BEYOND FRAGMENTATION?
MAPPING THE EUROPEAN DEFENCE INDUSTRY IN AN ERA OF STRATEGIC FLUX

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Abstract

Europe's arms industry is often characterised as fragmented, including by European Union institutions. This In-Depth Paper nuances this common perception based on a mapping of the five largest arms companies in each European Union member state, plus Norway and the United Kingdom. The results suggest that in many sectors and sub-regions the European arms industry is more than a collection of isolated national industrial bases. Western European arms companies offer a wider array of complex products than their Central and Northern counterparts, but Central European countries' top five firms are most active in the production of small arms and light weapons, ground platforms and hardware components. Additionally, while the arms industry in Central Europe appears isolated from the rest of the continent, purely national industrial bases no longer exist in Western or Northern Europe. Overall, the underdeveloped industrial ties with Central Europe appear as an obstacle to further the Europeanisation of the sector.

Introduction

In 1997, the European Commission began lamenting the fragmentation of the European arms industry: 'faced by increasingly fierce competition from the US and falling demand, the European defence-related industry is at present too fragmented to be sustainable'.[1] By 2022, the fragmentation of the arms industry in Europe was still high on the agenda of European Union (EU) institutions. As stated in the Joint Communication on the defence investment gap analysis: '[t]he EDITB [European Defence Industrial and Technological Base] remains highly fragmented […] This greatly reduces its ability to improve its competitiveness through pooling of R&D [Research and Development] and economies of scale in production'.[2]

Despite their similarities, these statements were made 25 years apart in two very different contexts. European military spending was declining in 1997, whereas it was rising in 2022.[3] In 1997, European policymakers were managing cuts in the arms industry. In 2022, increases in military spending carried – and still carry – the risk of inefficient spending. Public funds are urgently needed in other policy areas. Thus, as long as demand for arms remains high, European leaders should at least ensure that military budgets are spent as efficiently as possible. A more Europeanised arms industry could help to reduce wasteful spending and avoid a duplication of efforts.[4]

Increases in military spending in the wake of Russia's fully-fledged invasion of Ukraine in February 2022 also sparked concerns in Brussels that uncoordinated investments would deepen industrial fragmentation. This argument could be found in the European Commission's proposal for a regulation establishing the 'European Defence Industry Reinforcement through common Procurement Act' (EDIRPA).[5] This initiative, tabled in the summer 2022, entered inter-institutional negotiations in the spring of 2023. For the purpose of this In-Depth Paper, *fragmentation* refers to the competitive nature among arms companies that primarily operate within their respective national frameworks, in contrast to *Europeanisation,* whereby companies in different European countries cooperate to develop joint programmes. Europeanisation, as used here, stops short of *consolidation*, which supposes the creation of integrated trans-European companies, notably through mergers and acquisitions.

This In-Depth Paper intends to add nuance to the idea of a fragmented European arms industry, and it does so based on an analysis of the product portfolios of, and relationships between, the five largest arms manufacturing and services companies ("top 5 arms companies", for short) in each EU member state plus Norway and the United Kingdom (UK) for the year 2020. The results suggest that the European arms industry is less fragmented than it is usually considered to be, although this varies between sectors and the subregions considered: Central, Northern and Western Europe.[6]

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[1] European Commission, "Strategy for the survival of the European defence industry", 14 November 1997, https://cordis.europa.eu/article/id/9338-strategy-for-the-survival-of-the-european-defence-industry.
[2] "Joint Communication on the Defence Investment Gaps Analysis and Way Forward", 18 May 2022, p. 5, https://commission.europa.eu/system/files/2022-05/join_2022_24_2_en_act_part1_v3_1.pdf.
[3] See the Stockholm International Peace Research Institute military expenditure database, https://milex.sipri.org/.
[4] This line of argument transpires from the legislative documents supporting the European Defence Industrial Development Programme (EDIDP) and its successor instrument the European Defence Fund (EDF). See: European Commission, "Proposal for Regulation establishing the European Defence Industrial Development Programme aiming at supporting the competitiveness and innovative capacity of the EU", 7 June 2017, https://ec.europa.eu/docsroom/documents/23606; and "Regulation establishing the European Defence Fund", 29 April 2021, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0697).
[5] European Commission, "Proposal for a regulation on establishing the European defence industry Reinforcement through common Procurement Act", 19 July 2022, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022PC0349: p. 1 and 7.
[6] See the methodological note for the countries in each subregion.

