

Juan Mejino-Lopez and Guntram B. Wolff

Boosting the European Defence Industry in a Hostile World

War has returned to Europe. As there is no clear end in sight to the war in Ukraine, the question of armaments has become of central importance. Failing to deter Russia, or to support Ukraine adequately, would leave Europe at a major strategic disadvantage for decades to come. Wolff et al. (2024) showed that Russian military industrial capacities have increased significantly in the last two years. Production of key weapon systems now exceeds the levels of Russian material losses in Ukraine.¹ The United States's top general in Europe has estimated that Russian military production outpaces that of the combined West (Cavoli, 2024). For example, he estimated that Russia now produces and refurbishes more than 1,000 tanks per year, by far surpassing the combined production of all Western countries. Wolff et al. (2024) even suggest that Russia produces up to 1,500 tanks per year. Cavoli (2024) also estimated that Russia now has a substantially greater capacity than at the beginning of the war in 2022, despite its significant losses. To achieve this massive production boost, Russia has systematically increased its spending on armaments. Russia now spends 30% of its budget on its military, rising to 40% if domestic security costs are factored in. Spending is now estimated to be above \$120 billion per year. In purchasing power parity terms, this spending is substantially larger and close to that of the European Union.

While Europe and the combined West in principle have the resources to outperform Russia because of their larger GDP, the mobilisation of fiscal resources and the commitment to stay the course on a longer-term basis is still lagging. European defence spending has increased substantially in the last few years; however, after years of underinvestment, it will take time for production capacities to be brought online and for stocks to increase again. Fig-

ure 1 shows European Union defence spending (including personnel, operational and military equipment spending) and spending on military equipment. With falling defence spending since the end of the Cold War, budgets for equipment spending became extremely small, with on average only 0.3% of GDP dedicated to it. For many years, Germany in particular invested only a very small proportion of its defence spending in military equipment. According to NATO figures, the share was only around 13% until 2019, compared to 25% in France. It was not until 2022 and 2023 that the share of investment in defence equipment increased significantly. However, Germany remains behind the United Kingdom and the US. In Poland, spending on equipment now even exceeds 50% of total defence spending. In 2024, eight NATO countries (seven EU countries and Canada) did not reach the minimum overall defence spending target of 2% of GDP. This includes Italy and Spain, the third and fourth largest EU economies.

Fiscal data shows that governments have been able to adjust defence budgets in response to the war, and these increased budgets have also translated into larger budgets for equipment purchases. Wolff et al. (2024) documented a substantial increase in military procurement in Germany, in particular from September 2023 to June 2024. Yet, ordered quantities remain small, especially when compared to Russian output or to lost capabilities in the last few decades (Wolff et al., 2024). Ordered quantities are also relatively low in France and other key European countries.

The new EU Commissioner for Defence and Space starting in late 2024 will have to squarely face the main challenges to push for the cost-effective and rapid rearmament of Europe, ideally based on a shared strategic analysis. Together with the EU's top foreign policy official, the High Representative of the Union for Foreign Affairs and Security Policy, the new Commissioner for Defence and Space must deliver a white paper on the future of European defence identifying financing and capability needs in defence.

The mission letter from the European Commission President Ursula von der Leyen is ambitious: the white paper shall frame "a new approach to defence and identify investment needs to deliver full-spectrum European defence capabilities based on joint investments, readying the EU and Member States for the most extreme military contingencies" (European Commission, 2024a).

¹ At the same time, Russia is also incurring substantial losses of material.

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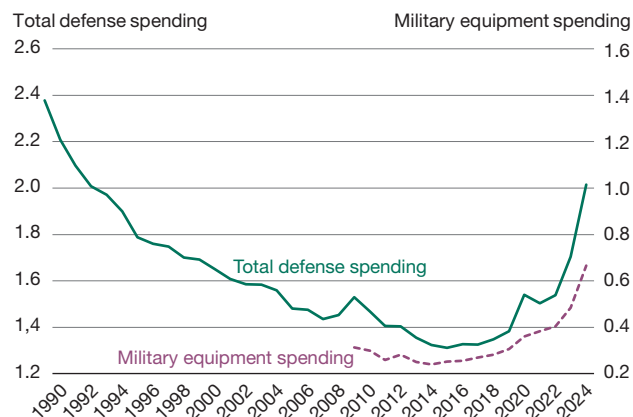
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Juan Mejino-Lopez, Bruegel, Brussels, Belgium.

