conseil d'analyse économique
French Council of Economic Analysis

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Rearming Europe: Meeting The Challenge Of Economic Integration And Innovation

Les notes du conseil d'analyse économique, No 88, March 2026

Europe currently faces a severely degraded strategic environment, marked by high-intensity conflict in Ukraine, hybrid operations, and economic coercion. As American security guarantees erode, the accumulation of these threats is pushing Europeans to reinvest in their defence capabilities after three decades of harvesting the peace dividend. Having bottomed out at 1.3% of GDP in 2015, EU member states' defence spending is recovering and approaching an average of 2% in 2025 — the longstanding NATO minimum (formalised in 2014) — with a target now set at 3.5% by 2035. Comparable to the effort sustained during the Cold War, this ambitious objective represents at once a cost, a challenge, and a strategic opportunity. This Note explores the situation with a focus on defence equipment and innovation, notwithstanding the scarcity of available data in what remains a central domain of public policy.

The rearmament effort, set to unfold over the long term, raises major economic challenges. It first raises the question of European strategic and industrial autonomy, given that approximately one third of arms procurement comes from third countries. It also highlights the challenge of closing the technological gap with the United States and China in key domains such as artificial intelligence, semiconductors, quantum technologies, space, and sensor and electronic warfare systems. It further raises the question of European integration: the fragmentation of national markets generates excess costs, limits equipment interoperability, and hampers innovation. Finally, the rearmament effort invites scrutiny of the share devoted to defence research and development (R&D), which generates spillovers in terms of innovation and growth well beyond the strictly military sphere.

The economic opportunities offered by rearmament will not materialise on their own. A change in policy is needed to maximise the return on the budgetary effort engaged. Two priorities stand out. The first is to stimulate investment and innovation by opening up a highly oligopolistic arms market to new entrants. This requires locking in defence budgets at around 3.5% of GDP by 2035, accompanied by rigorous evaluation of armaments and operational maintenance contracts and ensuring fair value-sharing between prime contractors and subcontractors. The second priority is to make greater use of the European scale to strengthen strategic autonomy — by reinforcing joint procurement, lifting barriers to intra-Community transfers, increasing the share of R&D in European defence investment, and launching common armament programmes of a public-good character.

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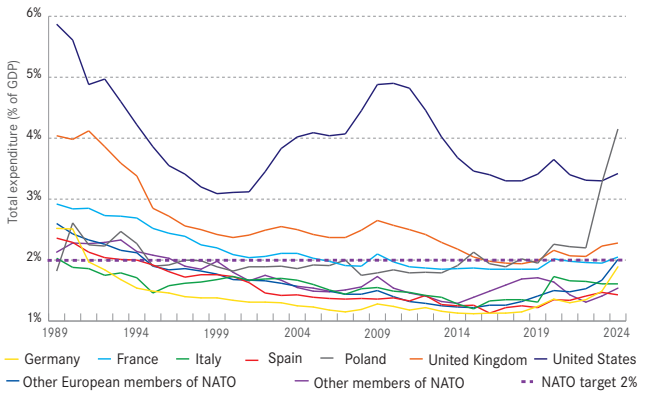
European rearmament: a fragmented effort

European states have embarked on a rearmament effort that, within a five-to-ten-year horizon, is likely to improve their security, reinforce their strategic autonomy, and support key industrial sectors. In the meantime, dependence on the United States remains very strong. The defence organisation of EU member states, integrated into NATO's command and planning structure,[1] relies heavily on American command, intelligence, and logistics capabilities, as well as on the American nuclear umbrella.

Military equipment: europe's "grey debt"

Unlike most public goods, defence efforts are subject to very wide fluctuations over time, with limited spending in peacetime (below 3% of GDP) and rapid, massive build-ups in the event of major confrontation (30% to 50% of GDP or more, depending on the belligerents, during the two World Wars; 34% today for Ukraine, according to the Stockholm International Peace Research Institute, SIPRI). Even if it is logical to vary military budgets in response to threats, a degree of stability over time is necessary to maintain the expected deterrent effect. NATO's standards – a minimum budget of 2% of GDP, of which at least 20% is devoted to investment and innovation – were conceived with this in mind. Relative to these standards, European states under-invested in their defence from the 1990s onwards. The gap is even more significant when measured against the new 3.5% target and against American spending levels (Chart 1).

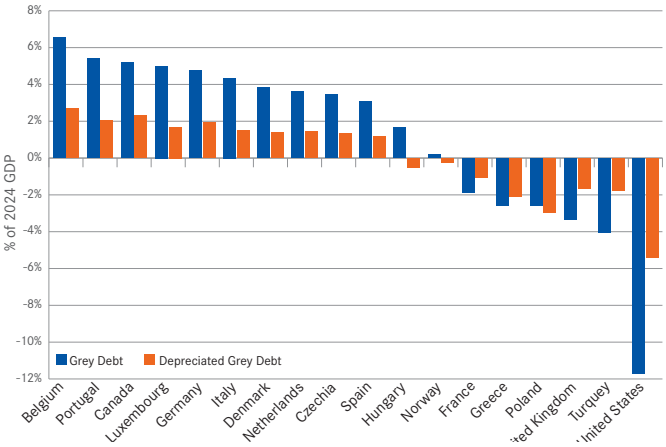
Chart 1. Military expenditure as a percentage of GDP – Comparison against a 2% target



Two elements temper this observation. First, within reduced overall budgets, Europeans maintained an investment share of close to 20%. France, for its part, kept its investment share above 20%, a level sufficient to avoid accumulating a grey debt in equipment – that is, an investment shortfall leading to a progressive deficit in military equipment relative to NATO requirements.

The second point concerns equipment obsolescence: a tank or helicopter acquired thirty years ago is today declassified or on the verge of being so. When conventional depreciation is taken into account, the capacity grey debt – which seeks to estimate the capability deficit resulting from past under-investment – is lower than the budgetary grey debt (Chart 2).[2]

Chart 2. Equipment grey debts relative to NATO standards



Note: This chart measures the cumulative lag in investment in defence equipment relative to the NATO target of 2% of GDP, of which 20% is devoted to equipment, i.e. 0.4% of GDP (20% × 2% of GDP). The budgetary grey debt corresponds to the cumulative sum, over the entire period, of the annual gaps between actual equipment spending and the theoretical target of 0.4% of GDP. To construct the capacity grey debt, which accounts for the natural depreciation of military capital, the gaps are conventionally weighted by a geometric depreciation factor of 8% per year.

