3 Main Points

Europe faces serious munitions shortages exposed by Ukraine's high ammunition demands. Without legacy stockpiles, Europe must prioritise a large and diverse munitions output to ensure its defence operates at maximum capacity and thus help establish deterrence. Reducing cross-political bureaucracy, innovating cost-efficient approaches, and fostering continental cooperation will be critical.

About the Authors

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Production as Deterrence

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Working Group: Europe

Overall Summary: Europe faces serious munitions shortages exposed by Ukraine's high ammunition demands. Without legacy stockpiles, Europe must prioritise a large and diverse munitions output to ensure its defence operates at maximum capacity and thus help establish deterrence. Reducing cross-political bureaucracy, innovating cost-efficient approaches, and fostering continental cooperation will be critical.

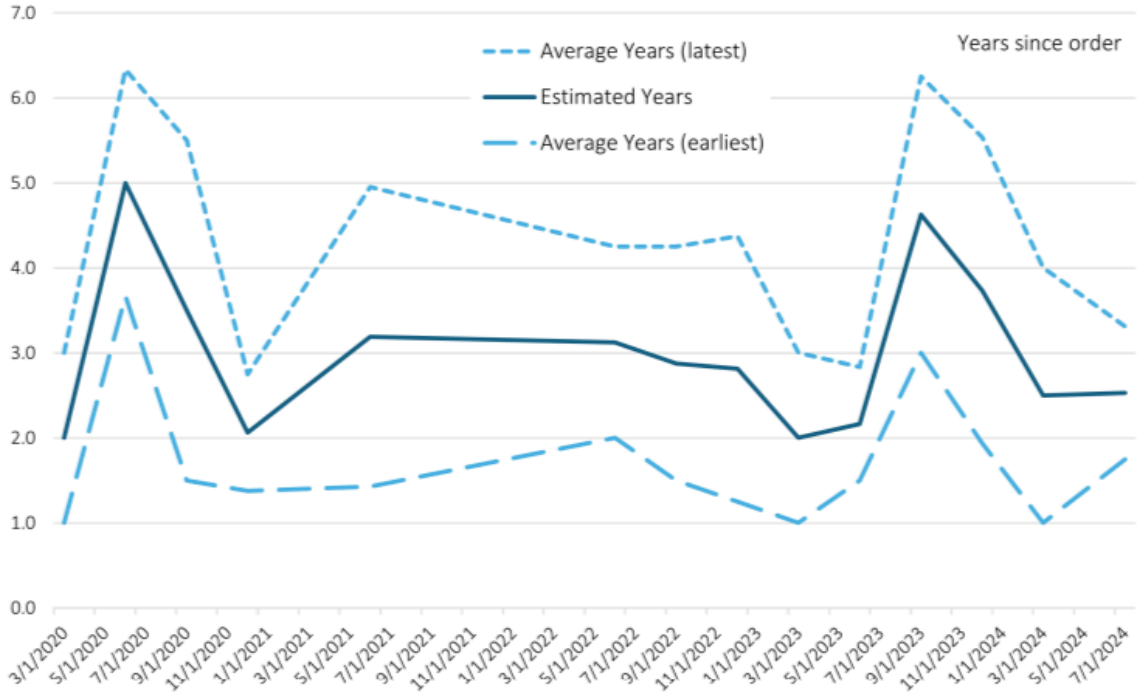
Nearly nine decades after a French newspaper questioned why they should "mourir pour Dantzig", the White House is subtly asking the same about Brussels. US Vice President JD Vance's leaked Signal messages criticising the EU and US President Trump's 2024 claim that he would let Russia "do whatever the hell they want" to NATO members below 2% GDP spending have raised doubts on whether Washington is a reliable European security partner. The ensuing panic led to some anxious defence commentary, including dubious claims that the US had "kill-switches" on the F-35 jets sold to European air fleets. In late June, the NATO summit will bring member state leadership together in The Hague to outline the direction of this new transatlantic security framework. One question in particular stands out.

