European armies have tried several joint development and procurement programmes in the last 30 years with mixed results. There have been Main Battle Tank initiatives, and AIVF joint programmes (Boxer, Leopard) but they encountered financial and technological problems.

Looking at the cost linked to a new Main Battle Tank, there was a clear understanding in the industry before the war in Ukraine that only one new system will be developed and procured in the European states. This understanding and perception might change for the next years due to the fact that the demand for the existing systems of tanks and armoured vehicles is extremely on the rise, with a growing number of orders for all kind of systems. The immediate economic pressure resulting from the fact that only one system was going to be procured no longer exists. Rheinmetall has already announced an annual growth of 10% in turnover and is searching for more than 3,000 additional personnel.

Graph 13: European Cooperation Pattern in land systems²⁵



²⁵ Data from companies' websites, not all companies are depicted and the visualisation only highlights connections among companies

Graph 14: State ownership versus private Ownership²⁶

Main Procurement projects in selected countries and existing structures of cooperation: MGCS - Main Ground Combat System

This is a military programme to replace the Leclerc and the Leopard II by 2045: the MGCS is based on a range of combat vehicles of different series and weights with different armament.

It is a Franco-German programme under German leadership and has an extremely high degree of technological innovation. Today, three industrial companies (Nexter and KMW - KNDS - as well as Rheinmetall) are involved, and it is likely that other countries and other industrial companies can be included.

It is a programme that is structured according to the “best athlete” principle: The industrial sector that receives the most recognition in each project focus leads the programme. However, the division of tasks and specialisations is not self-evident and is currently blocking the progress of the programme.

The MGCS programme is currently at the beginning of phase 2: the first contract costing both countries EUR 30 million was commissioned in 2020 and is expected to last 18 months. However, the most expensive and significant phase (SADS 2) has not started yet, in particular because the division of the pillars between the industrial companies has not yet been decided.

Several countries have already made requests: Poland, Spain, Italy, the United Kingdom, Sweden and Belgium. Some of them are integrated in the “Leopard Club” and would be very interested in joining the programme. Behind these countries, new industrial companies could thus facilitate development with their expertise on one or more aspects of the programme.

²⁶ Syndex, Presentation workshop Munich January 2022

Even at the level of the Franco-German pair, KNDS and Rheinmetall will certainly not remain the only ones to participate in MGCS: In France, interest has been indicated by Arquus (engines, robotics and maintenance), Thales (sensors) Cilas (lasers and sensors) or even MBDA (missiles) and Safran (sensors and optronics). In Germany, it is Hensoldt for the sensors sector or Diehl Defence for the protection sector.

Some of these industrial companies are already involved in the SCAF. Some even take the lead in certain pillars (Thales, Safran, MBDA and Hensoldt participation). The MCGS thus contributes to the important perspectives of the European defence market.

Conclusions

The land systems sector is regionally more diversified in more European countries than other sectors, although the dominating countries here are also UK, France and Germany. The Russian war in Ukraine has changed the perspective of land systems producers decisively in two respects: firstly, the importance of land defence systems has grown as a result of the type of war being fought in Ukraine. Thus, NATO countries are interested in quickly upgrading the capacity of their tank and armoured vehicles. Secondly, the pressure on military budgets, particularly procurement budgets, is replaced by the availability of additional funding (at least, if the announcements will indeed be implemented). For the consolidation process, this could mean either the need for intensified cooperation to meet the new demand or, alternatively, intensified nationalization of the procurement process.

2.4 Defence Electronics

Electronics in defence systems is becoming increasingly important. Today, electronic components are part of almost all weapons systems and pieces of equipment. The ongoing innovation in weapon technologies is characterised by an even faster-growing impact of IT, computer and electronics in general. The use of drones and autonomous weapons, the potential of the internet and progress in smart electronics are fundamentally transforming warfare. Today, electronics and IT provide the technologies that are critical to defence requirements. The functions of weapons systems are increasingly dependent on the electronics subsystems for guidance, communications and control. The modern battlefield has evolved from guns and tanks to long-range missiles and drone warfare, and autonomous and robotic warfare are likely to take over in the future²⁷.

