

Fit for war in decades: sluggish German rearmament versus surging Russian defence production

It will take Germany, and Europe more generally, decades to match current Russian volumes of weapons production

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Russia's war against Ukraine is one of attrition (Vershinin, 2024), notwithstanding the daring Ukrainian operation to take and hold a part of Russia's Kursk region. To fight such an attritional war, a constant supply of new troops and war materiel is essential. Political will, production capacity and the funds to pay for it all will determine the victor.

For the Kremlin, prosecuting the war is costly ¹. In 2022, Ukraine had the second largest land army in Europe after Russia, and cumulative Western military aid since the start of the war has delivered more than the inventory of practically any NATO member state. Furthermore, advances in military technology, especially in drones, satellites, and precision weapons make it very difficult to achieve rapid victory in war (Vershinin, 2024). Nonetheless, as of autumn 2024, sustained Russian offensive pressure has managed to degrade the Ukrainian military more than at any other point in the war.

Europe is a vital supporter of Ukraine's armed forces. Failing on support for Ukraine would mean a Russian victory, putting Europe and the Western alliance at a long-term strategic disadvantage. It would mean a resurgent Russia on NATO's eastern flank, ready to attack with five to eight years, according to German defence minister Boris Pistorius ². Even if negotiations and a ceasefire are reached in Ukraine, Russian

industry would continue to produce at elevated wartime rates, and build-up will accelerate even more without wartime attrition (Watling and Somerville, 2024)

United States presidential candidate Kamala Harris has given some hope to Europe with her clear commitment to NATO. Yet, European complacency would be a grave mistake. Regardless of the outcome of the election in November, the US faces hard limits on its commitment to Europe, as Washington must balance between Europe, the Middle East and Asia (RAND, 2024). Moreover, its current military industrial capacities fail to fully replace what Washington delivers to Ukraine and allies such as Israel and Taiwan.

European rearmament is thus of central importance to Europe's security. The question is whether current efforts are sufficient. In this respect, progress can be assessed against two benchmarks. The first is to look at the most acute threat and benchmark European defence production against that of Russia. The second benchmark is European military capabilities two or even three decades ago, at a time much closer to the confrontation between NATO and the Warsaw Pact. The European armed forces of those times are a reasonable benchmark: while Russia is smaller than the Soviet Union, it inherited most of the Soviet military industrial capacity and can now rely on overt support from North Korea and Iran.

The Russian challenge

Russia is conducting an industrial war against Ukraine. In 2022, Russian forces performed poorly, failing to take Kyiv and suffering defeats at Kherson and Iziurm. Faced with defeat, the Kremlin decided in autumn 2022 to commit to the war fully, even at a steep cost (Vershinin, 2024). Moscow mobilised 300,000 soldiers to stabilise the frontline and committed massive fiscal resources to boost defence production.

Russia's defence budget is estimated to amount to more than 30 percent of the Russian federal budget, ie at least \$120 billion. When adjusted for differences in prices between Russian and US defence (so-called military purchasing power parity; Robertson, 2021), Russian defence spending is estimated at the equivalent of around \$400 billion annually. In comparison, the US 2024 defence budget stands at \$841.4 billion. Russia's substantial resources make it possible for it to scale up the forces fighting in Ukraine and create new reserve armies that can eventually be deployed in Ukraine or elsewhere.

Russia has significantly increased production of the weapon systems needed for modern warfare. In new estimates, we find that Russia increased its monthly production of tanks from 40 in late 2022 to more than 130 in summer 2024. Monthly howitzer and rocket artillery production have each increased by around 150 percent to 38 and 13 respectively. Russia has also mobilised North Korean production for artillery shells, allowing it to vastly exceed Ukrainian army firing rates³. In the most important sectors of the frontline in the Donbas, Ukrainian soldiers report consistently that Russian forces fire five or even ten shells for every one they fire (Cavoli, 2024).