Guntram B. Wolff, Université Libre de Bruxelles; and Bruegel, Brussels, Belgium.

Figure 1
Defence spending and spending on military equipment in the EU

% of GDP



Notes: "Defence spending" refers to total EU27 defence expenditure from 1989-2023 and defence spending by EU NATO members in 2024. "Equipment spending" refers to spending by EU NATO members. The Czech Republic, Sweden and Finland are not included for 2009-2013 because of unavailability of data. EU members Austria, Cyprus, Ireland and Malta are not NATO members.

Source: Wolff et al. (2024).

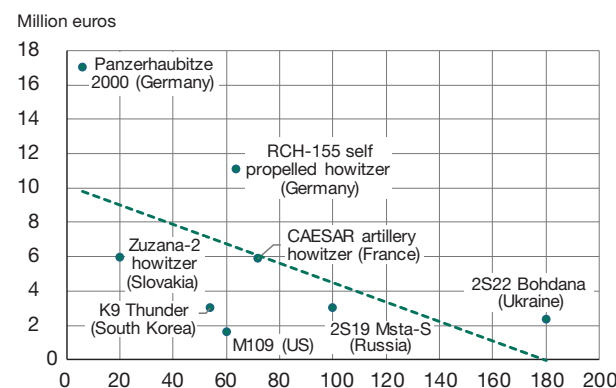
Why a European defence market would make sense

European governments order relatively small quantities of weapons and ammunition. As a result, it is difficult to benefit from economies of scale, which would in principle lead to faster and cheaper production and higher production numbers. This is also the result of a fragmented market for defence products, in which each EU country orders separately. For example, if the procurement of artillery shells is not bundled and standards differ slightly, or if militaries tailor systems to unique national criteria that do not substantially reflect mission requirements, then national industries will remain the main producers for the needs of national armies and will produce in relatively small quantities at relatively high cost. Scale economies result from industrial production processes that require large-scale purchasing. Moreover, governments need to commit over the long term to buy certain quantities, in order for industry to invest in production capacities. To illustrate the relation between scale and price, Figure 2 shows the relation between prices and units produced per year for selected howitzers. European production remains low while prices are among the highest, possibly indicating the lack of scale.

Towards a defence industrial strategy

The Commissioner for Defence and Space will have to build on this plan and develop a feasible strategy. For this,

Figure 2
Self-propelled howitzer cost per unit and annual production capacity



Note: Production capacity per year should be considered a lower bound estimate.

Source: Bruegel, based on information released by companies and specialised press in terms of purchase agreements and delivery dates. Contact the authors for details.

a realistic and conceptual understanding of the specific characteristics of defence industrial policy is necessary. Advancing military industrial policy is a complex endeavour in any country. Figure 3 conceptualises the dual goals of defence industrial policy. It aims to create the material means needed to deter opponents, enable military operations abroad and support allies such as Ukraine. These goals are defined by a country's security and defence policy. But industrial policy goals, and in particular electoral preferences, also determine objectives such as job creation, local development and broader innovation aims. Marrying these two separate types of objectives is already difficult at the national level, where local development goals might not be aligned with economic efficiency or security targets.

Designing a defence industrial policy at the EU level is complicated even more by the institutional separation between industrial policies and security and defence

Figure 3
Conceptualising defence/military industrial policy



Source: Bruegel.

policies. EU decision-makers are responsible for many aspects of industrial policy rulemaking (state aid, competition, cohesion), often with a significant and leading role for the European Commission. However, security and defence policy is largely a national competence (Leonard et al., 2019) and the most relevant cooperation framework is and remains NATO.

When it comes to defining strategic interests in security and defence, the EU is far from reaching a clear, shared understanding. At the EU level, there is some coordination and a so-called “strategic compass” – an action plan to strengthen EU security and defence policy – has been approved (EU External Action Service, n.d.). Yet, the security interests of EU member states are, and remain, different. Although Russia’s military threat is growing, it is still perceived as much less worrying in some parts of the EU than others. This lack of shared strategic interest will obviously affect the work of the new Commissioner for Defence and Space and of the High Representative of the Union for Foreign Affairs and Security Policy.