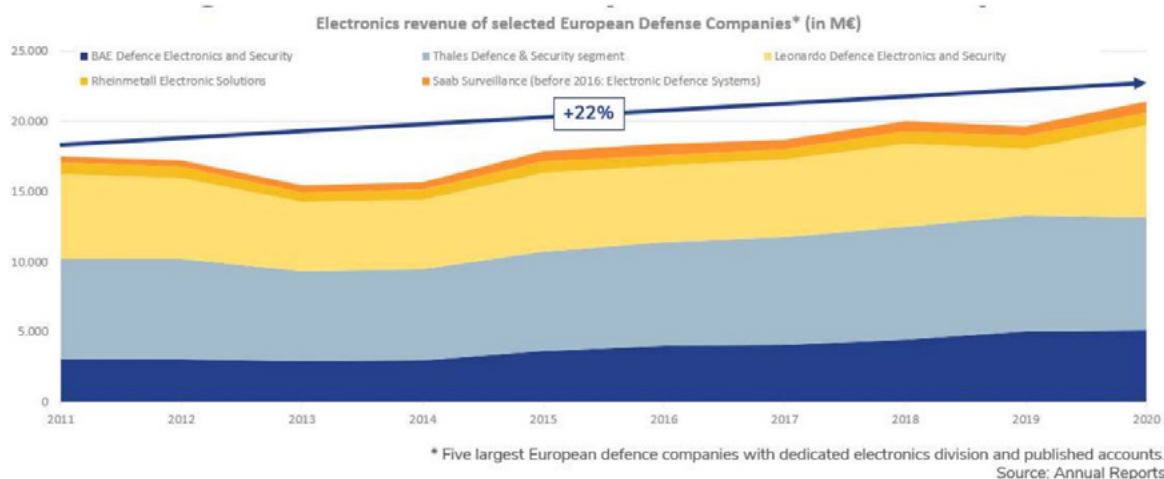
Electronic military equipment is not only manufactured as stand-alone sets of equipment but is increasingly integrated in all forms of weapon systems as command, control, communication, computer, intelligence, surveillance, and reconnaissance (C4ISR) technologies. The battlespace will expand and become increasingly transparent. Weapons will have increasing range, precision and lethality, and there will be a rise of autonomous systems including armed drones.

Therefore, the market for military electronics has grown continuously over the last decades. This is reflected in the increasing share of electronics and communication equipment in all weapon systems.

²⁷ The current war in Ukraine shows the importance of “traditional” capacities. However, it does not change the long-term perspectives of technological trend for more autonomous systems.

Graph 15: The Growing Importance of Military Electronics²⁸

In the past ten years, electronics have generated increasing turnover for Europe's defence companies



The entire defence sector is under high pressure to adapt due to the new technological possibilities offered by computers, data acquisition, optical signal processing, communication technologies and the Internet.

This concerns not only the associated greater capabilities of weapon systems, but also the completely new strategic options in warfare. Military electronics offer a vast range of new technical possibilities. The function of almost all complex weapon systems depends on electronic systems for targeting, communication and control of weapon effects.

Due to the rapid growth of the commercial electronics markets, a clear reversal in research spending has simultaneously taken place. In electronics, much more money is being invested in commercial than in military research. As a result, technologies introduced in the commercial sector are not yet being used militarily, or, at best, the military is a second user here.

On the manufacturing side, it is becoming less and less possible to clearly delineate the manufacturers of electronics used for military purposes. The defence electronics sector of the industry can be divided into three parts:

- First, manufacturers of military-specific electronic items (such as avionics and precision guidance systems);
- Second, large defence system providers which have built up own capacities in electronics;
- Third, suppliers of commercial products which are modified for military requirements or integrated in military systems (in weapons, logistics or other military operations) without any changes.