Reading note: Germany's budgetary grey debt in defence equipment represents 4.7% of its 2024 GDP, against 1.9% for the capacity grey debt (depreciated). France has a budgetary grey surplus of 1.9% of GDP (it has spent more than the minimum standard) and a capacity grey surplus (depreciated) of 1.1%.

Sources: Authors' calculations, SIPRI, NATO, World Bank.

Finding 1. Although post-Cold War European defence budgets fell below NATO's 2% of GDP threshold, the grey debt in military equipment remains limited. A minimal floor of investment was preserved within reduced budgets. Moreover, some of the equipment not acquired at the time would today be obsolete.

* The authors wish to thank the CAE permanent team for their work in supporting this *Note*, in particular Claudine Desrieux (Scientific Adviser), Antoine Lopes (Research Officer), and Claire Lanvin, Chloé Ménard, and Diego Renaud (Research Assistants).

1. Austria, Ireland, Cyprus, and Malta are the only EU member states not belonging to NATO, a status to which they are not aspiring.

2. With the exception of Poland, Norway, and Hungary, which have recently increased their military equipment investment very significantly.

A rapid rearmament partly oriented towards imports

Since 2022, European states have embarked on a clear upward trajectory in their military budgets. Rearmament has been driven primarily by higher equipment procurement. The share of equipment credits in total defence budgets rose from below 20% in 2018 to 33% in 2025 (European Defence Agency). The European market for military equipment is thus projected to grow from €47bn in 2014 to €256bn by 2035.[3]

This average trend conceals marked heterogeneity across Europe: very large efforts in Germany, Poland, and the Scandinavian states; very limited efforts in Spain and Italy; with France and the United Kingdom in an intermediate position.

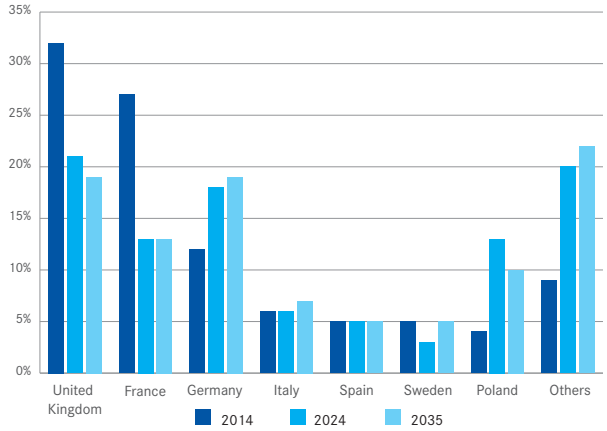
Germany has committed to a massive budgetary effort and is pursuing an industrial strategy aimed at becoming the pivot of transatlantic cooperation and the integrator of certain European industrial segments.[4] While the country spent €12bn on military equipment in 2023, this figure is projected to triple to €34bn by 2029.[5] Energised by this favourable context, the German firm Rheinmetall is emerging as a major new European player, alongside other companies already operating at European scale such as the MBDA consortium or France's Thales.

Poland, whose budgetary effort has likewise been substantial (from €6bn in 2022 to €21bn in 2025), is deploying a mixed industrial strategy combining American procurement with cooperation with South Korea to develop its own national industry.

The share of each state in total European equipment spending (including the United Kingdom) has been profoundly altered as a result. France's contribution fell from 26% in 2014 to 14% in 2024, a level at which it is expected to stabilise in the years ahead (Chart 3).

The historically low level of equipment budgets, while not generating a significant grey debt, has nonetheless left industrial traces. Capacities were trimmed to meet lower demand. This is the case in France, where industrial players were particularly incentivised to adjust their production capacity since most armament programmes were revised downward relative to initial ambitions.[6] Today, the expansion of industrial production capacity is constrained by political instability and the resulting lack of budgetary visibility, by the scarcity of expertise in certain key domains – notably drones and ground-based air defence – and by difficulties in recruiting qualified personnel. Further upstream, European states have under-invested in R&D and have consequently accumulated a lag in the mastery of digital and AI technologies. To cope with immediate needs, they are sharing their rearmament effort between orders placed with their national industries and with the United States, without adequately taking the European dimension into account.

Chart 3. Evolution of military equipment spending in 2014, 2024, and projected to 2035, as a percentage of total European spending (including the UK)



Reading note: In 2014, French military equipment spending represented 26% of European spending, against 14% in 2024 and at the 2035 horizon.

Scope: European NATO member states.

Sources: Authors' calculations, SIPRI, NATO, IMF, Eurostat, IFS (2025).

There are no statistics directly indicating the share of imports in public equipment procurement in Europe. Cross-referencing several statistical sources (Eurostat, SIPRI, American Foreign Military Sales, and the Kiel Military Procurement Tracker) nonetheless allows three broad trends to be identified. Europe imports one third of its equipment. These imports originate primarily from the United States: according to SIPRI, the American share of total European imports (including intra-EU) increased from 41% between 2015 and 2019 to nearly 53% between 2020 and 2024.[7] Intra-European trade in military equipment remains low (Chart 4).

[3] Amounts in this section are expressed in 2025 euros. Projections beyond 2025 are based on IMF GDP growth forecasts, on the share of spending devoted to equipment as observed in 2025 (except for Germany and Denmark, where the observation year is 2024), and on a military spending level of 3.5% of GDP in 2035, except where a country has explicitly announced a different target or faster timetable: IFS (2025): UK defence spending: composition, commitments and challenges.

[4] See Wolf F. (2025): "Die Bundeswehr wird in den nächsten 12 Monaten Ausrüstungsbestellungen im Wert von 83 Mrd€ aufgeben", Meta Defense, 23 September.

[5] This figure rests on a conservative assumption: in the absence of 2025 data on the share of German defence spending devoted to equipment, this is assumed unchanged from 2024, where it was relatively low (21%) compared to other European countries.

[6] French Court of Auditors (2010): La conduite des programmes d'armement.

[7] SIPRI (2024): Trends in international arms transfers.