The EU treaties make clear that national governments largely retain the competence for industrial policies and market-design questions in the defence/security field. For example, Article 346 (2) of the Treaty on the Functioning of the EU (TFEU; 2012) stipulates that

any Member State may take such measures as it considers necessary for the protection of the essential interests of its security which are connected with the production of or trade in arms, munitions and war material; such measures shall not adversely affect the conditions of competition in the internal market regarding products which are not intended for specifically military purposes.²

Nevertheless, in practice, the EU is already involved at many levels in defence markets and defence cooperation, and has been able to overcome political and legal obstacles.

Why Europe needs to build its domestic defence industrial base

A core practical question for European policymakers is the extent to which they want to favour European producers

when procuring weapons and ammunition at the national level. There is a strategic interest in building up an industry that can provide well-functioning and full-spectrum armaments to the armies of EU countries. Commission President Ursula von der Leyen has promoted the simple principle that on defence, “Europe must spend more, spend better, spend European”, as well as noting that the forthcoming proposals in the white paper on the future of European defence should respond to “the most extreme military contingencies”, suggesting that she endorses the paradigm shift of boosting domestic industrial capacities by assigning to it military procurement and output planning, in order to address the EU’s underinvestment and production gaps (European Commission, 2024a).

The basic idea is that increasing the demand for weapons developed and produced in the EU will strengthen the European defence and technology industrial base, leading to greater strategic autonomy. Such a move is even more important at a time when the US military industrial base is facing difficulties in sufficiently ramping up production. Jones (2024) argued that the war in Ukraine has shown the deficiencies of the US defence industrial base and that the US would not be prepared for a conflict in Taiwan. Moreover, a preference for European suppliers will be even more pronounced if NATO comes under strain during the second Trump Administration. Finally, an argument for a European preference is that the military industry can have some positive innovation effects on the wider economy.

However, there are three important counterarguments against a Europe-first strategy. First, a European preference in arms purchases might lead to slower than necessary arrival of some critical weapon systems. Second, European preference could also lead to the purchase of weapon systems that are inferior to the best available on the world market, especially if there is no additional growth in the industry. Third, European preference could result in paying higher prices for weapon systems that could be produced more cheaply elsewhere.

Given the political re-orientation of the United States under Donald Trump, a build-up of the European defence industrial base appears warranted. Moreover, there is a clear practical reason why Europe needs to further boost its domestic industry: the capacity limits of the US industrial base.

To better understand US capacities, Burilkov et al. (2024) examined specifically the production and sales of two major weapons systems representing high-end capabilities that are central to NATO and Europe’s deterrence of Russia: Patriot air defence missiles and F-35 fighter jets.

² This does not prevent the EU from having a security and defence policy, however, with the TFEU foreseeing in Article 2(4) that “The Union shall have competence, in accordance with the provisions of the Treaty on European Union, to define and implement a common foreign and security policy, including the progressive framing of a common defence policy”. Yet, the European defence strategy, such as the strategic compass, certainly does not carry the same weight as NATO or national strategies.

Russia is a peer competitor with large land forces, a sizeable air force including the most modern (fifth generation) fighter jets, an integrated air defence network and a vast arsenal of long-range precision munitions (Wolff et al., 2024). High-end capabilities are essential for NATO and Europe to meet the Russian challenge. Burilkov et al. (2024) show that large shares of US-produced weapons, such as shells for tanks and artillery as well as air defence missiles and their components, are currently being sold to Europe and Israel. If Trump wants to re-calibrate US defence sales, for example to increase domestic stockpiles or to increase supplies to allies in Asia, then Europe could face shortages in arms availability. The US foreign military sales (FMS) data³ documents a total of 1,119 Patriot missiles sold under five contracts since Russia's invasion of Ukraine in February 2022. This number is separate from and does not include all the missiles sent from US stockpiles to Ukraine as these can be provided through emergency aid procedures. Burilkov et al. (2024) also show that delivery delays of F35 have substantially gone up with more than 90% of deliveries coming late in 2023.

Towards a joint approach to European defence

It has become urgent to move beyond the current piecemeal approach to European defence. The forthcoming white paper on the future of European defence needs to spell out how production capacity will be increased, how costs will be reduced, how Europe will strengthen its main military-technological capabilities and how the necessary fiscal resources will be mobilised. These are major factors in a war of attrition such as that in Ukraine. Wars of attrition are the norm between peer competitors, implying that the Russian threat to the EU presents the same problem set as is currently unfolding in Ukraine. The EU white paper will need to take positions on the main trade-offs and be specific to make rapid progress. The following elements will be crucially important to achieve these goals.