Methodological note

This In-Depth Paper relies on a mapping of the top 5 arms manufacturing and services companies in each of the EU member states (excluding Cyprus and Malta), Norway and the UK for the year 2020. The mapping was conducted for a research project on behalf of the European Commission's Directorate-General for Defence, Industry and Space (DG DEFIS).

The study employed a data-collection process and definitions similar to SIPRI's annual "Top 100" arms industry database[7]. Companies are ranked by the level of arms sales: that is, revenue generated from the sale of goods and services specifically designed or modified for military purposes. However, unlike the SIPRI Top 100, subsidiaries and their sales are attributed to the host country rather than the country where the group has its headquarters. For instance, Swedish subsidiaries of BAE Systems – which is headquartered in the UK – are included in the Swedish top 5. "Trans-European" companies – Airbus, MBDA and KNDS – are broken down into their national subsidiaries.

The sectoral classification – taxonomy – was designed in 2016. The sectoral analysis comes with caveats. While it identifies all the sectors that a country's top 5 firms are active in, it does not reflect the scale of that activity. Companies' revenues are rarely broken down into sectors and higher arms sales directly reflect on all the segments the company is involved with, no matter the share. Similarly, all companies involved in a sector are considered equal, irrespective of how modern or otherwise their production systems and products may be. Combined with the first factor, this means that a highly specialised company at the cutting edge of its sector might not make it into the study. The assignment of companies' activities into sectors relies on subjective assessments of companies' portfolios, and thus lacks the rigour that a Standard Industry Code (SIC) or Nomenclature of Economic Activities (NACE) would carry, if they existed.

The subregional division in this In-Depth Paper is:

Subregion	Country
Western Europe	Austria, Belgium, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and the United Kingdom.
Central Europe	Bulgaria, Croatia, Czechia, Hungary, Poland, Romania, Slovakia and Slovenia.
Northern Europe	Denmark, Estonia, Finland, Latvia, Lithuania, Norway and Sweden.

Diversification or specialisation?

Breaking arms industry activities down into 19 sectors in six broad categories (see Table 1.1 below), this In-Depth Paper identifies which sector(s) each European country's top 5 arms companies were active in during 2022. To compare the activities of companies in different parts of Europe, this section explores how many sectors each company was engaged in. Each company was assigned to one or more sectors according to its products and services. On average, European companies work in 4.3 sectors. Overall, the subsectors where most European companies were active in 2022 are services, other military equipment and military consumption materials (e.g. ammunition and fuel).

[7] See: https://www.sipri.org/databases/armsindustry

Although Central and Northern Europe together include 15 countries and Western Europe only 12, on average Western Europe has almost as many companies per sector as the other two combined (14.6 versus 16.2). This means that the top 5 arms industries in Western Europe cover a larger number of sectors (i.e. are more diversified), on average, than their Central and Northern European peers. Notably, companies in the six countries that signed the 2000 'Letter of Intent' on restructuring the European arms industry – France, Germany, Italy, Spain, Sweden and the UK[8] – top each of the 19 sectors when measured by arms sales.