Any mapping of the industry is confronted with two problems: there is no official definition of the military electronics industry and there are no “official” lists of electronic defence components. Therefore, the following table listing European companies is far from complete and shows only those companies which offer clearly military product solutions and know-how in this field.

²⁸ Wmp consult, data from companies' websites, own calculations

Table 10: Major Military Electronic Companies

Company	Country	SIPRI Ranking Top 100	Defense Top 100	Turnover electronics (Euro) 2021	Share total turnover (%) 2021	Military employment electronics	Total employment	Total Turnover (Euro)
BAE Systems ¹	UK	6	7	4.527.000	16	14.500	90.500	23.251.000
Cobham ²	UK	n.a.	n.a.	500.000	70	3.000	4.000	700.000
Hensoldt ³	GER	78	64	1.474.000	100	6.316	6.316	1.474.000
Indra ⁴	Spain	n.a.	100	636.000	19	10.000	52.000	3.390.000
Leonardo ⁵	IT	13	13	6.944.000	50	25.000	50.413	14.135.000
Safran ⁶	FR	25	28	2.000.000	10	7.000	76.765	15.257.000
Saab ⁷	Sweden	36	36	1.420.000	32	5.400	18.000	3.718.000
Rheinmetall ⁸	GE	27	29	931.000	20	5.000	25.000	5.658.000
Thales ⁹	FR	14	16	8.085	56	8.000	83.000	16.200.000
QinetiQ ¹⁰	UK	80	66	800.000	50	3.000	6.500	1.498.000
Ultra Electronics ¹¹	UK	n.a.	83	450.000	60	2.500	4.500	850.000
Total				19.690.085		89.716		

1) Annual report 2021 BAE Systems

2) Cobham Group Limited Annual report/ financial statements for the year ended 31. December 2021

3) Annual Report 2021 Hensoldt

4) Indra Investors Presentation

5) Leonardo Annual Report 2021

6) FY 2021 RESULTS February 24, 2022

7) Saab Annual & Sustainability Report 2021

8) Annual Report 2021 Rheinmetall

9) Thales 2021 Annual Financial Report

10) QinetiQ Group INC Annual & Accounts 2021

11) Ultra Annual & Accounts 2021

Major suppliers include BAE, Thales, Leonardo, Safran, Rheinmetall, Saab, Indra and Hensoldt. The common denominator of the companies' strategies is that they have all recognised the growing importance of electronics. The companies are reacting to this partly by building up these capacities, and partly by specialisation or spin-offs.

The estimated number of jobs in the field of military electronics are only indications of a possible range and the associated amount of turnover. As electronics has a cross-sectional and linking function, most of the major EU system integrators have competences in military electronics.

In the past, there was less state ownership in this part of the military industry. However, as the decision of Germany to participate in Hensoldt shares and the role of Italy in Leonardo show, there is a growing awareness of the strategic role of electronics in defence and security policy.

The European companies offer high-quality and cutting-edge products and components in many applications such as air defence systems, radar, sonar, avionics, as well as C4I. During the last decades, many observers of the industry saw a rising importance of US companies in the field of cyber technology.

Recent mergers and acquisitions in the electronics sector

The military electronics sector experienced a number of mergers and acquisitions in several European countries. One such case is the creation of Hensoldt in Germany, which is a prime example of the complex development of the military industry in Europe. Hensoldt was formerly a sub-division in the Defence and Space part of the Airbus Group. Airbus sold it to the private equity investor, KKR, which then took the company public after a relatively short holding phase.

However, there had been extensive consolidations in the work area in this sector even before the spin-off from Airbus. Therefore, parts of companies of Dornier, MBB, Zeiss and others can be found under the Hensoldt umbrella.

Today, the company is a major supplier of radar, optronics, data processing in defence, etc., with a turnover of EUR 1.1 billion (2020). The German government holds a 25% stake of the Hensoldt company, as does the Italian defence company, Leonardo.