The fighting between Russia and Ukraine reveals that peer-to-peer conflict demands a far higher expenditure of munitions than was anticipated by previous stockpiles and production rates. If both parties, the two largest inheritors of the greatest munitions reserve ever hoarded in history, respectively require North Korean and Western supplies to maintain artillery fire and air defence after just two years, then the far smaller European stockpiles represent a critical vulnerability. Ukraine's resilience, bolstered by substantial drawdowns from Western storages and Kyiv's ingenious nationwide approach to drone-carried munitions procurement, obscures a painful lesson for Europe: insufficient ammunition supply has constantly left Ukrainians fatally vulnerable on the frontline. Without those legacy and foreign reserves to draw from, the ability for European militaries to avoid shortages in a hypothetical peer-to-peer is in doubt, with deleterious consequences for deterrence and casualty rates. How is Europe planning to have enough munitions?

Munitions, the lifeblood of defence

Munitions are part of a broader and unheralded question of war economy and logistics, but one that can singlehandedly drive strategic outcomes. Public commentary often focuses on the equipment, arguing the performance of new vehicles and systems or even the sheer quantity of older equipment will defeat relatively disadvantaged actors. But all equipment exists in an interdependent ecosystem often affected by imperceptible factors. Western mobile howitzers have been praised by Ukrainians for their superior range, impact dispersion and firing rate compared to their contemporaries. But if the battlefield intelligence is not supplying it with targets quickly enough, or if the brigade's logistics lack the artillery shells to supply it with, or if replacement barrels and parts are not accessible, its value is diminished. As in Ukraine, if a defender is limited in fires (such as artillery, long-range missiles, drones, etc.), then it is more difficult to disrupt enemy assaults and counter enemy fires on one's own positions and critical infrastructure.

Figure 7.1:
Germany quarterly estimate of the number of years needed to deliver the ordered equipment where available, January 2020–July 2024



Source:https://www.ifw-kiel.de/fileadmin/Dateiverwaltung/IfW-Publications/fis-import/1f9c7f5f-15d2-45c4-8b85-9bb550cd449d-Kiel_Report_no1.pdf

Munitions policy is also difficult to get right because it involves correctly evaluating many economical and tactical considerations, not just increasing the outputs of a few universal munitions. Various battlefield tasks require different types of munitions: Line-of-contact combat requires infantry-level access to mortar and/or drone-carried explosives, while guided missiles allow commanders to strike command centres, ammunition hubs, airbases and other points of strategic value deep into the enemy's rear. A selection of cost-effective options matters too, known as a "high-low" mix. Successful air defence across a broad territory, for example, demands broad access to counters against advanced missiles as well as cheap drones. If not, the defender will have too few munitions, losing critical infrastructure while spending far more than

the enemy. To this end, civil-military cooperation is critical so that political leaders furnish military leaders with the appropriate counters to threats in sufficient numbers.

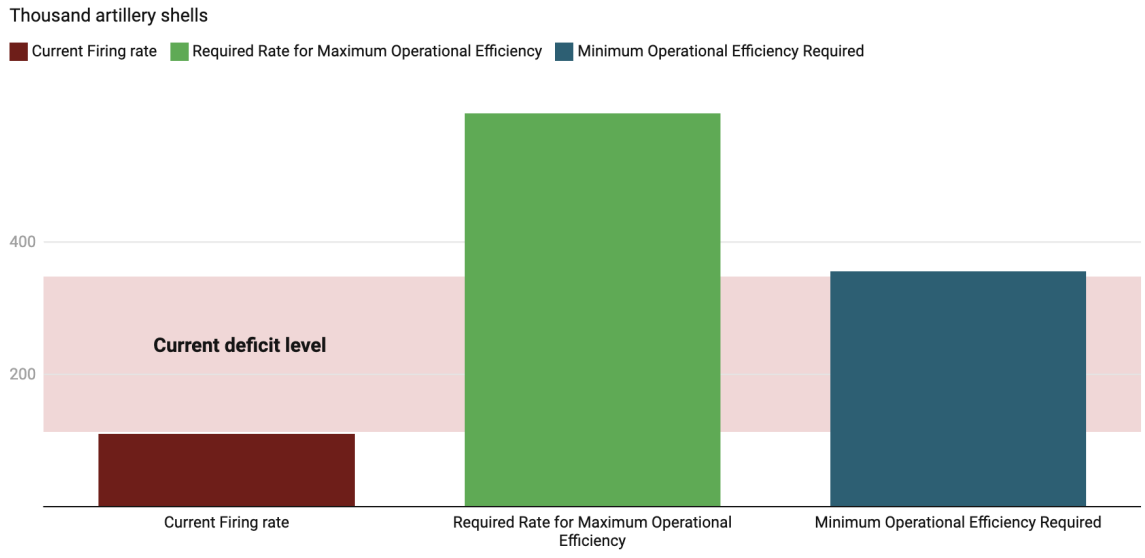
Most importantly, modern military procurement takes years to mature, so nations must be proactive. When expanding production, new factories need to be built, workers need to be trained, and storage hubs need to be prepared for distribution. A report from the Kiel Institute (shown below) examined delivery obligations by suppliers to the Bundeswehr by quarter from 2020 to 2024 and found deliveries could be expected at the latest from 36 to 72 months on average. The EU as a whole pledged in early 2023 to surge production and deliver 1 million 155mm shells to Ukraine within 12 months but only managed a third of that and only by drawing from existing stocks rather than from new production.