Table 1.1 – Taxonomy for arms industry activities

Categories	Sectors
1. Integrated platforms	1.A Air platforms 1.B Ground platforms 1.C Naval platforms 1.D Missiles 1.E Space platforms 1.F Systems of systems
2. Subsystems and equipment	2.A Air equipment or subsystems 2.B Ground equipment or subsystems 2.C Naval equipment or subsystems 2.D Missile equipment or subsystems 2.E Communication systems 2.F Space equipment or subsystems 2.G Personal equipment 2.H Small arms and light weapons
3. Components	3.A Components (e.g. sensor components, computer components) 3.B Hardware components (e.g. armour components, special materials)
4. Other military equipment	
5. Military consumption materials	
6. Services	

There are disparities, however, within Western Europe. The number of sectors per company ranges from the relative niche capabilities of the top 5 companies in Luxembourg (1.2 sectors on average), Ireland (1.6) and Austria (2.8) to the wide diversification of French (8.8 sectors), UK (8.6), German (7.4) and Italian companies (6.2). This gap becomes particularly stark in sectors involving especially complex platforms and subsystems such as space, where Western Europe -mainly driven by France – Airbus,

[8] UK Government, "Letter of Intent: restructuring the European defence industry", 4 April 2015, https://www.gov.uk/guidance/letter-of-intent-restructuring-the-european-defence-industry#related-information.

Dassault, Safran, Thales – and the UK – BAE Systems, Leonardo, Serco – host the vast majority of the European top 5 companies working in this field. Similarly, Western Europe accounts for the largest share of top 5 companies working on air, ground and naval equipment or subsystems and in the naval platforms sector. Western Europe also hosts the largest shipbuilding companies, including Babcock, BAE Systems, Fincantieri, Naval Group, Navantia and ThyssenKrupp.

Northern Europe, which includes both Nordic and Baltic states, is slightly below the average for the range of sectoral coverage (3.9 sectors per company). Whereas in Nordic countries a small number of large firms and their subsidiaries manufacture a wide array of products and services, Baltic companies are specialised in surveillance and communication systems, sensors and Information Technology (IT) components. Nordic countries are particularly active in the naval equipment or subsystems sector through larger firms such as Kongsberg, Saab, Terma and Volvo, along with local subsidiaries of the UK-based BAE Systems and France's Thales. Expertise in air equipment or subsystems involves Kongsberg, Patria, Saab and Terma, along with subsidiaries of GKN (UK) and Thales. Northern Europe hosts the highest concentration of top 5 companies per country working on missile equipment or subsystems, spearheaded by Kongsberg, Nammo and Saab.

More than half of the companies studied that are involved in the small arms and light weapons sector were based in Central Europe – particularly Bulgaria, where Arcus, Arsenal and Kintex all specialise in this sector.

While Central and Western Europe each host 12 out of the 28 European top 5 companies working in the ground platforms sector, when related to the size of the subregions, Central Europe stands out, being proportionately more involved in the sector. The same pattern is seen in the concentration of companies working in the missiles sector, a primacy granted to Central Europe by the Western European reliance on MBDA, a trans-European company that, broken down into its national subsidiaries, is often dwarfed by other companies.

Despite the overall greater diversification of companies in Western Europe, Poland is the only country where the top 5 companies cover all 19 sectors; this is chiefly due to the broad portfolio of the state-owned PGZ group and the presence of subsidiaries of several major Western European and US arms companies – Lockheed, Leonardo, Thales, and Airbus.

Overall, Western European lead contractors are present in a wider number of sectors than their Central European counterparts, which are more focused on less technology-intensive sectors such as small arms and light weapons or hardware components. Northern Europe hosts diversified groups such as Saab, while Baltic firms specialise in the communication and IT components sector. Subregional specialisations could be seen as complementarity when looking at the overall European arms industry.

The 'spaghetti bowl' of the European arms industry

Arms production remains overwhelmingly located in the six Letter of Intent signatories. These six countries accounted for 90% of the aggregated arms sales of all the companies considered in our analysis. The seventh largest country in terms of sales by its top 5 arms companies was Poland, although it accounted for only 2% of the total sales. However, this imbalance masks complex ties between subregions: larger firms based in the Letter of Intent signatories such as Thales, Airbus and

Rheinmetall have large footprints in other European countries than in those where they have their headquarters (see Table 2.1).[9]

Table 2.1. Number of company subsidiaries present in other countries' top 5s (2020)

Company	HQ country[a]	Extra-territorial subsidiaries included in the study
Thales	France	10
Airbus	Trans-European	3
Melrose Industries(GKN)	UK	3
Nammo	Norway	3
Rheinmetall	Germany	3
Leonardo	Italy	2
Patria	Finland	2
BAE Systems	UK	1
Czechoslovak Group	Czechia	1
Damen	Netherlands	1
Saab	Sweden	1
Safran	France	1
Total		**31**

[a] HQ country refers to the country in which the ownership and control structures of the company are located, i.e. the location of the company's headquarters.