Hensoldt sees growing global demand for military goods in optronics, communications and data processing and focuses on a national, European and international growth strategy as a provider of sensor solutions. The company participates in the central European programmes such as FCAS, the planned battle tank, and others.

In 2020, the American private Equity company, Advent, acquired the UK company Cobham, which had a strong market position in strategic air-to-air refuelling technology for military aircraft and in military electronics for GBP 4bn. Within 18 months of the acquisition, Advent sold more than half of the Cobham business, including the refuelling sector. However, late in 2021, Advent and Cobham announced a GBP 2.57bn (USD 3.4 billion) takeover of defence firm Ultra Electronics Holdings Plc by Cobham Ltd.

Ultra Electronics Holding Plc manufactures several electronic and engineered solutions for defence and aerospace. The company has an employee base of 4,500 people and offers services in cybersecurity, tactical surveillance, and high-tech communication devices. Both companies have complementary technologies in areas such as radio communications and cybersecurity.

The transaction is part of ongoing consolidations in the UK market. For example, British aerospace and defence group Meggitt is also the subject of takeover interest by American Private equity companies.

Conclusions

The importance of electronics is growing fast in the military sector for several reasons. The following are of the utmost importance: the role of command, communication, control and intelligence in modern warfare has become dominant in recent decades. The share of these systems in all large weapons platforms such as fighter aircrafts, naval and land systems has grown to at least 30% of the total cost of the weapon system. In many cases, it is much higher. The future options for automatic battlefields will increase the importance of electronic capacities in weapon systems. New capabilities for “electronic warfare” as a military option will change at least the scenarios for those conflicts which include the use of advanced weapons systems. The innovation circles in information technologies and electronics will also lead to faster innovation circles in weapon systems.

Industry is reacting to these developments. Almost all major classical players in the industry have built up special research and production capacities in the field of electronics. At the same time, specialisation can be observed, as the example of Hensoldt shows. As a spin-off of Airbus and financed by private equity, the company is successfully listed on the stock exchange and is recording steady growth in turnover, which is largely due to worldwide acquisitions. Due to the high complexity of the systems and corresponding expenditure on research and development, a certain consolidation of the industry is also taking place, which, as in the case of Hensoldt, creates companies that are present throughout Europe and globally.

In addition to “classic” players, many civilian companies are also active in the military electronics market, particularly from the US and, especially, the so-called GAFAM (Alphabet [Google], Amazon, Meta [Facebook], Apple and Microsoft). It is extremely difficult to provide a precise definition of the sector due to the blurring of civilian and military activities, as well as the high number of small and medium-sized enterprises (SMEs). It is therefore not possible to provide any precise figures on turnover or employment.

These unclear contours and the diversity of the companies involved also pose a challenge for workers’ representation. While workers in the defence industry are usually well organised in trade unions, experience shows that representation of interests in smaller companies is weaker. Many of the large US-style tech giants are openly anti-union and reject collective agreements where possible. Therefore, it seems that networking workers’ interests between military and civilian sectors and across national borders will be one of the main tasks for trade-union work in the coming years.

III. Conclusion: Future Challenges for the European Defence Industry and Perspectives of Defence Jobs in Europe

1. Ten Take-Aways on the Present Status and Future of the European Defence Industry

1 – Expected: A Boost and a Boom

The war in Ukraine has fundamentally changed the security landscape in Europe with important decisions to invest more in the armed forces of EU and NATO countries. Military expenditure will grow in the short-term and medium-term and it can be expected that the NATO aim of spending at least 2% of the Gross Domestic Product will be surpassed in many cases. This will lead to increased procurement, resulting in growing orders for the defence industry. These higher investments in defence are not limited to Europe alone. In reaction to the war in Europe and the intensified US-Chinese competition countries in Asia have also invested in their military sector.

As a result, we expect a strong boost in military expenditure and a boom for the defence industry which will last for at least one decade.