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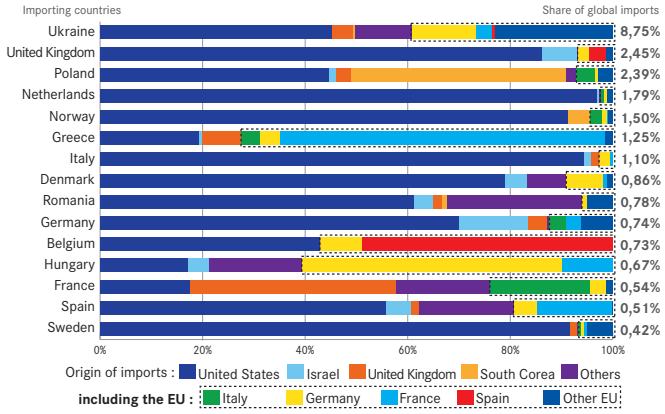
Chart 4. Distribution of arms imports among the largest European importers (2020–2024 average)



Reading note: 40% of France's arms imports originate from the United Kingdom, 20% from Italy, 17% from the United States, 3% from Germany, and 18% from the rest of the world. France accounts for 0.54% of global arms imports.

Source: SIPRI.

Furthermore, Europe's economic dependence runs deeper than arms import figures alone suggest. Upstream in the value chain, the EU depends on external suppliers for 97% of 27 raw materials identified as critical.[8] Europe also controls less than 10% of global semiconductor production.

> **Finding 2.** One third of European military equipment is imported. More than half of these imports originate from the United States. In addition, the European defence industry remains largely dependent on American digital technologies and imported critical materials.

In a context where Europe depends heavily on the United States, France stands out as an exception: American imports account for only 17% of its total imports, which are themselves modest.[9] France follows a distinctive trajectory, shaped by a commitment to strategic autonomy underpinned by a broad-spectrum, high-calibre national industry that performs strongly in export markets. France thus ranks second globally among arms exporters, with a 9.4% market share. Its equipment is high-performing, often battle-tested, and subject to fewer restrictions on use and re-export than American equipment, which is governed by strict rules limiting both usage and re-transfer.

That said, France is insufficiently positioned to benefit from the rise in European equipment budgets. Its defence industrial and technological base is sized to meet France's specific needs, particularly in the areas of nuclear deterrence and external operations. It is characterised by a strong state presence — as customer but also as shareholder (a legacy of a tradition of state arsenals, at odds with the German private firms operating for the global market) — and is therefore less attuned to the market and to the needs of its European neighbours. Indeed, with 5.3% of imports, France is only the third-largest arms exporter to Europe, far behind the United States but also behind Germany (6.8% of imports).

> **Finding 3.** France is the world's second-largest arms exporter. Primarily positioned in global export markets, it struggles to establish itself in European markets.

A costly rearmament in a fragmented european market

From the origins of European integration, the armaments sector has benefited from a derogatory regime with respect to the rules of the single market, enshrined in Article 223 of the Treaty of Rome — now Article 346 of the Treaty on the Functioning of the European Union (TFEU). In practice, this provision allows member states to exempt their defence industries from ordinary competition and free movement rules, as well as from public procurement rules and, in certain cases, from state aid control — though the Court of Justice of the EU has placed some limits on this exemption.[10]

As a result, military equipment markets have remained national, with each state following its own industrial trajectory. Countries such as Germany, Sweden, Italy, and Spain, while also buying American, have built high-level national industries in certain segments. Eastern European states, having joined NATO after the fall of the Berlin Wall and generally lacking a high-level arms industry, have relied primarily on American equipment. Only France and the United Kingdom have pursued industrial strategies driven by a logic of strategic autonomy.

In this context, the only way to achieve economies of scale in Europe is to participate in common programmes — France has been an active participant in such cooperation.[11] However, member states have remained well short of the collaboration targets they set for themselves: the share of research and technology (R&T) programmes conducted jointly stands at around 10%, against a target of 20%; the value of common

8. See Voir-Perraud D. (2019): "La criticité des matières premières stratégiques pour l'industrie de défense", *IRSEM Study* No. 72.

9. France does not figure among the ten largest European importers. In 2022, French imports of war materials and related products are estimated by the Ministry of Defence at €3.5bn: "L'excédent commercial lié aux matériels de guerre se contracte en 2022", *Ecodef Statistiques* 240, 2024.

10. While it authorises member states to take "such measures as they consider necessary for the protection of the essential interests of their security" in relation to the production or trade in arms, munitions, and war material, the Agusta (Italy) C-337/05, "Tiltable turntable"/InsTiimi (Finland) C-615/10, and Österreichische Staatsdruckerei C-187/16 rulings illustrate thestrict jurisprudential position of the CJEU: Article 346 does not constitute an automatic exemption, but a circumscribed exception, justified only for specialised military equipment.

11. Desrieux C., Lopes A. and Ménard C. (2026): "Industrie de la défense en Europe: fragmentation, coopération et gouvernance", *Focus du CAE* No. 126, March.

armament programmes covers only 18% of equipment procurement, against a target of 35%.[12]

The implementation of such programmes continues to be hampered by three fundamental obstacles. First, military requirements differ from country to country and tend ultimately to accumulate rather than converge towards a less costly common solution. Second, studies, intellectual property, and production are often distributed according to considerations of "geographic return" – i.e. in proportion to partner countries' financial contributions – rather than industrial efficiency. Third, the implementation of politically agreed programmes sometimes runs into fierce industrial rivalries, as illustrated by the ongoing tensions surrounding the Future Combat Air System (FCAS) and the Main Ground Combat System (MGCS) projects.

This absence of market integration results in a profusion of variants in some capability segments and capability gaps in others, such as ground-based air defence. EU member states use 98 types of major weapons systems, compared with only 18 for the United States.[13] Compared to the United States, Europe has three multi-role aircraft programmes against one, seven tank models against one, nine howitzer models against two, and seven infantry fighting vehicles against two. Although certain equipment, such as conventional submarines, shows a degree of standardisation around a few dominant platforms, such diversity increases not only acquisition costs but also the total cost of ownership of weapons systems, making any pooling of supply chains, logistics, and maintenance difficult.

> **Finding 4.** With five times as many major weapons systems as the United States, the European military equipment market remains highly fragmented, undermining economies of scale and inflating production and maintenance costs.

