STUDY

The defence imperative

Driving innovation and resilience on Europe's path to strategic autonomy

Roland Berger

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Europe finds itself in an environment of existential threat, exemplified by Russia's assertive posture and the ever-present risk of broader conflict. Although European defence budgets are on the rise, achieving sustainable deterrence requires more than financial resources – it demands a holistic approach suited to evolving warfare paradigms.

In this publication, we examine how Europe can ramp up industrial capacity and spur innovation in a setting where 'old world' assumptions – small, ultra-sophisticated arsenals – no longer suffice. Adversaries have shifted their industrial bases to wartime footing, directing full-scale production of large volumes of military capabilities, forcing European stakeholders to scale quickly, implement continuous upgrades and stay agile against shifting threats.

We detail four industrial pathways. One focuses on steady peacetime production, providing a baseline when tensions are low. Another advocates targeted capital investments to modernise existing lines, offering a swift increase in output. A third urges collaboration with civilian industries for high-volume manufacturing that resolves supply chain bottlenecks. Finally, 'smart, affordable mass' centres on software-defined solutions that continually scale and update – vital for responding to fast-changing threats. A robust European defence technology and industrial base must integrate all four to maximise resilience.

We also highlight priority areas to help public and private actors reach the 'deterrence threshold' – the industrial output needed to discourage potential aggressors. Policymakers and defence agencies should unify doctrine and refine programmes; defence companies must reshape operating models and adopt more agile designs; and non-defence firms can supply extra capacity for both existing platforms and rapid, high-volume 'smart, affordable mass' systems. By coordinating these pathways and applying the study's recommendations, Europe will be able to secure the industrial and innovative foundations needed to deter aggression.

Ultimately, only a coordinated effort – combining defence ministries, prime contractors and civilian sectors – can deliver the resilience and capabilities Europe needs. Acting decisively now will leave the continent better prepared for an uncertain future and ready to protect its core security interests.

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Europe's new geopolitical reality: a critical tipping point

1

Since 2014, when Russia annexed Crimea, and more recently in February 2022 with the start of its so-called 'special military operation' – in reality, a war of aggression against Ukraine – European governments have faced their most significant security challenge since the Second World War. The Russian regime continues its expansionism, driven by territorial ambitions, while continuously strengthening its authoritarian power. In 2024 alone, it devoted close to 9% of its GDP to defence, reportedly allocating more than 40% of its governmental budget to military spending. By 2030, Russia plans to add 300,000 soldiers, 3,000 tanks and 300 fighter jets to its forces[1] – further evidence of an increasingly aggressive posture. Beyond conventional methods, Russia also employs hybrid warfare, leveraging cyberattacks and disinformation to target civilian infrastructure and government institutions, adding another layer of complexity to Europe's security concerns. The European Union now regards Russia as an 'existential threat' to the continent[2].

A weakened transatlantic alliance further increases the challenge for Europe. As the United States emphasises the need for greater European responsibility in defence, particularly in meeting the goals around military spending in relation to GDP, Europe must rise to the occasion. The current US administration is pushing for a stronger, more committed Europe within NATO, underscoring the importance of these ties. Consequently, Europe must strengthen its own defence capabilities.

In this context, Europe must fundamentally reconsider its security posture. This shift has led to a comprehensive re-evaluation of how Europe can strengthen its defence and associated industrial base to deter aggressors. Several European countries have announced substantial increases in defence spending, moving towards (and, in some cases, considering exceeding) the 2% of GDP benchmark set by NATO. As of March 2025, France is debating raising defence spending to 5% of GDP, while Germany has decided to exempt defence spending beyond 1% of GDP from the constitutional debt brake, paving the way for debt-financed defence spending beyond the current NATO target. Moreover, the European Commission introduced the 'Readiness 2030' plan, which could potentially mobilise up to EUR 800 billion[3].

Yet boosting defence budgets is only the first step. Achieving tangible gains in deterrence and war readiness depends on how effectively Europe directs these investments. Ensuring Europe's conflict preparedness extends beyond procurement targets. It encompasses:

- **Effective policy frameworks** that align the priorities of the European Union, its Member States and NATO
- **Future-ready military doctrines** that reflect emerging threats
- **Societal readiness**, ensuring European citizens understand and support a stronger defence effort
- **A robust industrial base and innovation ecosystems** capable of swiftly delivering required capabilities
- **Sufficient troops and personnel able to operate military equipment,** along with the structure required to recruit and train them rapidly.

In this publication, we focus on reinforcing the industrial and innovation backbone – the foundation required to deliver the right equipment at the right time. Without such a backbone, even the most ambitious spending commitments will struggle to translate into real security gains.

1 Élysée Palace - Address to the French People (March 2025)
2 Reuters – EU's Kallas: Russia is posing an existential threat to our security (January 2025)
3 European Commission – Press statement by President von der Leyen on the defence package (March 2025)

As the only global strategy consulting firm of European heritage, we at Roland Berger believe this pivotal moment calls for actionable insights. We will address the following key questions:

- What is required to address the changing dynamics of warfare?
- Where does European defence currently stand?
- What actions are needed to rapidly scale up Europe's defence capabilities to meet these requirements?

In examining these crucial issues, we aim to inform and help shape solutions for three main stakeholder groups – European policymakers and military agencies, defence industry players and non-defence industry players – who must align their efforts in order to achieve a sustainable European deterrence posture. Our recommendations serve as a foundation to support discussions and provide food for thought for each group in effectively addressing the challenges ahead.

"We've entered a 'new world' in which traditional military platforms converge with high-volume, affordable and software-defined technology. Civilian innovators can help defence firms remain agile and cost effective."

Eric Kirstetter
Senior Partner

What is the current state of European defence?

Defence spending on the rise

2

Considering the changing geopolitics, defence budgets across the EU and European NATO countries have risen steadily. Most nations now meet or exceed the Alliance's longstanding 2% of GDP guideline, which many argue is no longer sufficient given current security challenges. In addition, uncertainties in the transatlantic partnership have only intensified the momentum behind these increases.

In 2025 alone, several European governments have announced ambitious targets: Germany's new coalition government secured approval for a debt-funded investment package, partially exempting defence from strict debt rules. France is exploring a defence budget of up to 5% of GDP; the United Kingdom aims to reach 2.5% of GDP by 2027; and Sweden has announced plans to raise its defence spending to 3.5% of GDP by 2030[4]. ▶ A

Further bolstering Europe's security posture is the European Commission's Readiness 2030 plan, unveiled in March 2025. This programme removes key fiscal constraints – allowing Member States to boost defence spending without triggering the excessive deficit procedure – potentially freeing up EUR 650 billion over four years. It also features an EU-level loan package of EUR 150 billion for collective investments in critical capabilities, facilitating both rapid support to Ukraine and intra-European cooperation.

ON PAPER, EUROPE'S COLLECTIVE CAPABILITIES REPRESENT A STRONG FORCE, BUT CERTAIN FOCUS AREAS MUST BE ADDRESSED

A 2024 snapshot of Europe's defence capabilities relative to Russia and the two major military powers – the US and China – indicates that, in terms of troop strength and operational platforms, the continent (EU 27 + UK) remains a formidable force. We acknowledge that factors such as training, readiness, interoperability and equipment efficiency – which can be subjective and highly variable – are not included in this direct comparison. Additionally, capabilities like drones and long-range strike assets are not fully represented. We include strategic deterrence capability in this snapshot. ▶ B

Despite Europe's considerable combined military assets, five overarching focus areas need to be improved to enhance Europe's deterrence capabilities. Addressing these areas will be critical to ensure the continent's security, autonomy and preparedness.