Focus on funding for defence

Achieving scale and cost effectiveness requires funds, both for demand and supply.

On the demand side, the fiscal constraints faced by European countries affect the credibility of governments' long-term commitments. This is the case with Germany's medium-term budgetary planning for defence (Wolff et al., 2024) and other EU countries without clear political

majorities and with uncertain budgetary prospects (e.g. France and Spain). On national funding, fiscal rules could incentivise debt issuance to pay for defence spending but this could raise debt sustainability concerns (Pench, 2024).

Exempting from fiscal limitations some spending for EU-agreed defence priorities might be a way forward. Expensive investments with EU-wide impact, such as air defence, could be financed through EU debt (Steinbach & Wolff, 2024). The debate on the next EU budget cycle (from 2028 into the mid-2030s) will be an opportunity to prioritise such investments. For the EU as a whole, increases in defence spending for the next five years will have to amount easily to €500 billion if Europe wants to shed its dependence on the US security umbrella.

On the supply side, some weapon companies and particularly small and medium-sized enterprises still face financing constraints (European Commission, 2024b). Improving access to finance for these companies should be a priority. Institutions such as the European Investment Bank should reconsider a current prohibition on providing financial support to defence-only projects. This would also give a positive signal on defence investment to the overall financial sector (Draghi, 2024). More broadly, the negative stigma that defence companies are still confronted with among investors and civil society needs to be prioritised, so that funding can reach not only the big defence companies but also mid-sized companies and start-ups, which are essential for innovation and the mass production of drones, counter-drone systems and electronic-warfare and intelligence-gathering solutions.

Push back against economic nationalism while addressing security concerns

We recommend the more-integrated markets approach rather than a war economy. Markets tend to be more efficient than governments in allocating resources, with governments having a clear role to play addressing market failures. However, achieving market integration is difficult. It is hard to limit the scope for economic nationalism in the EU because the EU treaties (Article 346(2) TFEU) explicitly allow countries to deviate from single market rules for security reasons. To enable greater market integration, legitimate security concerns need to be addressed, for example through security treaties among major producer countries, establishing rights and safeguards.

Fostering a political agreement among key countries to increase joint purchases, possibly with pooled funds, is necessary to reduce unwarranted national biases in military procurement. While there have been EU-level efforts

³ The data covers FMS contracts since 2008. It restricts the military sales agreements to those signed after Russia's invasion of Ukraine (February 2022). See <https://www.dsca.mil/major-arms-sales/archive-date>.

on joint procurement (the European Defence Industry Reinforcement through common Procurement Act, EDIRPA), these are rather small. The EDIRPA budget for example was set at €310 million, which is minimal, even compared to the approximately €25 billion in equipment procurement by Germany in 2024. The March 2024 European Defence Industrial Strategy proposal looks set to face similar financial constraints (Wolff, 2024). National procurement offices will issue different specifications even for the same basic product. Beyond the reform of national procurement offices, more joint EU procurement, for example through the European Defence Agency, could lead to greater market integration.

Moreover, despite being a global standard-setter, the EU plays no role in standards for weapons. As a consequence, weapons production is fragmented and more expensive than necessary and interoperability is low, complicating logistics and undermining combat effectiveness. EU countries have provided Ukraine with ten different howitzer types and currently manufacture five different versions versus only one in the US (Draghi, 2024). While NATO has established standardisation agreements for artillery, these are clearly not enforced. Enforcement by the EU of NATO standardisation agreements in EU countries could thus further contribute to market integration.

Fragmented EU export rules could undermine market integration.⁴ Current rules on arms-related exports, both within and outside the EU, would benefit from more solid legal underpinning in a directive or regulation with transposition dates and/or enforcement tools. This would ensure effective standardisation and greater alignment of national policies. To account for the risks related to weaker ethical considerations while standardising export rules, post-shipment onsite inspections (Bromley et al., 2022) enforced by an EU agency could guarantee a level playing field across EU countries.

Towards “intelligent European preference” for more innovation and strategic autonomy

The EU should avoid procuring only European, but there are strategic justifications for more procurement from resident firms.⁵ Such “intelligent European preference” can increase industry capabilities and foster innovation while reinforcing strategic autonomy,⁶ but it needs to account for comparative advantages and disadvantages. For some products,

cheap and scaled-up production remains of paramount importance (e.g. artillery shells for Ukraine). Procuring arms from third countries remains perfectly reasonable, especially if the security of supply is high and interoperability with European systems can be reasonably guaranteed.