Thales is the most Europeanised company according to our findings, with 10 subsidiaries among the top 5 arms companies of European countries other than France. This matches the findings of an earlier study on the internationalisation of arms companies, where Thales already had the highest number of foreign subsidiaries.[10]

[9] The companies analysed may have had more subsidiaries in a wider range of countries: however, these subsidiaries were not large enough to be included in the top 5 of the host country. For instance, Rheinmetall's acquisition of Expal in Spain in 2022 and its opening of an ammunition factory in Hungary in 2023 would not have been captured in the analysis.

[10] Béraud-Sudreau L., *et. al*., "Mapping the International Presence of the World's Largest Arms Companies", SIPRI Insights on Peace and Security, December 2020, https://www.sipri.org/publications/2020/sipri-insights-peace-and-security/mapping-international-presence-worlds-largest-arms-companies.

Table 2.2. Subsidiaries of foreign groups present in Western European countries' top 5s

Company	HQ country[a]	Other European country with a subsidiary of the company among its top 5 in 2020	Share of arms sales in the country's top 5
Leonardo	Italy	UK	5.4%
Thales	France	Austria	4.2%
Thales	France	Belgium	9.2%
Thales	France	Netherlands	18%[b]
Thales	France	Portugal	8.3%
Safran	France	Belgium	13%
Rheinmetall	Germany	Austria	58%
Rheinmetall	Germany	Netherlands	n.k.[b]
Melrose Industries (GKN)	UK	Netherlands (Fokker/GKN)	25%[b]
Patria	Finland	Belgium (Belgium Engine Center)	6.0%
Nammo	Norway	Ireland	0.4%

[a] HQ country refers to the country in which the ownership and control structures of the company are located, i.e. the location of the company's headquarters.

[b] For the Netherlands, the relatively high share is due to a lack of data for all top 5 companies.

From a country perspective, Table 2.2 shows that the arms industry of some of the smaller Western countries relies to some extent on the development of cross-border industrial ties: Austria's top 5 arms companies include two subsidiaries of larger groups based in other countries, and these two accounted for more than 60% of the arms sales of the Austrian top 5. Belgium and the Netherlands each had three subsidiaries of foreign groups in their top 5s, accounting, respectively, for 28% and more than 40% of the top 5s' arms sales.

Central Europe's arms industry is much more isolated from Western firms' investments and local entities and appears under-represented in cross-border defence-industrial ties. Effectively, Table 2.3 shows that the larger players only have important subsidiaries in Poland and Romania, and limited investments in other Central European countries. Three out of five of Poland's largest arms firms are subsidiaries of Western European companies – Leonardo, Airbus, and Thales –, the other two being the domestic defence conglomerate PGZ and a subsidiary of United States-based Lockheed Martin: PZL Mielec. This indicates the importance of domestic market size as a "magnet" for the larger firms to invest in local subsidiaries. The Stockholm International Peace Research Institute (SIPRI) estimates that in 2022, Poland had the sixth highest military expenditure of any country among European NATO members.[11]

Conversely, there were no Central European firms' subsidiaries in other subregions' national top 5s, and only one within the subregion: the Czechia-based Czechoslovak Group's subsidiary MSM Group in Slovakia.

[11] Tian, N., et. al., "Trends in World Military Expenditure, 2022", SIPRI Fact Sheet, April 2022, https://www.sipri.org/sites/default/files/2023-04/2304_fs_milex_2022.pdf.