An insufficient R&D effort

Defence spending has a far higher R&D content than other categories of public expenditure, making it a natural driver of innovation and productivity across the broader economy (see Box 1). Europe has under-invested compared to the United States: the cumulative military R&D spending of EU member states reached €13bn in 2024 (Chart 5), far below the American defence R&D budget of approximately $84bn in 2022.[14] Europe has not launched any ambitious innovation projects in the recent period; the major innovation programmes of relevance to defence – such as Ariane or Galileo – now date back many years.

Box 1. The economic returns of defence spending

The empirical literature has sought to assess the medium-term impact of variations in military spending. Ramey [(a)] estimates a fiscal multiplier – i.e. the increase in GDP in dollars for an additional dollar of military spending – of between 0.6 and 1.2 over five years for the United States over the period 1939 to 2008. Other work, such as that by Nakamura and Steinsson [(b)], finds a more marked effect at the local level in the United States between 1966 and 2006, with multipliers of close to 1.5 over two years. The heterogeneity of results reflects the fact that returns depend greatly on the composition of spending. Defence R&D has the most significant impact on innovation, productivity, and long-term growth, for two reasons.

The first concerns the complementarity between public military R&D and private R&D. Moretti et al. [(c)], studying OECD countries between 1987 and 2009, estimate that a 1% increase in public military R&D leads to a 0.5% increase in private R&D.

The second concerns the broader macroeconomic returns of major programmes. Drawing on American defence spending data since 1890, Antolin-Diaz and Surico [(d)] estimate the fiscal multiplier of military spending at between 1.7 and 2 over a fifteen-year horizon. This effect is driven primarily by the R&D content of such spending, and in particular by major programmes (Manhattan, Apollo, Strategic Defense Initiative) and by the central role of the Defense Advanced Research Projects Agency (DARPA). This finding reflects notably the impact on economic growth of major breakthrough technologies originating in the military sphere – radar, nuclear energy, GPS, and the internet.

[(a)] Ramey V. A. (2011): "Identifying government spending shocks: It's all in the timing", *The Quarterly Journal of Economics*, 126(1), 1–50.

[(b)] Nakamura E. and Steinsson J. (2014): "Fiscal stimulus in a monetary union: Evidence from US regions", *American Economic Review*, 104(3), 753–792.

[(c)] Moretti E., Steinwender C. and Van Reenen J. (2025): "The intellectual spoils of war? Defense R&D, productivity, and international spillovers", *Review of Economics and Statistics*, 107(1), 14–27.

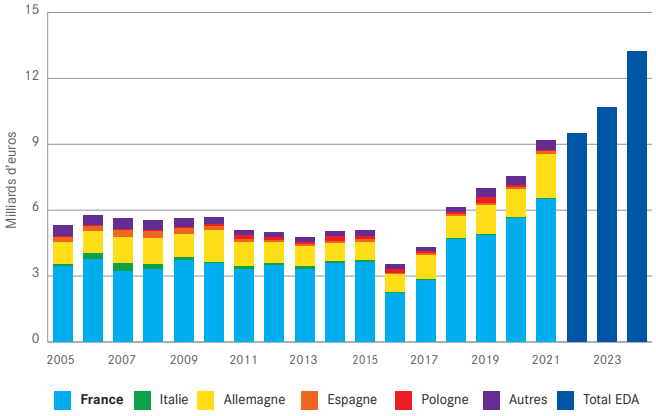
[(d)] Antolin-Diaz J. and Surico P. (2025): "The long-run effects of government spending", *American Economic Review*.

[12] European Defence Agency (2025): Defence data 2024–2025.

[13] Olsson P. (2021): "The European Defence Market – Unevenly Fragmented", FOI Memo 7730, FOI, Swedish Defence Research Agency. Desrieux C., Lopes A. and Ménard C. (2026): ibid.

[14] National Science Foundation (2024): Analysis of Department of Defense Funding for R&D and RDT&E in FY 2022.

Chart 5. Military R&D spending by members of the European Defence Agency (€bn)



Note: From 2022 onwards, only aggregate data are available. The United Kingdom is not included in pre-Brexit data. Denmark is included from 2021. Since 2023, the EDA consists only of the 27 EU member states.

Source: European Defence Agency (EDA).

For the scaling-up of defence budgets to enable the refounding of an industrial and innovation policy for the sector, it is essential that a substantial share of military spending be devoted to R&D and that it support a dual-use ecosystem fostering civil-military synergies at the European scale, while avoiding rent capture by large national prime contractors.

> Finding 5. Even though the equipment grey debt remains limited, European states have underinvested in defence R&D, forgoing a major lever for innovation and growth. The empirical literature suggests that the fiscal multiplier of military spending is higher – above 1.5 – and more durable the greater its R&D content.

Rearming France at lower cost

Effective military rearmament requires building a framework conducive to the rapid expansion of production capacity and to the opening of the defence industrial base to greater competition and new entrants.

Broadening access to the defence industrial base for new entrants

Because the state is the sole legitimate authority for determining force structure and the sole domestic customer, the defence industry presents an atypical market structure. Public procurement determines the size of the domestic market and, to a large extent, export volumes – since only equipment purchased by the state is recognised in international markets. The state, in a monopsony position, must therefore make its rearmament and innovation support commitments credible.

In France, the Military Programming Law (Loi de programmation militaire, LPM) is designed to give industry sufficient visibility to invest and adapt production capacity to forthcoming public orders. Its horizon (seven years, covering 2024–2030) nonetheless falls short of the 2035 horizon – the date by which the 3.5% spending target must be reached – and of the investment payback periods associated with major programmes. As Germany engages in a massive and rapid rearmament, it is essential to consolidate industrial defence investment to avoid being outpaced. Updating the Military Programming Law offers an opportunity to strengthen long-term commitments and set milestones along the budgetary trajectory towards the new 2035 target.

The visibility provided by the Law is not sufficient in itself to mobilise investment, particularly from firms at a remove from public procurement and less familiar with arms acquisition procedures – whether second or third-tier subcontractors or innovative new entrants. With the development of robotics and artificial intelligence, the new art of war requires integrating, within the armed forces, military applications derived from digital technologies developed outside traditional defence industrial bases. Drones are a prime example of this trend (Box 2).