FOCUS AREA 1:
INDUSTRIAL SCALE AND CAPACITY

Europe is currently strengthening the manufacturing capacities and resilient supply chains required to build sustainable deterrence. European defence production often operates at peacetime levels, limiting the scale of any potential surge in times of crisis. In 2024, Russia's combined production and refurbishment of main battle tanks neared 300 units, compared to around 115 in Europe – illustrating a broader trend where Europe's constrained industrial output has the potential to be scaled up significantly to meet strategic needs.

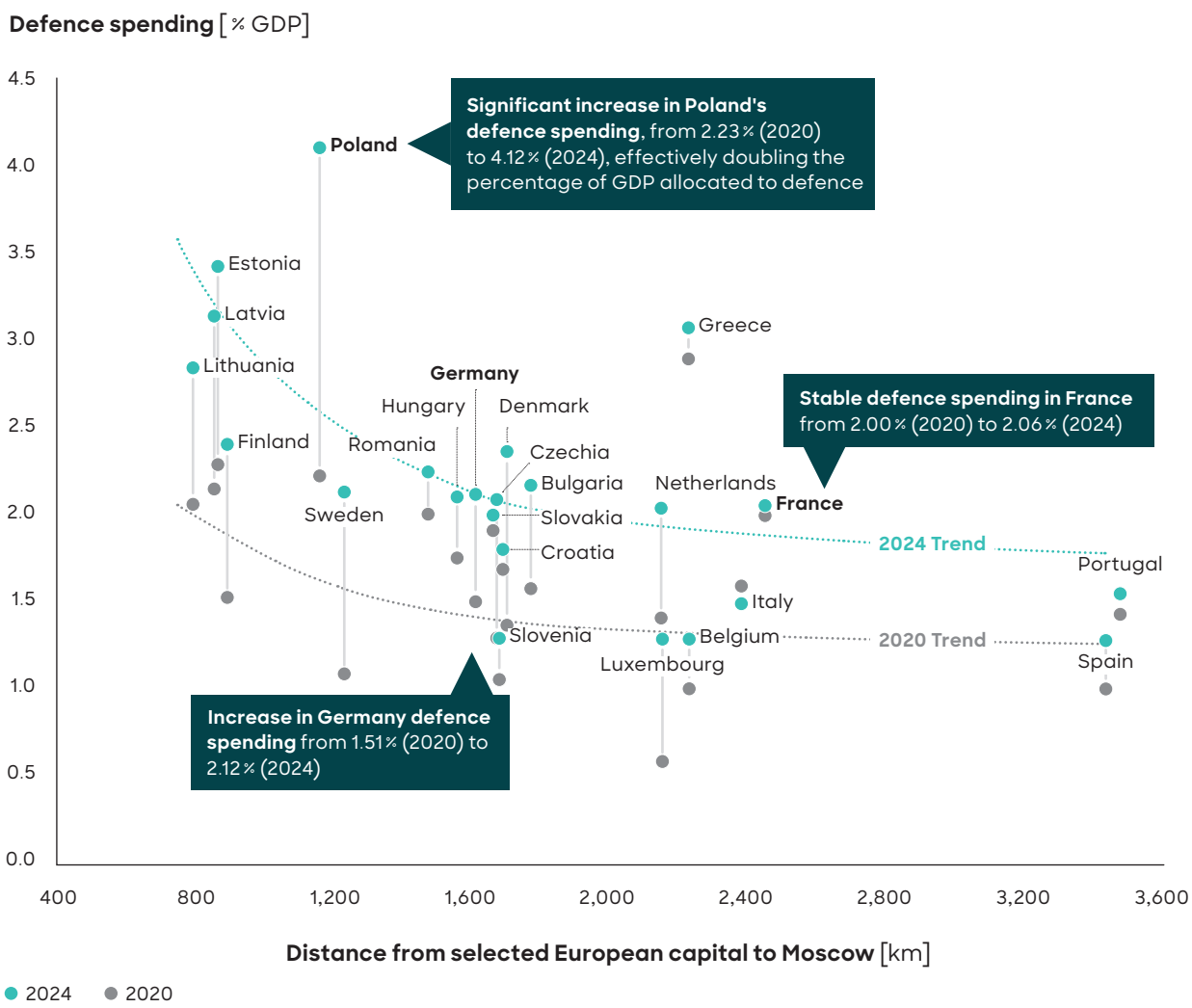
FOCUS AREA 2:
INVESTMENT IN INNOVATION AND R&D

Technology increasingly determines success on battlefields, and Europe can avoid losing ground by ramping up investments in military and civilian research and development. Advances in AI, quantum computing and other emerging fields can swiftly tip the balance in high-stakes conflicts. The EU White Paper for European Defence Readiness 2030[5], published in March 2025, emphasises that many critical technologies are inherently dual-use – making civil and military R&D convergence essential for innovation and cost effectiveness.

4 Government Offices of Sweden - Investments in stronger military defence, measures against hybrid threats and increased support to Ukraine (March 2025)

5 European Commission - Joint White Paper for European Defence Readiness 2030 (March 2025)

A Evolution of defence spending of selected EU countries between 2020 and 2024[6]



6 Note: Incl. 23 countries of the EU countries which are also NATO members in March 2025

Source: NATO, The Economist, Roland Berger

B Overview of capabilities across military domains[7]

		US	China	Russia	Europe (EU + UK)
Conventional deterrence					
# active soldiers		4 1,315,000	5 2,035,000	4 1,134,000	4 1,520,000
Land	# IFV/APC	3 3,300	5 8,200	3 3,790 (many destr. in UKR)	4 6,100
	# MBTs	3 2,600	4 4,700	4 3,000 (many destr. in UKR)	4 4,400
Naval	# aircraft carriers	5 11 (10 Nimitz class, 1 Ford class)	2 2 (soon + 1 with Fujian)	1 1 (Kuznetsov)	3 4 (1 CdG/FR + 2 QE/UK, 1 Cavour/IT)
	# frigates & destroyers	5 100	4 92	2 31	5 110
	# attack submarines	5 65	5 58	5 52	5 47
Air	# combat aircraft	5 3,200	4 2,400	3 1,200	4 1,700
	# attack helicopters	5 890	3 300	3 350	3 320
	# tankers	5 550	3 35	2 15	3 35
	# transport aircraft	5 1,030	3 370	4 590	4 660
Space	Access to space capable	5 Very high (156 orbital launch attempts in 2024)	4 High (68 orbital launch attempts in 2024)	3 Medium (17 orbital launch attempts in 2024)	2 Low (3 orbital launch attempts in 2024)
	Milsatcom capable	5 Very high	4 High	3 Medium	3 Medium
	Satnav capable	5 Very high (GPS, Global + SBAS: WAAS)	4 High (Beidou, Global + SBAS in dev.)	4 High (GLONASS + SBAS in dev.)	5 Very high (Galileo + SBAS: EGNOS)
	Remote sensing capable	5 Very high	5 Very high	3 Medium	4 High
	Space situational awareness capable	4 High	4 High	4 High	3 Medium
	Counter-space capable	5 Very high	5 Very high	4 High	2 Low
Cyber and electro-magnetic	# computers in the TOP500 list	5 172	3 62	2 6	4 143
	Cyber Power Index Rank (Harvard Belfer Center)	5 Score: 43	4 Score: 34	3 Score: 23	2 Score: 19