Investments are slow, but accumulating

As Europe looks away from Washington towards a more self-sufficient defence economy, the continent is scrambling to coordinate munitions procurement. Certainly, in the long run, Europe does not need to produce several dozens of millions of various munitions in Soviet-style stocks to supply a future European war that may or may not happen. But peacetime munitions production has one critical objective: to ensure that pre-war reserves are sufficient to sustain military operations until wartime production is reached. Are current munition stockpiles and procurements, given lessons from Ukraine, adequate to defend Europeans on land and in the air?

The conflict in Ukraine serves as a stark reminder of the critical role of artillery munitions, with data indicating that approximately 70% of all casualties are attributable to artillery fire. Estimates suggest that the Kremlin's firepower currently amounts to 2 million

shells per month, in contrast to Kyiv's usage of around 600,000 shells. Ukraine is struggling against Russia's more than threefold offensive strike capacity and, in response, has turned to Europe for military assistance. In addition to the 2023 ammunition pledge, EU supply has been bolstered by hundreds of thousands in bilateral contributions from Czechia and Poland. Contract commitments are allowing European defence manufacturers to finally surge production, with Rheinmetall's latest contracts earmarking about 700,000 155mm shells by 2026. This comes after the German conglomerate expanded through various mergers and acquisitions with other defence suppliers in Spain and across the EU. BAE Systems has followed suit in this development, announcing a corresponding eightfold rise in their artillery shell output by the same timeline. Despite these pledges, projected ammunition supplies for Ukraine still fall short of meeting the operational requirements of the ongoing conflict, putting into doubt European self-sufficiency in its own future fight. Estimates foresee a need for 356,000 shells per month to maintain a minimal level of combat effectiveness, far short of the optimal operational capacity of over 500,000.



Source: https://www.habtoorresearch.com/programmes/russo-ukrainian-war/

Moreover, forecasts underscore a significant strategic disparity for Kyiv and the European Union, as Putin capitalises on strategic alliances with North Korea to secure sufficient artillery strength. By importing 5 million shells and covering around 75% of total consumption from July 2024, Russia is comfortably surpassing current EU production capabilities. This grim outlook becomes even more pressing once the depletion of NATO's existing stockpiles is taken into account.

Europe is also attempting to boost its air defence and long-range missile capabilities, but the long lead times involved in missile procurement mean it must accelerate such efforts. MBDA announced that overall orders for missile interceptors and long-range missile fires (like the French-British SCALP/Storm Shadow collaborations) increased by 33% in 2024. France approved for 2025 a €1.9 billion purchase of various anti-air, anti-ship and ground attack munitions. Eight European countries signed on to a joint procurement of Mistral 3 air defence missiles. Likewise, Germany's Diehl Defence has received orders for IRIS-T air-defence systems and missiles from across the continent, with Bulgaria even opting for it over the American Patriot system.