Broadening the defence industrial base to new entrants requires shortening access times to public procurement to the greatest extent possible. This involves simplifying technical specifications, accelerating the qualification timelines for new products, allowing an initial version to be tested in the armed forces and improved on the basis of operational feedback – a method that contributed to the success of Anduril in the software domain. It is also possible, as the Israeli defence establishment has done, to reserve a minimum share of public procurement for new entrants in certain segments such as drones.

> Recommendation 1. Update the Military Programming Law to lock in the build-up of defence budgets towards 3.5% of GDP by 2035 and provide a clear framework for investment by the defence industrial base and by new market entrants.

Regulating the market power of large prime contractors

Facing a state in a monopsony position, supply is provided by a handful of industrial actors, often the product of lengthy processes of vertical integration and national consolidation. This concentration is fed by the technological specificity of defence products. Modern weapons systems such as fighter aircraft or nuclear submarines require highly specialised skills, dedicated supply chains, and development cycles that can span several decades. Large groups are mechanically advantaged by the need for high investment and very long payback periods, creating insurmountable barriers to entry.

Box 2. The drone market

The war in Ukraine has demonstrated the massive use of drones across all theatres – along the line of contact and in depth within the adversary's dispositions. AI applied to command and control makes it possible to develop swarming tactics without placing an operator behind each drone. The market is thus expanding rapidly worldwide across all segments – loitering munitions, tactical drones, drones operating in conjunction with fighter aircraft or at medium altitude long endurance (MALE)... It illustrates the transformation of defence dynamics: innovation now comes largely from the civilian sector and from new entrants mastering technologies that allow for disruptive approaches. Companies such as Anduril in the United States have built first-tier capabilities by investing their own capital in software, anticipating military needs.

In Europe, venture capital remains more limited (€10bn raised between 2018 and 2024, against $83bn in the United States), but the market is evolving and structuring itself around four types of actors:

- Traditional defence industrials in the high-end segment (e.g. Dassault with the Neuron);
- Defence start-ups backed by venture capital: Germany's Helsing and Quantum Systems, France's Harmattan AI, and Portugal's Tekever – four unicorns whose valuations exceeded €1bn at the start of 2026;
- Traditional defence subcontractors that have become first-tier suppliers (Exail for maritime drones, Turgis & Gaillard for the Aarok MALE drone);
- Civil SMEs transitioning towards the military market (Delair, Alta Ares).

In this bilateral quasi-monopoly setting, the conventional logic of public procurement – competitive tendering and periodic contract renewal – gives way to a long-term relationship founded on cooperation and mutual dependence.[15] France's defence industrial and technological base (DITB) is organised vertically, with the Directorate General of Armaments (DGA) as the contracting authority, public research centres, and major prime contractors protected from competition in the domestic market, organising supply chains and exercising considerable market power over their suppliers. This configuration has made it possible to structure major armament programmes. However, it runs up against three limitations.

The first is that the lack of competition and the resulting opacity around costs lead to prices that the public buyer controls only very imperfectly. There is currently no body of economic literature allowing rents in France's armaments sector to be assessed. Our analysis was in fact hampered by the scarcity of available data in what is nonetheless a central domain of public policy – either because the information is not produced in the first place, or because it is classified. The Note therefore frequently draws on foreign data and studies from countries characterised by greater transparency in the armaments sector. American estimates indicate that defence companies generate profits above those in other sectors, particularly since the industry consolidation that began in the early 1990s.[16] This lack of competition raises acquisition costs but, above all, the total cost of ownership of weapons systems for the armed forces. In France, maintenance and spare parts contracts are even less scrutinised than initial procurement contracts.[17] Yet international comparisons show that these contracts allow suppliers to capture very substantial rents over time. In the United States, maintenance costs account for up to 70% of total costs over the lifetime of a weapons system, fuelling recurring tensions between the administration and its co-contractors.[18]

The dominant position of large prime contractors places their subcontractors in a difficult situation. Over the period 2016–2021, small and medium-sized defence firms in France were less profitable (lower average and median margins, lower gross operating surplus) and more heavily indebted than comparable firms in other sectors. Their equity was also more dependent on external capital and they faced greater financing difficulties.[19] This erodes the ecosystem of subcontractors' ability to make the investments required by rearmament. It is therefore important to ensure that any effort by the state to guarantee prime contractors order visibility and short payment terms is duly passed on to their subcontractors.

The second limitation is that the cumulative absence of transparency and competition raises a governance problem. For reasons of sovereignty and confidentiality, a very large share of public defence procurement is awarded without prior competitive tendering. International studies show, however, that the risk of corruption is greater in public contracts negotiated in secret than in those open to competition.[20]

The third limitation is that a bilateral monopoly structure creates a risk of technological lock-in, by impeding the emergence of new entrants and new technologies – which may

15. Desrieux C., Lopes A. and Ménard C. (2026): "Contrats et marché publics dans le marché de la défense", *Focus du CAE* No. 127, March.

16. Wang C. & Miguel J. S. (2012): "The Excessive Profits of Defense Contractors: Evidence and Determinants", *Journal of Public Procurement*.

17. The French Senate Finance Committee report (2024) on the operational maintenance of military equipment notes that, in the absence of comprehensive and harmonised data, it is impossible to assess the total cost and efficiency of "verticalised" or "globalised" maintenance contracts, whose very scope remains partially undefined and whose analysis is obscured by ancillary costs (personnel, initial support, stock reconstitution). The rapporteur recommends that the Ministry of the Armed Forces compile comprehensive financial and operational information in order to produce a precise assessment of these contracts, an indispensable prerequisite for developing a doctrine of use adapted to the new geostrategic context.

18. Government Accountability Office (2024): "Weapon system sustainment: DOD Identified Operating and Support Cost Growth but Needs to Improve the Consistency and Completeness of Information to Congress", GAO-24-107378.

19. See Alvarez B., Bon Q., Mouilleseaux G. and Siossian B. (2025): "Quelle était la situation financière des entreprises de la BITD avant la guerre en Ukraine?", *Trésor-Éco* No. 360.

20. See Auriol E. (2006): "Corruption in procurement and public purchase", *International Journal of Industrial Organization*, 24(5), pp. 867–885.

explain why France failed to make the transition to drones in time.