0 None 1 Very low 2 Low 3 Medium 4 High 5 Very high

		US	China	Russia	Europe (EU +UK)
Strategic deterrence					
Nuclear forces and missile defence	# nuclear warheads	4 3,710	3 500	5 4,380	3 515
	Sea-launch capable	5 Yes (14 Ohio class)	4 Yes (1 Type 092 + 6 Type 094)	5 Yes (7 Borei Class + 5 Delta IV Class)	4 Yes (4 Triomphant Class FR + 4 Vanguard Class UK)
	Land-launch capable	3 Yes (Peacekeeper, Minuteman) – upg. planned	4 Yes (Dongfeng family incl. modern ones, i.e. DF-41)	4 Yes (RS-24, RS-28)	0 No (nuclear dyad in FR – only sea-launched in UK)
	Air-launch capable	3 Yes (AGM-86 to be replaced with AGM-181 LRSO)	3 Yes (CJ-10)	4 Yes (incl. recent versions, i.e. Kh-47M2 Kinjal)	4 Yes (ASMP-A to be modernised with ASN4G in FR)
	Early-warning capable	5 Yes (SBIRS)	4 Yes (TJS)	4 Yes (EKS)	1 No (only demon-strators, e.g. Spirale in FR)
	Anti-missile capable	4 Yes (covering all phases - from boost to terminal)	4 Yes (incl. recent exo-atmospheric interceptors with e.g. HQ-19)	4 Yes (A-135 and A-235)	3 Yes (but some interception phases not covered, e.g. exo-atmospheric)

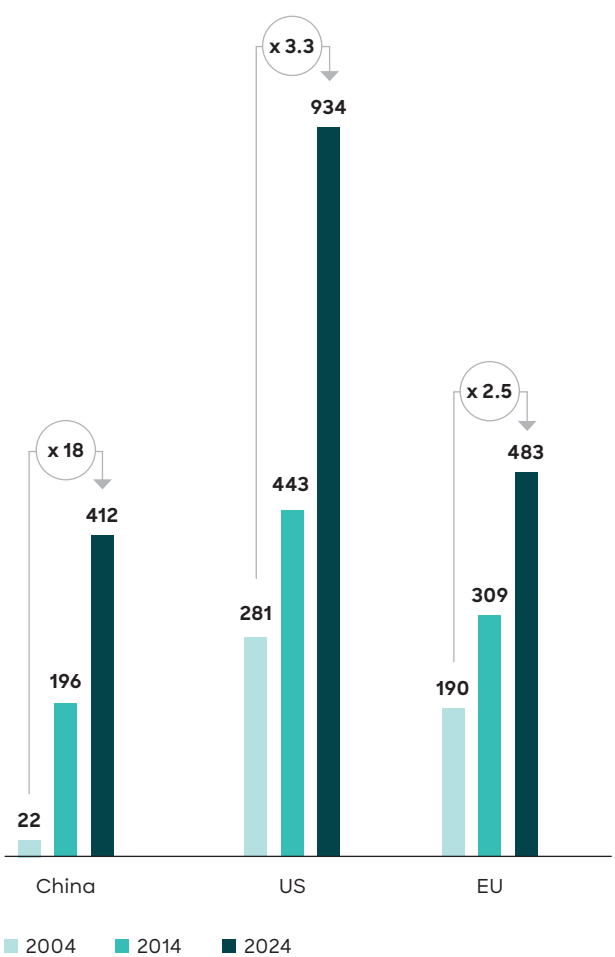
0 None 1 Very low 2 Low 3 Medium 4 High 5 Very high

7 This scoring emphasises volume and equipment age, excluding performance, interoperability and troop readiness. Data is from publicly available sources (rounded for categories like active soldiers and major platforms). China outnumbers the US in coastal/patrol vessels. The cyber ranking reflects the highest-ranked European country (UK) in Harvard's Belfer Center's 2022 National Cyber Power Index. The TOP500 tracks the world's fastest supercomputers. Counter-space data is derived from the Secure World Foundation's 2024 Global Counterspace Capabilities Report. European nuclear forces include those of France and the UK, excluding NATO nuclear assets stationed on European soil.

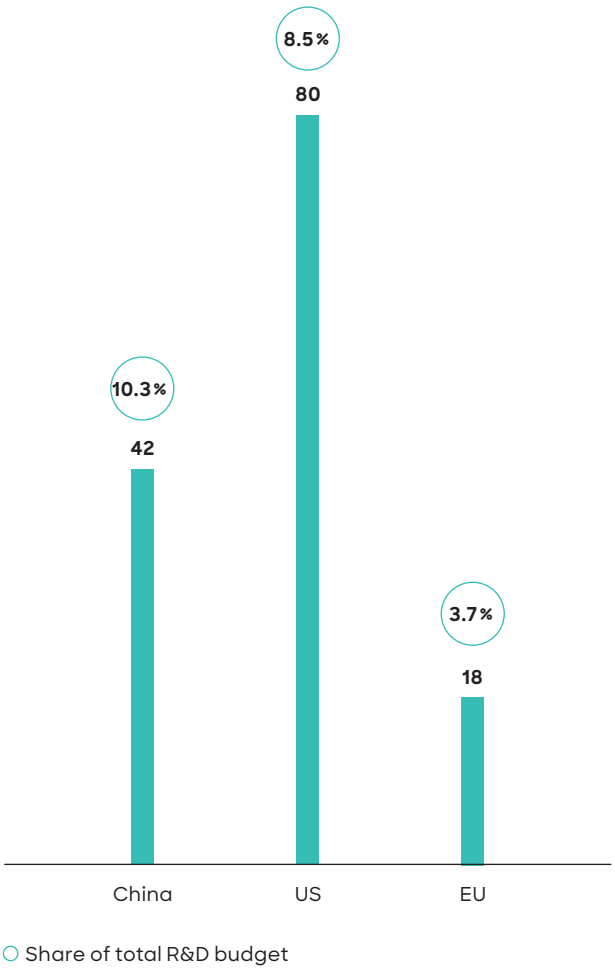
Source: IISS Military Balance Database, secondary research, expert consultations, Roland Berger

C Civil and defence R&D[8]

Evolution of R&D budget [EUR bn]



Defence R&D spending [2022; EUR bn]



8 Chart on left side: Gross domestic expenditures on R&D according to the World Bank, covering business enterprise, government, higher education and private non-profit spending. R&D encompasses basic research, applied research and experimental development. Chart on right side: R&D spending consisting of public and private R&D spending in Aerospace and Defence sector, based on European Parliamentary Research Services for EU and US, based on American Enterprise Institute for China. Share of indicated 2024 R&D budget.