There have been notable improvements in the quantity and quality of Russian drones since 2022. Long-range drones have been one of the most important systems for Russia since autumn 2022. From a negligible quantity prior to the war, annual production in 2024 will surge to approximately 2,200. Similarly, Russia has fired almost 10,000 missiles since 2022. Many were ballistic or hypersonic missiles that are difficult to intercept even by modern air defence. Air defence coverage on NATO's eastern flank is sparse, so Russian drones and missiles represent a serious threat⁴.

The Russian challenge to European security will not end with the conclusion of hostilities in Ukraine, and elevated production will continue even after Soviet stocks are depleted. Our data shows a constant shift to more modern weapon systems that continue to add to Russia's strength. Russia will also continue to export its battle-proven systems to governments and armed groups hostile to Western democracies, especially in Asia and the Middle East (Bergmann *et al*, 2023).

The reality of German rearmament

During the time of the 'peace dividend', Germany's military capabilities decreased dramatically, to the point where the Bundeswehr "more or less stands bare," according to German Army Inspector Alfons Mais, in February 2022 when Russia started its full-scale invasion of Ukraine⁵. German military savings in the last three decades are estimated at €400 billion to €600 billion (Bardt, 2018; Röhl *et al*, 2023).

These considerable savings were associated with sharp reductions in military stock. By 2021, Germany had around 340 tanks, or just 8 percent of the more than 4000 West German tanks it had in 1992 and 14 percent of the 2400 tanks it had in 2004. The number of howitzers fell from more than 3000 in 1992 to almost 1000 in 2004 and a mere 120 in 2021. Similar numbers apply for other weapon systems. Even for the

fighter jets that NATO puts significant emphasis on, numbers came down by more than 50 percent.

After this long period of disarmament, German capacities have only increased marginally since the 2022 invasion of Ukraine. In Wolff *et al* (2024a), we show it will take decades for Germany's military stocks to reach 2004 levels at current procurement rates: 10 years for combat aircraft, 40 years for tanks and 100 years for howitzers. In comparison, it would take Russia only two to seven months to produce 2021 levels of Bundeswehr stocks.

German orders rose meaningfully only after July 2023 – a long delay compared to the swift Russian commitment in autumn 2022 to reinforce its weapons industry. The number of orders has now risen but the proportion of orders without a fixed delivery date has also risen, suggesting growing delays and production backlogs. And numbers remain relatively small. For example, only 22 howitzers have been ordered, a number so low that it does not compensate for the larger numbers of howitzers committed to Ukraine and pales relative to Russia's monthly production of 38. For the main battle tank, the Leopard 2, it took until July 2024 to place more than the replacement order of 18 tanks. The 105 Leopard 2 ordered in July are only expected to be fully delivered by 2030.

German orders from companies in other EU countries are minimal, with the vast majority of purchase orders going to German companies, German joint-ventures with international partners and the US. Finally, our evidence suggests that prices for military equipment and ammunition remain very high ⁶.

The overall state of German rearmament is dire. Production has increased for shells but compared to Russian production rates, the attrition rates in Ukraine and the huge gaps after 30 years of the peace dividend, our findings do not suggest that Germany will be ready to provide the deterrence that is expected from it, should Russia decide to confront NATO in five to eight years. Production increases in key allies such as France are also insufficient to ensure adequate supply for a hypothetical conflict.

Decisive action needed

To ensure efficient rearmament, German policymakers need to commit to a long-term political strategy. It needs to be comprehensive and European to ensure that

budgetary resources are leveraged to lower prices and thereby become politically acceptable. We see three priorities.

First, Germany needs to commit sufficient long-term resources to ensure planning stability for military production. Uncertain and insufficient budget commitments are self-defeating as they prevent long-term investments in capacities, while the resulting small quantities imply higher prices per unit. The federal government reacted to the war with a Sondervermögen – a one-off debt vehicle of €100 billion. This fund allows major new investments in military equipment and is welcome. However, it does not provide a long-term budgetary commitment.