In the absence of competition and transparency, it is desirable to put in place regulatory mechanisms that respect defence secrecy. In the United States and Germany, parliament closely monitors armament programmes and major contracts in a second-look capacity. In the United States, two reports are produced annually for Congress — one on development, acquisition, and production costs, and one on operating and maintenance costs. These mechanisms improve the quality and transparency of public decision-making.

Within the French institutional context, parliament has traditionally not assumed this role: oversight of the efficiency of public action in non-competitive situations is generally provided by specialised administrative commissions or independent authorities.[21] It would therefore be appropriate to establish an independent commission with a fourfold mandate: to provide a second opinion on armament and maintenance contracts concluded between the state and industry, ensuring that they contain sufficient performance incentives; to monitor contract execution in terms of costs and timelines; to ensure that the visibility and guarantees provided by the state to prime contractors are equivalently passed on by those contractors to their suppliers; and to ensure that procurement calls allow new entrants access to public contracts in segments where this is relevant (drones, for example). This commission would be composed of independent experts — specialists in the armaments industry, industrial economics, and competition law — subject to strict secrecy obligations. Its secretariat would be provided by the Directorate General of Armaments, which holds the information necessary for the commission's work. Access to data, which is very limited in France, constitutes a key success factor for such a body, which would submit its opinions to the Minister of the Armed Forces. More broadly, as military budgets are scaled up, it is crucial to strengthen the financial and economic assessment capacities for defence projects.

Recommendation 2. Establish an independent commission, security-cleared and attached to the Ministry of the Armed Forces, tasked with assessing the performance of armament and maintenance contracts and their amendments, and with ensuring fair value-sharing within the supply chain among prime contractors, subcontractors, and new entrants.

Developing the european dimension

The divergences among European states during external interventions in Iraq, Afghanistan, and Africa have receded since the outbreak of the war in Ukraine. Facing common threats, rearmament must be approached at the European level as a decisive factor for sovereignty, for the internalisation of externalities — the interception of a drone or missile by one country protects all its neighbours — and for economic efficiency.

Three principles for developing the European dimension

First principle: strengthening European strategic autonomy

In the short term, it is not possible to sever the transatlantic underpinnings of European armament for political and industrial reasons. First, because for certain segments — such as intelligence and surveillance systems, anti-missile defence, and long-range strike — the European supply base is insufficient. Second, because equipment life cycles are often long, creating enduring dependencies. The F-35 is an emblematic example: thirteen European countries, including Germany, participate in a programme whose equipment will remain in service for several decades. This dependency is all the stronger given that certain states — such as the United Kingdom, Italy, and the Netherlands — are directly associated with its production through what amounts to a genuine transatlantic strategic partnership.

In this context, the objective is not to decouple from the American defence industrial base but to guarantee European sovereignty in arms acquisition and use decisions, while progressively reducing that dependence. This evolution is justified on military grounds — the American defence industrial base today struggles to meet European demand in terms of production rates and delivery timelines;[22] on political grounds — Europeans have an interest in limiting their exposure to American regulations on international arms transfers (ITAR), which are highly constraining on usage; and on economic grounds — the returns on the European budgetary effort should accrue primarily to the European defence industry.

Second principle: reducing the fragmentation of European industries to lower costs

Since European budgets are lower than American ones and the defence industry is far more fragmented, European arms production operates in small series. For example, the

[21] Such as the Commission for Participations and Transfers on the value of public shareholding disposals, the High Council for Public Finances on public finance forecasts, or the Economic Committee for Health Products on drug pricing.

[22] For example, Patriot production capacity barely suffices to meet foreign demand. In 2023, 91% of F-35 deliveries were made with delays. See Burilkov A., Mejino-López J. and Wolff G.B. (2024): "The US defence industrial base can no longer reliably supply Europe", Bruegel.

annual production rate of the F-35 is estimated at 156,[23] compared to 36 for the Rafale (with a target of 48) and 12 for the Eurofighter (60 eventually). For main battle tanks, at their production peak, the monthly output rate was 120 for the American M1 Abrams, compared to 25 for the German Leopard 2.[24]

In these conditions, better integration of the European market could double or even triple production volumes. The most reliable recent estimates indicate a scale elasticity of around 0.25 for the average of industrial sectors.[25] This would translate into a 16% reduction in unit costs if arms production doubled and a 24% reduction if it tripled. Moreover, the weight of the investments required for complex weapons systems suggests that economies of scale therein are probably above the industrial average, so that this estimate can be considered a lower bound. At the scale of EU member states' equipment procurement – projected to exceed €100bn from 2025 – a reasonable order-of-magnitude estimate of the potential savings from targeting a tripling of production volume is €25bn.

Third principle: consolidating the European armaments sector while maintaining a minimum level of competition

In order to aggregate military equipment orders in Europe and address the extreme fragmentation of markets, three broad segments should be distinguished.

The first concerns small equipment and munitions, a relatively well-integrated segment where competition already plays an effective role. France, for its part, has no hesitation in using competitive tendering that can result in the procurement of European equipment, as illustrated by the assault rifle case. This integration should be deepened and extended, in line with European case law, to include dual-use equipment. Whenever conditions permit, it is preferable to forego the derogatory regime applicable to arms and to operate within the general European framework.

At the other end of the spectrum, in France, the production of the vectors and missiles of nuclear deterrence naturally falls within a monopoly framework. At the European level, there are domains – space launchers, missile defence systems – where it may be appropriate to prioritise economies of scale rather than competitive tendering, given the weight of fixed costs.

Between these two poles lies the market for large conventional weapons systems, where economies of scale must be captured while avoiding situations of technological lock-in and abuse of dominance. To resolve this tension, the US Department of Defense chose throughout the twentieth century to favour a duopoly structure in the development and production phases of its principal weapons systems.[26] It applied this redundancy principle to R&D – with the Manhattan Project[27] as the emblematic case – and also to production, notably for air-to-air missiles and Tomahawk cruise missiles.[28]

In capital-intensive sectors marked by strong information asymmetries between the state-as-customer and firms, the benefits of this administered competition take two forms. In the development phase, competition between several teams increases the probability of developing a high-performing technology and reduces the risk of technological lock-in. In the production phase, it keeps pressure on suppliers by benchmarking their costs, timelines, and performance. When production volumes are large, these benefits outweigh the duplication of fixed costs.