Source: World Bank, European Parliamentary Research Service, secondary research

Meanwhile, global R&D spending, particularly in the US and China, continues to surge. Nevertheless, with stronger R&D incentives and funding, Europe can maintain a technological edge and fulfil its ambition for strategic autonomy. ▶ C

FOCUS AREA 3:
ACCESS TO STRATEGIC ENABLERS

Europe can increase its strategic autonomy by working towards reducing its dependence on the United States for certain capital-intensive capabilities. Although major European defence firms excel in many domains, critical enablers – from advanced command and control systems capable of coordinating large multinational forces to space-based surveillance and beyond-line-of-sight communications – remain predominantly American. The US also provides significant long-range strike assets and specialised logistics support (e.g. large-scale military mobility) that Europe cannot replicate fully yet. This dependence is further illustrated by Europe's frequent procurement of US-origin platforms (e.g. F-35). Even European countries with strong traditions of self-reliance, like France, rely on American technology for critical systems such as the electromagnetic catapults planned for the country's next-generation aircraft carrier[9]. Reaching a point where Europe's defensive capabilities relied less on external suppliers would limit the continent's vulnerability by ensuring continued access to crucial spare parts and maintenance in the event of shifting supply priorities.

FOCUS AREA 4:
ADAPTING TO THE EVOLUTION OF WARFARE

An additional focus area concerns Europe's readiness to equip its forces for the evolving warfare paradigm. Tomorrow's conflicts will demand highly integrated, digital and agile capabilities, which Europe can acquire by taking steps to accelerate modernisation and adopt cutting-edge technologies. Doing so can help European forces to protect themselves against adversaries capitalising on outdated systems and doctrines. We will examine this focus area in detail in the next chapter.

FOCUS AREA 5:
SOCIETAL RESILIENCE IN THE HYBRID WARFARE ERA

Modern warfare now extends well beyond the traditional battlefield, with cyberattacks, disinformation and other hybrid tactics posing significant threats to civilian infrastructure, election processes and public institutions. According to CSIS data[10], between 2023 and 2024, 27% of recorded Russian hybrid attacks targeted transportation systems, 27% targeted government facilities and officials, 21% focused on critical infrastructure such as pipelines and power grids and 25% hit other targets, notably the defence industry. The growing complexity of hybrid threats requires accelerated efforts to prepare non-defence sectors for conflict scenarios.

9 Mer et Marine - PA-NG : la troisième catapulte, un léger surcoût pour un gain opérationnel énorme (February 2025)
10 CSIS - Russia's Shadow War Against the West (March 2025)

Changing dynamics of deterrence: from the 'old' to the 'new world'

A shifting warfare paradigm

3

Europe today faces a wide spectrum of threats, ranging from conventional military aggression to hybrid tactics and coercive blackmail, all of which undermine the continent's security and stability. Hostile powers have capitalised on these vulnerabilities, leaving many European nations significantly impacted. In this evolving environment, potential adversaries exploit multiple domains – land, sea, air, space, and cyber and electromagnetic – often simultaneously. They combine large-scale military build-up with economic pressure, energy blackmail and disinformation to destabilise European governments and societies. Those threats underscore Europe's pressing need to further adapt existing defence capabilities and accelerate the development of new defence equipment programmes. It is therefore essential for Europe to move out of the 'old world' and into the 'new world' which complements existing defence capabilities with new ones that align with the modern paradigm of warfare. ▶ D

NEEDS IMPOSED BY THE 'NEW WORLD'

These challenges must be addressed considering the multi-faceted, modern warfare threats, which call for a cultural and paradigm shift in Europe's defence ecosystem to adapt to the 'new world'. This shift, from the 'old world' to the 'new world', must tackle both traditional shortfalls (e.g. underinvestment in fundamental capabilities in countries like Germany, which hinders, among others, the rapid equipping of forward-deployed brigades on NATO's eastern flank) and new imperatives derived, for instance, from lessons learned in Ukraine.

"Europe's defence technology and industrial base will need to gear up for these multi-faceted, modern warfare threats."

Manfred Hader
Senior Partner

D 'Old world' vs. 'new world': response to selected threats

Threats	Description	Old world	New world
Risk of invasion by a foreign country	Invasion and occupation by another nation with expansionist views, threatening territory, sovereignty and resources	• Emphasis on limited, high-cost, tech. superior systems • 'Stockpiling' • Belief that a small but advanced arsenal guarantees deterrence	• High-end systems coupled with cost-effective/high-volume connected platforms • Ability to sustain and rapidly deploy larger forces for prolonged engagements
Conventional/ nuclear missiles	Use of long-range missiles to strike civilian or military targets – additionally, these capabilities can be used to exert political pressure (e.g. nuclear blackmail)	• Dependency on US nuclear sharing and air defence • Limited European missile-defence autonomy	• Pan-European and sovereign missile shield – combining national capabilities integrated in a system covering early warning and interception
Satellite signal jamming and spoofing	Disrupting or manipulating satellite signals to block communications or mislead receivers, affecting military and civilian operations	• Reactive approach (e.g. mostly public condemnation after incidents)	• Proactive redundancy in military communication systems • Active defence measures in space against hostile assets
Information warfare	Use of information to disrupt or manipulate an adversary's decision-making, often involving disinformation and communication disruption	• Relative passivity, high-lighting foreign influence only after it becomes widespread • Lack of a coordinated EU strategy to combat disinformation	• Systematic disruption of propaganda channels • Coordinated public diplomacy and strategic communication
Cyber-attacks	Unauthorised access to or disruption of computer systems, networks or data, posing risks to national security and critical infrastructure	• Primarily defensive, aimed at protecting critical infrastructure • Limited offensive or deterrent capacities	• Holistic cybersecurity strategy with defensive and offensive capabilities • Stronger EU cooperation (e.g. cyber defence standards, joint emergency response teams)
Energy blackmail	Using energy supplies as a political weapon to exert pressure, leading to energy shortages and economic instability (e.g. pushing up the cost of manufactured goods)	• Minimal contingency planning, high vulnerability to supply disruptions • Heavy reliance on single-source energy imports	• Diversification of energy supply (nuclear, renewables, LNG) • Emphasis on sovereign baseload energy production

Source: Secondary research, expert consultations, Roland Berger

Five key enablers will allow Europe to make the shift to the 'new world' happen:

1. **Defence equipment offering:** While there is a debate around reinstating conscription in European countries[11] (e.g. Denmark – for women; Germany), the sheer scale of potential threats means troops alone will not suffice. European armies require robotised and unmanned systems to complement human forces – ensuring sufficient capacities available 'on demand' to deter or respond effectively.

2. **Industrial agility:** Meeting these urgent requirements depends on rapid scalability. Europe's defence manufacturers must adopt flexible, high-throughput production models capable of quickly ramping up in crisis situations. This requires streamlined supply chains, agile partnerships with civilian industries (see enabler 5), and the ability to convert peacetime production into wartime capacity without prolonged delays.

3. **Technology approach:** Modern warfare spans multiple domains and depends on ubiquitous connectivity enabled by digital capabilities. For example, to operate swarms of drones in coordination with other manned and unmanned platforms effectively, European armies require robust sensor fusion, AI-driven coordination and real-time data sharing. This will necessitate software-defined architectures and a strong digital talent pool to stay ahead of rapidly evolving threats.

4. **Acquisition process:** Historically, defence procurement across European nations has been slow and bureaucratic, prioritising 'perfect solutions' over speed of deployment. For Europe to build deterrence capabilities rapidly, time is a critical factor. Iterative, pragmatic methods can deliver a decisive edge. Streamlined acquisition – through fast-track approvals, rapid prototyping and close collaboration between governments and industry – can speed Europe's militaries towards adapting to shifting threats.

5. **Civil-military integration:** Civilian industries play an increasingly vital role, particularly in areas such as AI, cybersecurity, advanced materials and space-based infrastructure (e.g. satellite communications), which are dual-use by essence. Non-defence supply chains can give Europe the scale, speed and innovative advantage demanded by the 'new world' of defence.