In fact, German defence spending has consistently been and remains modest compared to other European nations. The regular defence budget, Einzelplan 14, amounts to only €52 billion, or about 1.2 percent of GDP. Equipment spending from the Einzelplan 14 has actually decreased since February 2022 as it has shifted to the Sondervermögen. Medium-term financial planning foresees Einzelplan 14 will remain unchanged until 2028, when it is hoped that political majorities will be found to increase it to €80 billion, or around 2 percent of GDP. A rapid increase in Einzelplan 14 to €80 billion, ideally in the budget year 2025, should be implemented to allow Germany to order greater quantities of necessary military equipment while showing political resolve to buy equipment in the future. A second Sondervermögen would accelerate rearmament further.

Second, Germany needs to advance a European strategy on rearmament and leverage the benefits of a more integrated European weapons industry. The economic rationale for a more integrated European market is clear. European defence companies are comparatively small as they serve small domestic markets. Small production quantities prevent the reaping of the benefits of economies of scale and the industrialisation of production. Integrating the market would also increase competition – which should be beneficial both in terms of prices and the quality of output – while also being acceptable to vested interests at a time of rising demand.

But formidable obstacles to market integration exist. More market integration would result in greater specialisation – and some fear that certain key technologies would get 'lost' to one country. Yet, *de facto*, only a few European countries besides Germany have a meaningful weapons industry, among them France, Italy, the United Kingdom and Sweden. A security pact among the key countries would ensure adequate access

to key technologies and enhance trust. However, failing to integrate European markets could easily mean greater dependence across the continent on US technology.

The German government should therefore reconsider its nationalism in defence industrial policy. Only a German paradigm shift will enable greater European defence integration. There are also substantial differences in the economic approach to defence markets. German leadership is critical to ensure that Europe does not pursue a centrally planned war economy, as some in France have suggested to be necessary. Increasing joint European procurement could also be a way forward and should rely on open tenders and competition. Bureaucratic models of cooperation with complex joint ventures and major involvement of several governments and their bureaucracies in corporate decision making must be avoided.

Moreover, Germany could advocate enforcement at EU level of NATO standards for weapons production – a major issue as the incompatibility of supposedly standardised 155mm artillery ammunition has shown in Ukraine (Landrum *et al*, 2023). While the definition of standards is a military question and clearly a NATO prerogative, the EU has the capacity to enforce standards.

As Germany leads the way by moving decisively beyond national markets towards a more integrated European defence market, there are significant efficiencies to be unlocked in European defence supply chains, especially in the central and eastern EU countries where there is a strong tradition of weapons production and unit labour costs remain relatively low.

Third, Germany needs to emphasise innovation, agility and logistics. A major push to develop these is of central importance as the war in Ukraine demonstrates. For example, drone warfare is evolving rapidly and relies on speedy integration of military capacities with the cheap mass production of commercial drones. A major dual-use programme for missiles with hypersonic capabilities in cooperation with key European partners such as France could be an answer to the growing threat of hypersonic Russian missiles. A substantial orientation of procurement towards innovation would also be beneficial to the wider economy. Military innovation benefits civilian use (Mowery, 2010). A European debt fund to drive innovation and air defence would further increase the credibility of Germany's commitment to European security.

Germany's federal government has achieved much recently, supporting Ukraine and starting to plug the gaps in military capabilities. However, budgetary commitments

remain insufficient and the strategy is not sufficiently convincing in its long-term and European perspectives. Though citizens might doubt the wisdom or necessity of rearmament, our data-driven research has left us very concerned. Failing on deterrence would mean incalculable costs, in economic terms and for the security of Europe.

This analysis is a version of Guntram B. Wolff, Alexandr Burilkov, Katelyn Bushnell and Ivan Kharitonov, 'Kriegstüchtig ist Deutschland erst in Jahrzehnten', Frankfurter Allgemeine Zeitung, 9 September 2004, <https://www.faz.net/aktuell/wirtschaft/bundeswehr-hat-in-den-vergangenen-30-jahren-um-die-500-milliarden-ingespart-19972675.html>, and is based on Wolff et al (2024b).

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