2 – Parallel Trends: A Revival of “Traditional” Armaments and Automatisations of the Battlefield

The Russian war in Ukraine has decisively changed the perspective of manufacturers of land systems and of “traditional” armaments in two respects: firstly, the importance of land defence systems has grown as a result of the type of war being fought in Ukraine. EU countries will quickly upgrade their tank and armoured vehicles’ capacity. Secondly, the pressure on military budgets, particularly procurement budgets, is being replaced by the availability of additional funding. At the same time, development of weapon systems is characterised by ever-integrating new technologies, particularly electronics and information technologies. Autonomous and robotic warfare and collection of real-time data are likely to play an important role in the near future.

As a consequence, traditional defence producers now have a historical growth potential, but at the same time, they are being challenged to invest in new technologies and IT, failing which, they will lose ground to newcomers.

3 – Blurring Boundaries: Commercial and Military Technologies

The enormous growth in commercial electronics and information technology has led to blurring the boundaries of the defence and commercial sectors. Commercial developments are relevant for weapon systems and are increasingly applied in defence development. We can observe a spin-in of commercial technologies. Many of the large defence producers rely on commercial suppliers or have reacted by acquiring or developing specialised electronic divisions. Also, many of the big IT providers, especially in the US, are competing for defence contracts.

Therefore, the boundaries between traditional defence manufacturers and commercial manufacturers are becoming increasingly blurred, as is the case between commercial and defence technologies.

4 – Pulling in Two Directions: Growing Europeanisation and Continuation of National Interests

The EU has been struggling for decades with its role in defence matters but has in recent years increased its influence and competencies. It should be emphasised that the EU-member states do not speak with one voice in defence matters. There are differences between Nordic, East European and West European countries, not only on strategy, but also on how far the EU should have an integrated defence policy. The EU Strategic Compass aims at overcoming these different approaches. Procurement policies in European countries have traditionally been, and are still, driven by a priority for national champions. The armed forces of EU countries operate a large variety of competing types of weapon systems. Despite regular commitments to the Europeanisation of arms projects, procurement continues to largely take place in the various national countries rather than on an EU or European NATO level. The principal reasons for this are national industrial and technological policies. National interests often prevail when it comes to protecting jobs and sharing technology. The steady move towards more cooperation and continued nationalisation exist side by side.

Our conclusion: National-oriented security and defence policy in Europe is no longer a realistic option, but EU co-operation remains a slow and laborious process. Due to the war in Europe, we observe an increasing discussion on a more independent EU security and defence policy and possibly an intensified role in defence for the EU Commission.

5 – Technological Competencies: At the Forefront and Comparative Gaps

Many of the European companies have been very successful in exporting arms. This is a sign of their technological competitiveness on the world market. This is particularly the case for ships (submarines, frigates and fast patrol boats) and certain land systems. In other areas such as the fighter aircraft and helicopters, as well as in certain sectors of military electronics, European companies lag behind US companies that dominate global defence production.

This is, among others, the result of comparatively small national procurement programmes and a fragmented EU defence industrial base.

6 – Defence Industrial Base: Too Small and Too Fragmented

Twenty-five companies of a total of the global top 100 defence companies are located in Europe, compared to 41 in the US. On average, the European companies are considerably smaller than their US competitors. This is partly the result of limited demand in EU countries, but also the lack of joint projects and deficiencies in cooperation. The problem is exacerbated by continuing uncertainty about the future role of Great Britain after Brexit, which has the potential of influencing many aspects of European defence and the European arms industry. A degree of consolidation of companies has been achieved during the last two decades. However, the systematic implementation towards a common defence industrial base in Europe has repeatedly failed due to national interest.

Consequently, the structural problems of the European arms industry have not been solved. The current boost in demand is just moving the structural deficits into the future.

7 – Uneven Distribution: Location of Companies

The regional European map of arms producing companies shows a clear imbalance between East and West. The larger companies are all located in Western Europe, most prominently in France, Germany, Italy and Spain (and the UK, no longer in the EU), the countries with the highest defence budgets in Europe. Therefore, the second-tier and third-tier supplier industries are also mainly distributed in these Western European states.