Europe's defence technology and industrial base will need to gear up for this new paradigm in innovative ways. Emerging 'new defence' firms and some niche initiatives by legacy players are already gaining momentum, led by pioneers who advocate cost-effective, short-term, high-volume, software-defined and connected solutions. Despite their efforts, the overall ecosystem still lacks the required scale and agility. These innovators have shown an ability to adapt rapidly, which is crucial in an environment where each deterrence requirement may demand entirely different capabilities. However, their progress is still missing the confidence and support of defence procurement agencies, whose backing is vital to translate these innovations into tangible contracts and facilitate broader adoption by European forces. Moving forward, Europe must retire the mindset of 'preparing for the last war' and instead embrace the flexibility to pivot swiftly as new threats arise.

11 Euronews - Could Europe conscript 300,000 troops needed to deter Russia without US? (March 2025)

How can Europe scale up its defence capabilities rapidly?

Deterrence threshold concept

4

For this study, we define the 'deterrence threshold' as a production output target which captures the industrial capacity needed to sustain and replenish Europe's defence equipment – even in a 'new world' context where both legacy platforms and new capabilities must coexist. While simply counting tanks, drones, artillery pieces or aircraft provides a baseline indicator of strength, maintaining a robust production base is just as crucial. A hostile power operating near full war-production capacity can rapidly replace losses, compelling Europe to match both the quality and the speed/scale of output. Various open-source reports[12] suggest that Russia might reach a peak in industrial output for some capabilities around 2024-2025, indicating that production could stabilise unless a significant geopolitical shift occurs (e.g. Russia forming new defence manufacturing alliances). To derive our deterrence threshold in selected areas, we assume a 25% increase in Russia's defence output between 2024 and 2030 and then add an extra 10% 'overmatch margin' to address Europe's deficits (e.g. cruise missiles, precision-guided munitions, artillery rounds, air-defence capabilities).

This threshold is not an attempt to equate fundamentally different capabilities (e.g. comparing how many FPV drones to one main battle tank) but rather to compare like-for-like systems. At the same time, it recognises that the 'new world' of defence requires a balanced mix of established systems – long deployed by European armies – and new capabilities aligned with the changing dynamics of warfare. The aim is to present an indicative production target, leaving strategic judgement to armed forces on which capacities – legacy or new – should be prioritised for evolving security needs. ▶ E

12 RUSI - Russian Military Objectives and Capacity in Ukraine Through 2024 (February 2024)

13 European Commission - DG DEFIS - ASAP results factsheet (March 2024)

Considering our scenario inputs, we propose indicative production targets for each of the three capabilities mentioned below:

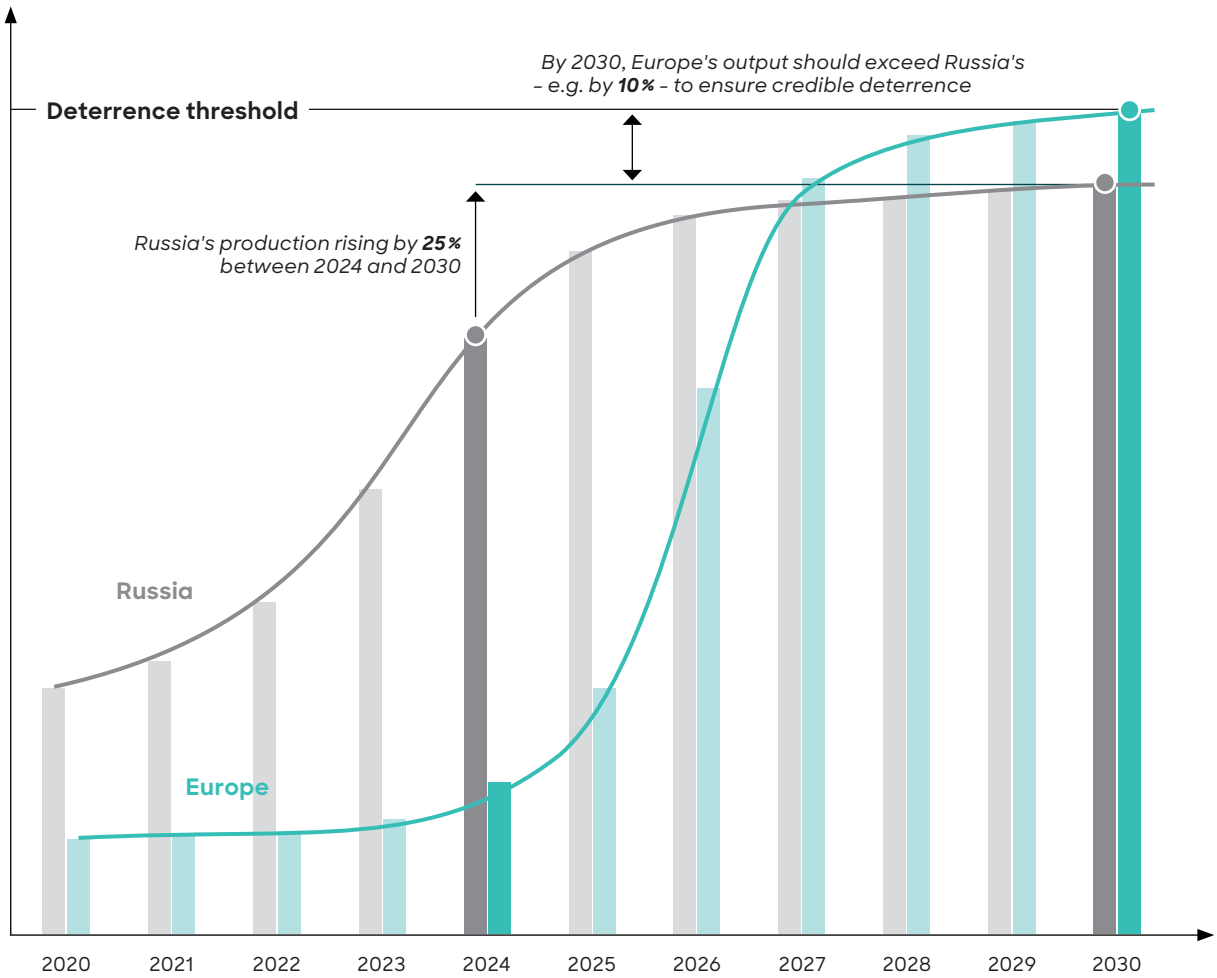
- **Artillery rounds:** Europe could target 2.9 million rounds per year, exceeding Russia's estimated 2.7 million in 2030.
- **Main battle tanks:** A target of 370 tanks per year – covering both new builds and refurbished units – would surpass Russia's combined annual output of around 340 in 2030.
- **Air/sea-launched subsonic cruise missiles:** Europe must strive for 1,380 units per year, outmatching Russia's estimated 1,250 in 2030.

These targets reflect not only a response to projected Russian increases but also the additional 'overmatch margin' needed to restore European deficits (e.g. deep-strike capabilities).