But overall procurement may still not be enough. The puzzling acquisition of 940 Cold-War era Stinger hand-held anti-air missiles in 2024 by Germany, Italy and the Netherlands reflects a disorganised scramble for air defence. Likewise, production of the German-Swedish Taurus cruise missile was stopped after no orders were received. With the exception of American companies, MBDA is the only Western company that produces the full spectrum of defensive and offensive rocketry, domestic expertise that is crucial to maintaining an effective and flexible munitions industry. This native expertise, for example, was crucial in getting SCALP/Storm Shadow missiles unexpectedly functioning on Soviet-era Ukrainian aircraft. Yet the apparent lack of investment into domestic long-range strike missiles is baffling given how quickly they have been expended in Ukraine and how long it takes to produce them. The UK's first order of 900 Storm Shadow missiles in 1997 led to their operational deployment six years later; Russia produces and expends about 150 missiles per month alone.

On the other hand, statistics on drone production provide a more favourable outlook. The unprecedented use of drones as a tactical asset in surveillance, targeting, and direct strike roles has led Kyiv and the EU to significantly escalate production. Projections advanced by the Prism Foreign Policy Council call for a target of 2 million drones per annum, corresponding to a 20% increase to sustain high-intensity operations. Such a target is going to be comfortably exceeded, as according to estimates, drone procurement is bound to increase to around 4 million. There are all strong indicators of progress in this regard, considering also Ukraine's effort to scale up FPV production to 1.5 million units per annum. Complementing this effort, the European Defence Fund has earmarked over 1 billion euros for research and innovation in the sector. Although comprehensive data on European drone production remains limited, preliminary comparisons suggest an overwhelming advantage relative to Russia's estimated procurement of 1.49 million.

Success means streamlining bureaucracy and getting creative

European munitions policy is thus steadily expanding, but stockpiles may not be large enough for military leaders to be comfortable, but solutions exist. First, bureaucratic obstacles and local opposition along the full political spectrum, from municipal to continental, must first be reduced. For example, the city council of Troisdorf, Germany, resisted the refurbishment of a detonator factory for a year. On the other hand, Lithuanian legislators cut certain non-urban planning and public design input requirements for projects of 'state significance' last year, which are estimated to reduce industrial infrastructure construction times from 24-30 months to just six. This would require the determined expenditure of political capital, especially when coaxing (or coercing) local jurisdictions. Likewise, the European Commission has encouraged the use of the escape clause in the Stability and Growth Pact to free up funds under existing budget rules. Given the years of preparation needed for military readiness, such deregulation efforts need

proactive political movement now to maximise gains to the price and speed of the European defence economy.

Second, some shifts in technical approaches may bolster cost efficiencies and help bring economies of scale to maximise the impact of defence expenditures. “Dumb” munitions are easier to prepare in mass, and military strategies can be adapted to prioritise technical capabilities in delivery platforms (like stealth bombers and howitzers) rather than sophisticated munitions. Incorporating shell recycling techniques, adopted in the US military a decade ago, can cut costs by reclaiming expired or rejected projectiles for training. North Korean artillery factories are alleged to produce and stockpile fuses and empty shell cases, facilitating future output as the more expensive and technical part of the supply chain is frontloaded, and the propellant filling, which has a far shorter shelf life, can be filled when national security requires it. MBDA likewise preassembles missile parts and subsystems to accelerate order delivery. Standardising equipment and munitions across European militaries, including finally diverging from legacy Warsaw Pact equipment, will help drive down unit prices--so long as defence industries can be convinced to concede national contracts in favour of gambling on continental deals.

To this last point, and third, an inclusive and committee approach led by Brussels can incentivise continental collaboration. By allocating responsibilities by comparative advantage (ie. Finnish icebreakers, German missile air defence) instead of funding piecemeal national contributions, the EU can get both nations and contractors to buy into a new procurement paradigm. Ongoing integration of the Ukrainian defence industry as well through initiatives like the new EU-Ukraine Task Force would not only bring its practical battlefield experience in drone and missile technology but also a large and demonstrably cost-effective defence industry to Europe while helping the nation to rebuild economically.

If European leaders are willing to spend political capital to ensure munitions self-sufficiency, there are options and policies possible. "Production itself is deterrence," said

William LaPlante, former US undersecretary of defence. If Europe is serious about deterrence, it must get serious about production.