Ukraine and its defence industrial base are of great importance to the EU defence strategy and could be transformative for the EU’s military industrial capacity. For many products, Ukraine is the cheapest producer, and is also the most innovative and advanced (e.g. modern drone warfare). The UK should also be considered an integral partner for the European defence industrial base. Finally, as long as the EU remains dependent on the US security guarantee, it needs to carefully calibrate how building its own defence industrial base will impact US political perceptions.

Supply chain security

The EU could play a role in securing defence supply chains by regularly monitoring and assessing risks of over-dependency. Since the start of the war in Ukraine, the European Commission has discovered significant vulnerabilities, for example, in relation to the security of the supply of explosives and propellants. It would be a natural role for the EU to issue alerts on limits in production capacities. The EU is aware of the importance of assessing security risks, such as those for dual-use technologies. The EU economic security strategy, for example, sets out critical technology areas and requests risk assessments from member states (European Commission, 2023a, 2023b). There exist, however, challenges in addressing these issues (Chimits et al., 2024). Some of the competences required remain at the national level – for instance, foreign policy responsibility – making a common and effective response more difficult.

References

- Bromley, M., Héau, L., & Maletta, G. (2022). *Post-shipment On-site Inspections: Multilateral Steps for Debating and Enabling Their Adoption and Use*. Policy Paper. SIPRI.
- Burilkov, A., Mejino-Lopez, J., & Wolff, G. B. (2024, December, 18). The US defence industrial base can no longer reliably supply Europe. *Analysis*. Bruegel.
- Calcara, A., Gilli, A., & Gilli, M. (2023). Short-term readiness, long-term innovation: the European defence industry in turbulent times. *Defence Studies*, 23(4), 626–643.
- Caverley, J. D., & Kapstein, E. B. (2023). Who’s Arming Asia? In *The International Institute for Strategic Studies* (Ed.), *Survival* 58.2 (pp. 167–184). Routledge.
- Cavoli, C. G. (2024, April, 10). *Statement of General Christopher G. Cavoli, United States Army, United States European Command*. US House Armed Services Committee.
- Chimits, F., McCaffrey, C., Mejino-Lopez, J., Poitiers, N. F., Vicard, V., & Wibaux, P. (2024). *European Economic Security: Current practices and further development*.
- Draghi, M. (2024). *The Future of European Competitiveness*.

4 Rules on exports to Israel or Saudi Arabia highlight how such national rules are sometimes used deliberately for political purposes and export promotion. Harmonised rules at the EU level appears the only way to overcome such incentives.

5 See, e.g. Calcara et al. (2023) for an academic discussion.

6 See, e.g. Caverley and Kapstein (2023).

- EU External Action Service. (n.d.). *A strategic compass for security and defence*.
- European Commission. (2023a). European Economic Security Strategy. *Join Communication*, JOIN, 20 final.
- European Commission. (2023b). Annex to the Commission Recommendation on critical technology areas for the EU's economic security for further risk assessment with Member States, C(2023) 6689 final Annex.
- European Commission. (2024a, September 17). *Mission letter, Andrius Kubilius, Commissioner-designate for Defence and Space*.
- European Commission. (2024b). A new European Defence Industrial Strategy: Achieving EU readiness through a responsive and resilient European Defence Industry. *Joint Communication*.
- Jones, S. G. (2024). *The U.S. Defense Industrial Base Is Not Prepared for a Possible Conflict with China*. CSIS.
- Leonard, M., Pisani-Ferry, J., Ribakova, E., Shapiro, J., & Wolff, G. (2019). Securing Europe's Economic Sovereignty. *Survival*, 61(5), 75–98.
- Pench, L. (2024). Should the European Union's fiscal rules bend to accommodate the defence transition? *Analysis*. Bruegel.
- Steinbach, A., & Wolff, G. B. (2024). Debt financing European air defence. *Intereconomics*, 59(4), 193–197.
- Treaty on the Functioning of the European Union. (2012). *Official Journal of the European Union*, C 326, 47–390.
- Wolff, G. B., Burilkov, A., Bushnell, K., & Kharitonov, I. (2024, September). Fit for war in decades: Europe's and Germany's slow rearmament vis-à-vis Russia. *Kiel Institute Report*.
- Wolff, G. B. (2024, March 19). European defence industrial strategy: important but raising many questions. *Analysis*. Bruegel.