In all cases, the required build-up of European capabilities is significant. But the potential is there: ammunition production has already been boosted through European efforts (e.g. private investments, public measures such as ASAP[13]), and the main battle tank target could be met partly by leveraging industrial capacity to increase Europe's current output by a factor of 3.2, reaching 370 tanks per year. Further concerted efforts could also close the air/sea-launched subsonic cruise missiles gap, where Europe's estimated annual production of 130 cruise missiles currently falls well short of Russia's 1,000 per year. Achieving these new targets requires coordinated action among industry, policymakers and military agencies to ultimately secure a truly sustainable deterrence posture. ▶ F

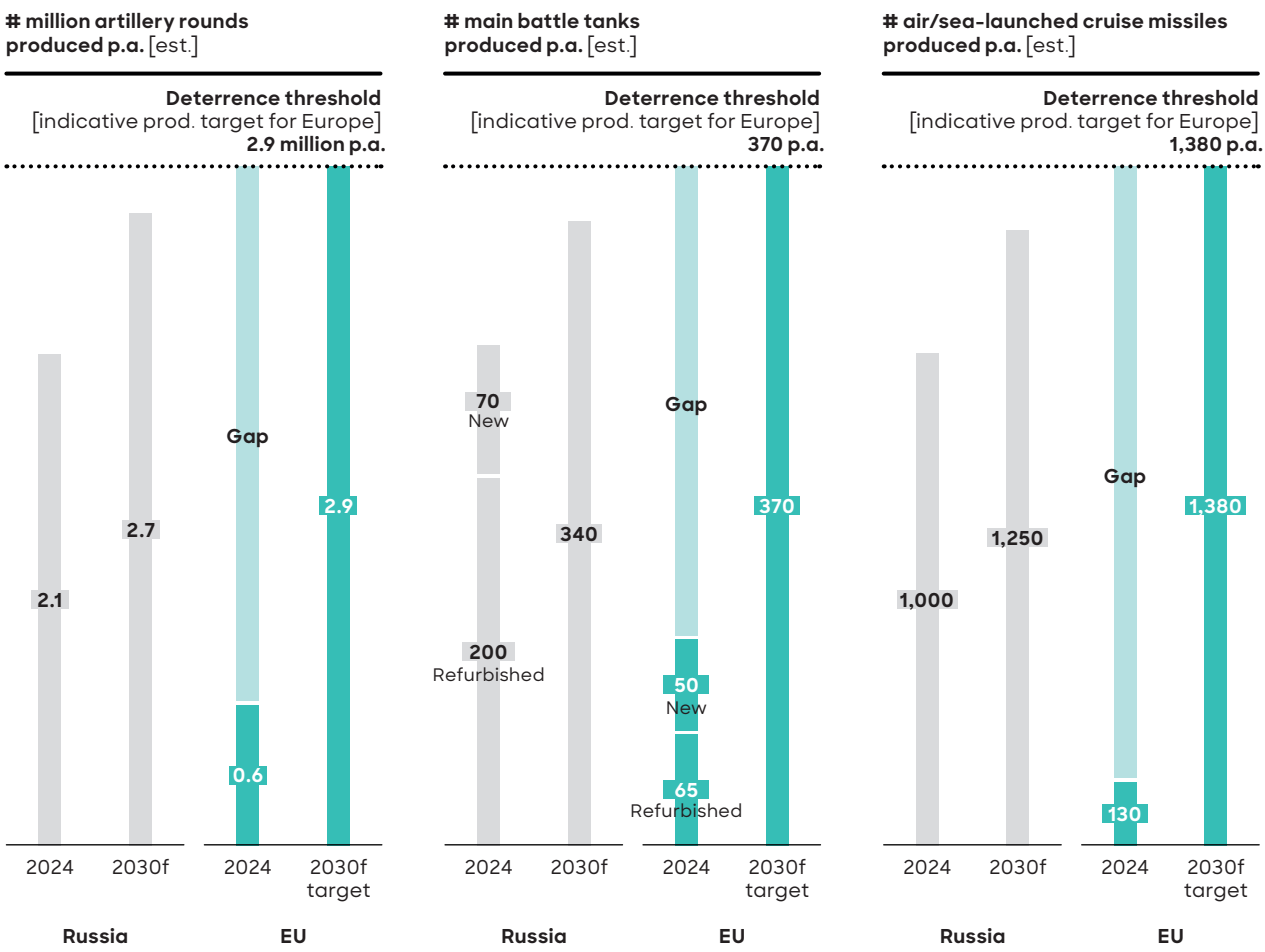
E Deterrence threshold: a production goal to rebuild capabilities and outpace competitors

Defence production capacity – illustrative
[# units produced for comparable systems]



Source: Secondary research, expert consultations, Roland Berger

F Indicative deterrence threshold targets for selected capabilities[14]



14 Artillery rounds: Russia includes 152 and 122 mm, excl. rockets for MLRS; MBTs: Europe covers Leopard 2 + upgrades for Leopard 2 and other MBTs, excluding wheeled platforms with MBT-calibre systems, e.g. Centauro; air/sea-launched cruise missiles: Europe combines SCALP, Taurus and MdCN (est. 90–150 p.a., midpoint ~130), excluding anti-ship missiles; Russia reflects ~85 missiles produced per month (based on average of 30–50 Kalibr and 40–50 Kh-101 per month)

Source: Secondary research, expert consultations, Roland Berger

RAMP-UP PATHWAYS

Europe's defence readiness hinges on addressing several critical focus areas – particularly in industrial scale, innovation and adapting to new forms of warfare. Relying exclusively on legacy defence production is expensive, time-intensive and risks overcapacity once crises ease. Instead, we explore a hybrid framework that combines existing capability expansions (Pathways A and B), civilian-sector partnerships (Pathway C) and 'smart, affordable mass' solutions (Pathway D). ▶ G

Pathway A

Increase 'peacetime' production capabilities

Before Russia's full-scale war against Ukraine, Europe's defence industry operated at a peacetime pace. One leading European ammunition supplier, for instance, reportedly produced around 12,000 rounds of 155 mm artillery ammunition per year prior to 2023[15], while German land systems players had an annual Leopard 2 main battle tank output of around 115 units[16]. Public data also indicates that the European deep-strike cruise missiles Storm Shadow/SCALP EG had a yearly production of only 50 to 100 units[17].

Under Pathway A, manufacturers can make incremental improvements that do not demand large-scale capital outlays, such as better inventory management, targeted process optimisations and improved coordination with existing suppliers. Defence procurement agencies can support these efforts through timely activation of procurement contracts to the industry, yielding gains in output. Additional measures – such as adding extra production shifts if workforce levels permit – can further boost throughput without fully transitioning to a higher level of investment. Although some defence suppliers managed to slightly expand production as Russia's war in Ukraine intensified, deeper structural constraints in manufacturing capacity and supply chains prevented a more significant ramp-up.