Table 2.3. Company subsidiaries present in Central European countries' top 5s

Company	HQ country[a]	Other European country with a subsidiary of the company among its top 5 in 2020	Share of arms sales in the top 5
Leonardo	Italy	Poland	7.9%
Airbus	Western Europe	Poland	5.7%
Airbus	Western Europe	Romania	18%
Thales	France	Poland	6.4%
Thales	France	Romania	25%
Damen	Netherlands	Romania	15%
Czechoslovak group	Czechia	Slovakia	15%

[a] HQ country refers to the country in which the ownership and control structures of the company are located, i.e. the location of the company's headquarters.

A third key finding is the network of ties at the subregional level in Northern Europe, as shown in Table 2.4. While German and French companies own some of the large subsidiaries in this region, the subregional ties are also quite significant, with Nammo, Saab and Patria operating in neighbouring countries. This is also the subregion where UK companies are the most present, which for instance explains why some of these countries are among the most vocal when it comes to keeping open rules of procurement for non-EU allies such as for the European Defence Fund (EDF).

Table 2.4. Company subsidiaries present in Northern European countries' top 5s

Company	HQ country[a]	Other European country with a subsidiary of the company among its top 5 in 2020	Share of arms sales in the top 5
BAE Systems	UK	Sweden	8.7%
Airbus	Western Europe	Finland	11%
Thales	France	Denmark	4.6%
Thales	France	Finland	4.5%
Thales	France	Latvia	4.0%
Thales	France	Norway	1.8%
Rheinmetall	Germany	Norway	1.6%
Saab	Sweden	Denmark	6.0%
Melrose Industries (GKN)	UK	Norway	4.2%
Melrose Industries (GKN)	UK	Sweden	6.4%
Patria	Finland	Estonia	11%
Nammo	Norway	Finland	7.2%
Nammo	Norway	Sweden	1.3%

[a] Country refers to the country in which the ownership and control structures of the company are located, i.e. the location of a company's headquarters.

Conclusion

Arms production remains overwhelmingly located in the six signatories of the 2000 Letter of Intent. The differences are not only in the size of national arms industries. They also lie in the focus of production. Larger Western European firms are active in all domains – air, ground, naval, missile and space –, whereas Central European companies are more specialised. These differences could be seen as complementary strengths.

Additionally, cross-border links are much more present in Western and Northern Europe than in Central Europe. Previous studies have noted that the Central European arms industry has little engagement with the Western European industry and concluded that the Western European defence markets and supply chains are hard to access for Central European companies. Our findings confirm this, but show that the reverse is not true: Central Europe hosts many subsidiaries of arms companies from other subregions.[12] Still, the less developed industrial ties with Central Europe could be an obstacle to further Europeanisation of the sector.

Overall, our research adds some nuance to the predominant view on the fragmentation of the European arms industry. However, being a one-year snapshot, it cannot track whether this fragmentation has increased or reduced over time. A future study looking at a longer period could deepen our understanding of the state of the European arms industry and industrial cooperation. A mapping including the activities of SMEs is also crucial, as they are usually hidden by the size of major companies even though they play a major role in supply chains and innovation. Producing a set of SIC or NACE codes to categorise the economic activities within the arms industry would also provide much-needed standardisation for sectoral mapping.

The European Commission currently is trying to develop new instruments incentivising member states to pool procurement, notably through EDIRPA and the Act in Support of Ammunition Production (ASAP). More harmonised demand and the development of major joint armament programmes are a means to drive further Europeanisation of the industry. Other instruments such as the European Defence Fund also seek to foster the Europeanisation of supply chains. The tragic events in Ukraine brought this long-standing issue back to the top of the political and industrial agenda – only a continuous and consistent mapping of the European arms industry will allow to evaluate whether these efforts will bear fruit.

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[12] European Defence Agency, "Balanced access to the European defence technological and industrial base – Central and Eastern European Countries", December 2013, https://eda.europa.eu/what-we-do/all-activities/activities-search/balanced-defence-industry-in-europe.

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