Such a policy is particularly well-suited to the European level, where the market is large enough and where multiple producers are present across different segments. A consolidation dynamic is beginning to take shape: buoyed by the rearmament windfall, major European defence companies are seeking to strengthen their positions by integrating new competencies. Rheinmetall and Leonardo have formed a joint venture in combat vehicles; KNDS brings together KMW and Nexter in land systems; MBDA remains the principal European joint venture in missiles; while Thales is expanding its industrial presence across Europe, notably in the Netherlands and the United Kingdom. Meanwhile, Indra is reinforcing its industrial cooperation, particularly in radar and electronic systems. These mergers and alliances help reduce market fragmentation: they are beneficial in allowing Europe to gain in sovereignty and economies of scale, as long as they remain compatible with a minimum degree of competition.

Involving two competing firms from the R&D and production stages protects against abuse of dominance and

[23] Global Defense News (2025): "Europe plans to triple Eurofighter Typhoon jet production to answer demand from allies and partners", 20 June; Armée.com (2025): "Rafale: Dassault se prépare à augmenter la production", 6 March.

[24] Defense Express (2023): "U.S. Made 75 M1 Abrams Per Month in the 1980s, Now 12 is the Limit", 20 November.

[25] That is, a 1% increase in inputs yields an output more than 1.25% higher. See Bartelme D. et al. (2025): "The Textbook Case for Industrial Policy: Theory Meets Data", *Journal of Political Economy*, 133, 5, pp. 1527–1573; Bartelme D. (2024): "Specialization, Market Access and Real Income", *Journal of International Economics*, 150, 103923; Lashkaripour A. and Lugovskyy V. (2023): "Profits, Scale Economies, and the Gains from Trade and Industrial Policy", *American Economic Review*, 113, 10, pp. 2759–2808.

[26] This dual-sourcing procurement doctrine was codified in the Department of Defense Appropriation Act of 1987 and was revived by Secretary of Defense Pete Hegseth in his speech of 10 November 2025.

[27] Faced with the critical challenge of developing the first nuclear weapon, the US government chose to mobilise two competing, compartmentalised scientific teams working in parallel on different theoretical and technical approaches. The objective was twofold: to accelerate technological progress through emulation, while reducing the risk of failure inherent in a single-track strategy. And to good effect – it was ultimately the less favoured of the two teams that developed the first atomic bomb.

[28] Auriol E. and Laffont J.-J. (1992): "Regulation by duopoly", Journal of Economics and Management Strategy, vol. 1(3).

technological lock-in, while allowing aggregated orders to be shared between at least two companies in different countries.

Recommendation 3. Encourage consolidation of the sector for large weapons systems, favouring duopoly or administered competition structures. Target a tripling of production volumes with a view to reducing unit costs by a quarter.

To implement these principles and reconcile the objectives of consolidation and competition, several options can be envisaged. The first would be a European military command. The second would aim at creating a single market for major European military equipment. For political reasons, neither of these options is currently on the agenda.

We propose a third way, which consists in building on existing dynamics to give them greater scale and reach. From this perspective, three main levers must be activated jointly: incentives for joint procurement; European R&D funding capable of addressing defence needs; and new joint programmes in domains where Europeans remain insufficiently positioned technologically and militarily, starting with ground-based air defence. On all three fronts, it is a coalition of the willing that must be mobilised, prioritising speed and effectiveness.

Incentivising Joint Procurement

To address the fragmentation of European procurement, joint procurement incentives have been put in place, notably through the European Defence Industry Reinforcement through Common Procurement Act (EDIRPA, Regulation (EU) 2023/2418). The European Peace Facility – an instrument funded outside the EU budget for a seven-year period (2021–2027) and now endowed with an envelope of €17bn – is another instrument enabling the joint supply by member states of military and defence equipment outside the Union. It has proved valuable in enabling a coordinated response to Ukraine's needs.

This logic of financial incentives must be amplified, with the objective of rapidly reaching and exceeding the target of 40% joint procurement. Better European integration of procurement should drive convergence in military requirements across national armed forces, the aggregation of orders, and, progressively, the establishment of a European preference.

To encourage intra-European procurement, the fluidity of exchanges between member states must also be improved. Licences can still carry restrictions – notably on end use and re-export to third countries – and may be suspended for political reasons. To facilitate intra-Community procurement, public buyers should be able to source from another EU country without this conditioning the engagement or export of the final product to the approval of the European partner. This could be achieved through intergovernmental agreements between arms-producing countries.

It is also possible to progressively strengthen clauses giving preference to European equipment. This approach is already applied in a limited way by conditioning the financing of the European Defence Industry Programme (EDIP) and the Security Action for Europe (SAFE)[29] to the use of at least 65% of components manufactured in the EU. It remains a source of controversy among member states, due to both American pressure and a lack of adequate supply.[30] Addressing these supply gaps should be the immediate priority; but as they are reduced, it is logical to strengthen local content requirements for critical systems and components.

Recommendation 4. Target 40% joint procurement within the European Union by 2030, reinforcing the preference given to European equipment. Lift barriers to intra-Community transfers, notably restrictions on the free use and re-export of equipment.

A european defence agency in the service of R&D

European innovation financing – whether public or private – remains insufficient and fragmented. It is therefore crucial that Europe invest more and in a more structured way in R&D. This recommendation, formulated in the Draghi Report,[31] takes on particular importance in the defence domain: investing in innovation ensures the continuity of nuclear deterrence, reduces vulnerabilities induced by disruptive technologies, and offers the greatest return on investment (see Box 1). R&D programmes also offer a specific advantage for Europeans, as they lend themselves more readily to cooperation: they are less dependent on existing production capacities and can be organised around competitive project-based financing, thereby limiting the national juste retour logic.

Established in 2016, the European Defence Fund (EDF) illustrates the Union's willingness to use economic incentives rather than legal constraints to strengthen the Community level. This fund finances joint R&D projects.[32] Although its

[29] See Desrieux C., Lopes A. and Ménard C. (2026): "Industrie de la défense en Europe: fragmentation, coopération et gouvernance", *Focus du CAE* No. 126, March.

[30] The imperatives of American nuclear deterrence are another central element, but it is not realistic to expect to escape from these constraints in the short or medium term.

[31] Draghi M. (2024): EU competitiveness: Looking ahead, European Commission.