Pathway B

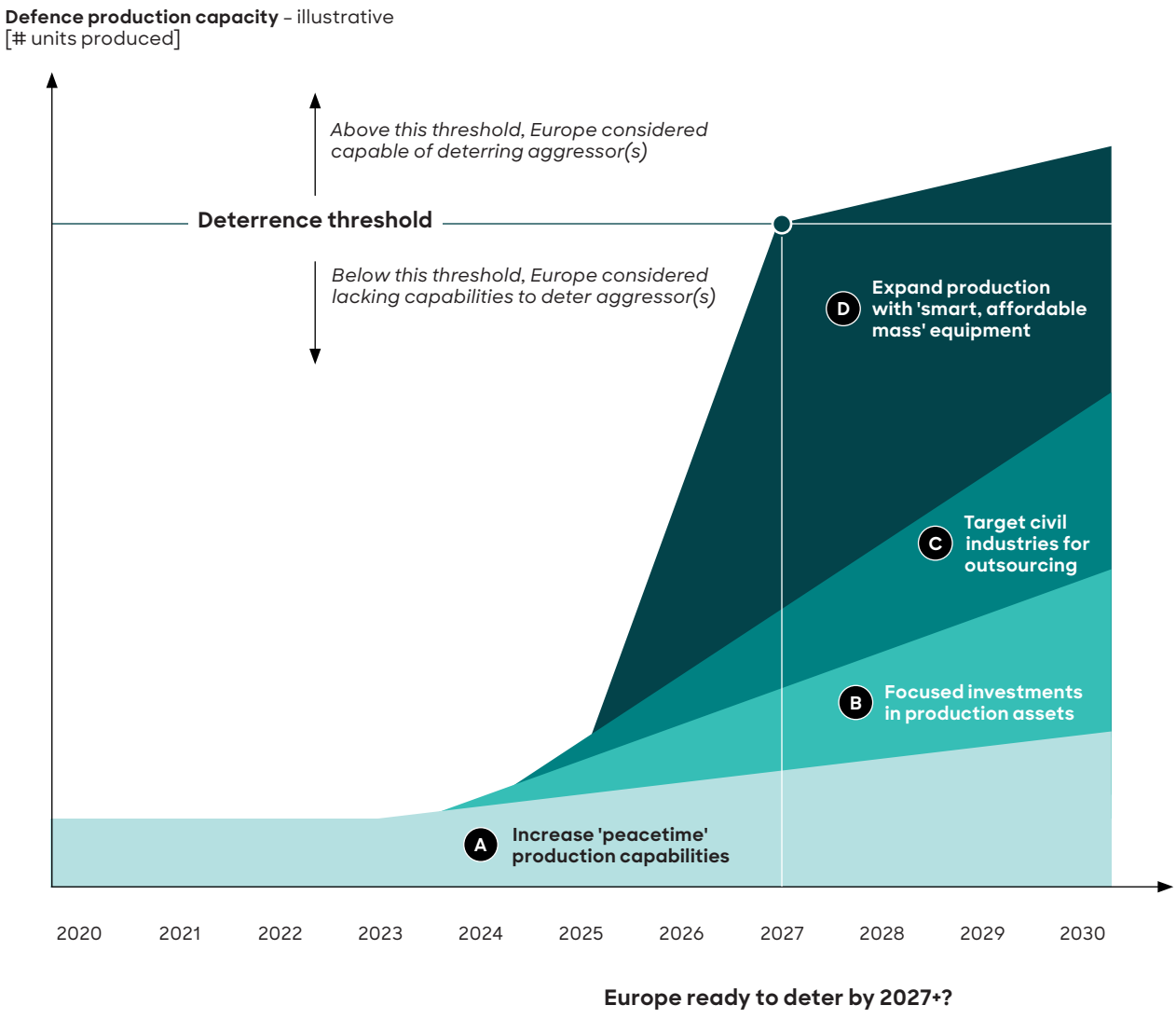
Focused investments in production assets

Confronted with the limitations of Pathway A, many defence players decided to invest in additional or upgraded production lines. In the 155 mm ammunition segment, the same European ammunition producer increased its capacity to operate around the clock, aiming for an annual output of 70,000 rounds by 2025[18] through in-house investments vs. the 12,000 it produced prior to 2022. Meanwhile, in Germany, main battle tank integrators announced plans to boost Leopard 2 production by establishing new facilities to handle various platform assemblies[19]. A similar uptick in production is expected for deep-strike cruise missiles, where investments have been made to reinforce the supply chain (e.g. stocks of electronic components)[20].

However, firm orders remain crucial before companies invest heavily in new factories or major expansions – without clear contractual commitments, there is a risk of stranded costs should threat conditions change faster than anticipated. While much of this expansion is self-funded, government measures can also help. The EU's

15 Opex 360 – Nexter/KNDS est sur le point d'avoir la capacité de quadrupler sa production de CAESAr par rapport à 2022 (October 2023)
16 Deutscher BundeswehrVerband – Panzerbauer: Klarer Konsens Bedingung für Hochfahren der Produktion (February 2023)
17 War on the Rocks – Europe, deterrence, and long-range strike (March 2025)
18 Assemblée Nationale – Tome VII – Défense : Équipement des forces – Dissuasion (October 2024)
19 KNDS – Press Release – Alstom and KNDS have reached agreement: Secure future for the industrial site in Görlitz (February 2025)
20 Franceinfo – Défense : le fabricant de missiles, MBDA, travaille avec le ministère des Armées pour accélérer et augmenter les cadences (March 2024)

G Reaching the deterrence threshold in the short term by combining four ramp-up pathways



Source: Roland Berger

ASAP programme, for instance, offered financial support for ammunition manufacturers to expand or repurpose production lines – an initiative that could be extended to other defence capabilities. The programme was launched by the European Commission as part of measures to support the delivery of ammunition to Ukraine, especially the 155 mm artillery rounds that were being used at a rate of close to 10,000 rounds per day during the summer of 2023. By combining targeted public support with prompt, reliable orders from defence ministries (or multinational procurement bodies), Pathway B can contribute to reaching the deterrence threshold.

Pathway C

Target civil industries for outsourcing

Considering Europe's urgent ramp-up needs, we emphasise that defence players should, where feasible, partner with established non-defence industry players. This strategy diversifies supply chains, taps broader labour pools and accelerates output more effectively than a purely defence-focused approach – particularly at lower tiers of the supply chain (e.g. Tier 2, Tier 3) involving materials (e.g. forged metals), energetic materials (e.g. explosive, solid propellant) and electronics sub-assemblies. Some European countries are already moving in this direction; for instance, France's defence procurement agency has engaged in dialogue with automotive, chemical, agrochemical and energy firms[21] to identify synergies that can spare defence players from the need to invest in their own parallel capabilities, including by considering workforce sharing.

Another key enabler for this model is adapting defence product designs and architectures to incorporate more COTS[22] components, allowing rapid scaling and reduced lead times. However, integrating civilian industries brings its own set of hurdles – ranging from certification and militarisation standards requirements to differences in planning cycles and procurement rules. Furthermore, many legacy defence systems, designed with technological superiority in focus, rely on highly complex sub-assemblies (e.g. Tier 1 components such as sensors and weapon systems) which demand specialised expertise rarely found in civilian sectors. Consequently, while outsourcing to civil industries can boost resilience and flexibility at lower tiers, it cannot fully replace the need for dedicated defence industrial competences at higher tiers.

Pathway D

Expand production with 'smart, affordable mass' equipment

Pathway D departs from legacy defence systems – often reliant on a small number of highly sophisticated, expensive platforms – and instead promotes mass-producible, software-defined autonomous or partially autonomous solutions. These can be deployed at scale and lower cost while complementing high-end assets such as manned fighter jets, main battle tanks and expensive deep-strike missiles. Crucially, they adopt a radical product architecture, incorporating more COTS components, fewer overall parts and a smaller operational footprint – allowing sensors, propulsion or payloads to be upgraded or replaced without redesigning the entire platform.