We conclude, that, unless national interests are overcome, this imbalance in the location of defence manufacturers is likely to reproduce itself, which poses a hindrance to systematic EU procurement cooperation.

8 – Uncoordinated Export Policies: Increased Globalisation and Export Dependence

Given the size of the defence market in the EU, defence producers depend on arms exports to the global market. Exports have become a must for all larger defence companies to keep existing capacities occupied. At the same time, globalisation has increased because companies manufacture increasingly less in-house and rely on the supply from subcontractors all over the world. This leads to a complex landscape of supply chains and a diversified network of sub-contractors and suppliers, often in several countries. Despite several political commitments, EU arms export policies remain uncoordinated, and there is great variance in their political restrictions.

Our conclusion: EU defence producers depend on the global market. So far, national laws regulate such exports. Increasing cooperation in Europe will require common EU laws or guidelines to regulate exports.

9 – Bottleneck: Lack of Qualified Personnel and Need for Union Representation

For the purposes of adequately responding to the actual boom in defence procurement, most defence companies must employ more, and, especially, highly qualified personnel. However, such qualifications are not easily available. Trade unions are challenged by the consequences of consolidation and European solutions because they will have consequences for regional distribution and also jobs in parts of the industry. The unclear contours, the fragmentation of industry and the diversity of the companies involved also pose a challenge for workers' representation. While workers in the larger defence industry companies are usually well organised in trade unions, experience shows that representation of interests in smaller companies is weaker.

Therefore, it seems that networking workers' interests between military and commercial sectors and across national borders will become one of the main tasks for trade union work in the coming years

10 – Financial Squeeze: Can all the promises be met?

Decisions about and announcements regarding an increase in defence budgets suggest growth for the defence industry. However, there is a growing challenge to finance European policy in the defence sector due to the high deficit spending during the corona crisis and fears for an economic recession. In addition, since weapons are becoming increasingly complex, their unit cost will continue to increase.

This price development has the consequence that the quantities of weapons procured will be reduced from one generation to the next. In turn, lower production runs will lead to underutilisation of capacities or dependence on exports.

2. Analysis on the Strengths and Weaknesses, Opportunities and Threats

For the quick reader: below is a summary of the strengths and weaknesses, the opportunities and threats to the European defence industry.

Graph 16: SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Efficient industrial base in all sub-areas • Technologically at the forefront of performance in many areas worldwide • Companies with the ability to integrate systems in all sub-areas • Functioning integration with commercial industrial sectors • Special performance in submarine construction, combat aircraft, tank construction, artillery and small arms • Qualified workforce with a high proportion of engineers 	<ul style="list-style-type: none"> • Many competing types of weapon systems • Cyclically fluctuating capacity utilisation, • Limited performance due to national competition • Technological gaps vis-à-vis the USA (cyber, fighter planes, unmanned drones, automated battlefield) • Acceptance problems in some countries in the past • Financial bottlenecks in the past • Complex procurement and production due to national interests • Uncoordinated export policy • Technological dependence on the USA
Opportunities	Threats
<ul style="list-style-type: none"> • Significantly more financial means during the coming years / rising military spending • More cooperation in Europe promoted by EU programmes • More defence competences at the EU Commission • Opportunities through larger common European supplier consortia • Greater coordination of armed forces equipment and weapon systems 	<ul style="list-style-type: none"> • Not a sufficient basis for larger firms in some countries • Cost explosion due to complex coordination processes and diverging requirements • Planning without UK/Brexit • Lack of qualified specialists • Too many competing project developments • National self-interests still exist

Contact us



5 Boulevard du roi Albert II

B-1210 Brussels

info@industriAll-europe.eu

Tel: +32 2 226 00 50



5 Boulevard du roi Albert II

B-1210 Brussels

contact@syndex.eu

Tel: +32 2 219 25 41