[32] Desrieux C., Lopes A. and Ménard C. (2026): *Focus* 126, op. cit.

ambitions remain limited, it has succeeded in doubling collaborative research and technology spending, from €250m in 2022 to €580m in 2025. Between 2021 and 2023, it benefited 1,366 entities, of which 43% were SMEs, across 162 projects totalling €5.4bn in commitments.[33]

No project having yet been completed, it is too early to measure its effectiveness, but the EDF is already emerging as a major actor in defence R&D financing in Europe, fostering cross-border cooperation and contributing to market defragmentation. The Fund therefore merits reinforcement through an increased budget and improved governance favouring programmes allocated on the basis of excellence criteria, modelled on the grants of the European Research Council.

When it comes to innovation, spending more is not enough; spending better matters equally. The Defense Advanced Research Projects Agency (DARPA), the US Department of Defense agency responsible for funding and coordinating high-risk, high-potential research projects, is a reference point in this domain: it has demonstrated its ability to respond to precise defence needs requiring ambitious solutions that may entail technological breakthroughs. These solutions have often had both military and civilian impact, as attested by the internet and GPS.

DARPA should serve as an inspiration for Europe. First in budgetary terms: this calls for a change of scale, since DARPA operates with an annual budget of approximately $4.5bn, drawn entirely from federal defence appropriations. Second in governance terms: Europe should draw on the lightness of DARPA's structure – around a hundred programme managers – and its great autonomy, which allows it to select the best projects free from political interference, to avoid spreading funding too thin, and to terminate failures swiftly in order to redeploy resources towards the most promising projects.

A key difference from the United States lies in the fact that European private financing remains limited for sustainably supporting selected start-ups. The creation of a European agency inspired by DARPA should ensure prolonged support for the most promising projects. Relevant national initiatives already exist, such as Germany's SPRIND agency, but it is time to extend these principles to the European scale. A further difference lies in the scale of the market that opens up in the event of success: the European market remains fragmented along national lines. Unlocking this market would increase demand and offer better prospects for investors. Ultimately, European innovation will be stimulated by a more sustained financial effort, rigorous project selection governance, and the ability for new firms to quickly scale up across the Union.

Recommendation 5. Significantly increase the share of R&D in defence investment, by doubling the budget of the European Defence Fund to at least €3bn per year. Evolve its governance towards a project-based financing logic inspired by the American DARPA.

Major european programmes to close our capability and technological gap

The development of ambitious common programmes is a priority to allow European states to close their capability gaps, notably in the areas of surveillance and intelligence, electronic warfare, ground-based air defence, and long-range strike. Given the persistent divergences among certain member states, these programmes could be carried by coalitions of the willing bringing together countries that wish to advance more rapidly on specific projects. Several proposals have recently been put forward to bring into being armament programmes with a European dimension from the outset, financed through common debt issuance.

Wolff et al.[34] propose drawing on a European Defence Mechanism – an intergovernmental institution responsible for programme management and owner of the weapons systems thus developed – which would allow assets to be placed against common debt issuance, on the model of the borrowing mechanism established for NextGenerationEU. They suggest focusing on defensive weapons systems with strong European externalities (space domain, air defence and detection systems) as well as on innovation efforts (AI and defence robotics, quantum technologies, etc.).[35]

Hildebrand, Schularick, and Rey,[36] for their part, propose creating a new European architecture for the defence of the future: a common framework for R&D programming, procurement, and financing, focused on next-generation defence technologies and anchored in an intergovernmental treaty. They also highlight the merits of common borrowing, with the issued securities potentially having the status of safe assets, meeting strong demand from markets.

While these proposals appear particularly relevant, the main challenge is operational – ensuring that the political will to cooperate does not become mired in divergences over military requirements, industrial interests, and financial contributions. Early alignment on operational needs, timelines, and financing arrangements is a necessary, though not sufficient, condition for success.

33. European Commission (2025): Interim Evaluation of the European Defence Fund, Commission Staff Working Document No. SWD(2025) 151.

34. Wolff G., Steinbach A. and Zettelmeyer J. (2025): "The governance and funding of European rearmament", Bruegel Policy Brief No. 15/25.

35. Strategic inputs (autonomous supply chains for critical minerals, or even specialised semiconductors) could also be considered within this framework, but they are more appropriately addressed under the broader concern of economic security, which can also be dealt with in a different context.

36. Hildebrand P., Rey H. and Schularick M. (2025): European defence governance and financing, VoxEU, CEPR.

Recent experience of European programmes has been marked by delays, tensions, cost overruns, and even deadlocks. That said, the difficulties encountered in programmes aimed at taking an existing weapons system into a new generation – while attempting to coordinate entrenched national industrial interests – should not obscure the successes of a pan-European approach when Europeans affirm a shared ambition to invest in a new domain. Having been successfully launched in the space domain,[37] this pan-European approach deserves to be prioritised today in the design and production of major defensive weapons systems – ground-based air defence in particular – in which Europe faces a technological and capability gap.

These lessons show that the key is to entrust, from the earliest stages of the programme, implementation authority to a single entity jointly designated, whether a dedicated institution such as the European Space Agency or an industrial enterprise (potentially created with capital contributions from several groups), endowed with sufficient autonomy. Programme by programme, it will fall to the coalition of the willing to define the entity in charge, its governance and financing, and the conditions under which it engages the market. Indeed, designating a single implementing authority does not mean a production monopoly: manufacturing can be distributed according to a dual-sourcing logic.

Producing a European public good in common does not imply the creation of a European army; operational control of weapons systems can be entrusted to existing national or multinational headquarters. On the other hand, it does make possible dedicated common borrowing.

Recommendation 6. Launch major European armament programmes of a public-good character – primarily defensive weapons systems such as ground-based air defence – grouping willing states through a governance model that privileges unity of command for each programme.

Conclusion

For the budgetary efforts engaged to translate into an effective increase in industrial and military capabilities, a profound transformation of the economic framework is needed: at the level of each country, to support investment and innovation; and at the European level, where an intergovernmental approach based on a coalition-of-the-willing logic would make it possible to strengthen strategic autonomy, achieve economies of scale, and launch the R&D programmes that European states need to guarantee their security.

37. The European Space Agency, created in 1975, has 23 members, of which three – Norway, the United Kingdom, and Switzerland – are not EU member states.

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Les Notes du Conseil d'analyse économique
ISSN 2273-8525

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