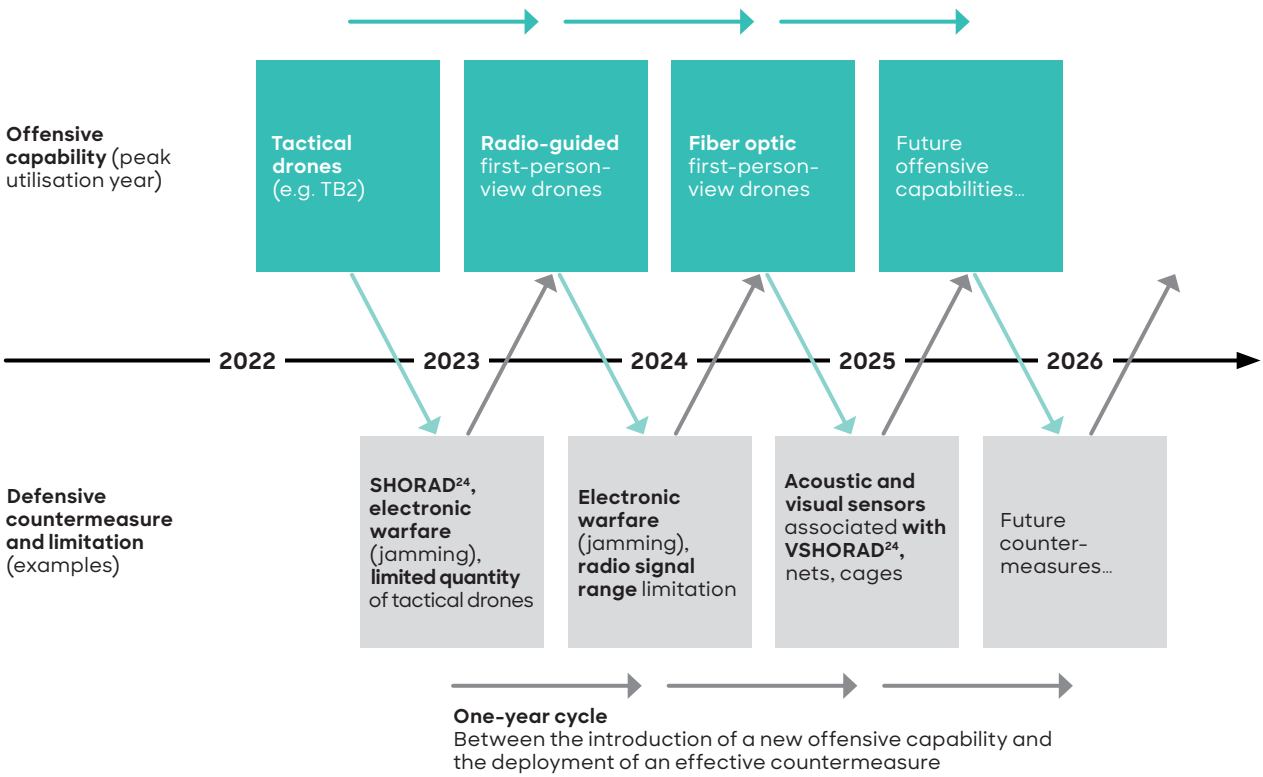
Some 'new defence' companies[23] have taken this approach to the extreme, rethinking product designs to slash production time by 50%, reduce tooling by 95% and cut the total number of parts by 50%. By being software-defined, these solutions can flexibly adapt to shifting threats, aligning with the 'new world' requirement of high-frequency 'threat-counterthreat' cycles. As seen in Ukraine,

21 L'Usine Nouvelle - L'auto, la chimie et l'énergie bientôt mobilisées pour renforcer l'économie de guerre (January 2025)
22 Commercial Off-The-Shelf
23 DefenceNews - Anduril unveils modular, high-production Barracuda cruise missiles (September 2024)

a new threat can be countered effectively in as little as a year, underscoring the need for agile, upgradable systems that keep pace with rapidly evolving battlefields. ▶ H

In addition, Pathway D advocates for products and systems that are unmanned or semi-autonomous, contributing to mitigating European armies' recruitment challenges, filling critical roles while requiring less personnel. Being digital and connected, these 'smart, affordable mass' systems act as force multipliers for manned platforms. Civilian industry plays a vital role here, given that many defence players, constrained by the approaches of Pathways A and B, lack the ability for the –

H Threat-counterthreat cycle observed in Ukraine: focus on drones



24 SHORAD: Short Air Defence; VSHORAD: Very Short Air Defence

Source: Secondary research, expert consultations, Roland Berger

much required – high-volume production output. However, realising Pathway D requires defence agencies to overhaul legacy procurement processes in favour of iterative development cycles more akin to commercial tech sectors. Historically, defence acquisitions have been slow and rigid, while 'smart, affordable mass' demands continuous improvement and quick adaptation to remain relevant considering the threat-counterthreat cycle. If implemented effectively, Pathway D could intensely accelerate Europe's ramp-up, delivering cost-effective, rapidly deployable and software-defined systems – key ingredients for success in the current warfare environment described in the previous section (see chapter 3 – Changing dynamics of deterrence: from the 'old' to the 'new world'). ▶|

"Europe's ability to deter and defend will depend not only on budgets or technology – but on how fast we align public strategy with private execution. Effective coordination must now become Europe's core competitive advantage."

Stefan Schaible
Senior Partner,
Global Managing Partner

Summary of the pathways to scale up European deterrence readiness

Pathway	Description	Challenges
A **Increase 'peacetime' production capabilities**	· Focus on maintaining **minimal industrial capabilities** · Relies on **legacy production systems** · **Incremental improvements** can boost throughput without major CAPEX (e.g. inventory management, process optimisations, additional shifts if workforce permits)	· **Limited output** capacity · Production assets **rapidly reaching maximum capacity** (limited ramp-up flexibility, minimal available specialised human resources if workforce sized for peacetime)
B **Focused investments in production assets**	· **Major investments to boost production rates** (including, e.g. expanding existing lines, reactivating dormant facilities, digitalising production assets, and stockpiling lower-tier assemblies and sub-assemblies)	· **High upfront costs** (long lead times for retooling and hiring) · Continued reliance on a **specialised defence-sector workforce** · **Risk of overcapacity** if demand shifts
C **Target civil industries for outsourcing**	· **Leverage civilian capabilities** to cover specific bottlenecks · **Faster scalability by tapping non-defence supplier capabilities** (e.g. volume) · **Reduces potential overcapacity** in strictly defence-focused production	· **Coordination hurdles** with non-traditional suppliers · **Regulatory and certification** barriers for civilian firms · **Limited outsourcing options** for critical 'pure defence' components
D **Expand production with 'smart, affordable mass' equipment**	· Greater reliance on **unmanned or semi-autonomous systems** · **'Mass production'** capable by design · Emphasis **on low-cost, modular designs** · **'Software-defined' capable** (high frequency of upgrades)	· **Cultural gap for legacy defence players** (while opening doors to new entrants such as 'new defence' companies) · Procurement agencies may still use **'old world' processes,** slowing adoption

Source: Roland Berger

Reaching the deterrence threshold:

Roland Berger's recommendations

5

ACTIONABLE, ATTAINABLE AND GROUNDED WITH EUROPEAN REALITIES

Europe's path to sustainable deterrence depends on combining the four ramp-up pathways outlined earlier. However, even the best-designed plans will fail without effective multi-stakeholder coordination, particularly given the multi-layered decision-making spanning national and pan-European levels. In response, we propose three recommendations for each of three key stakeholder groups: (i) European policymakers and military agencies, (ii) defence industry players, (iii) non-defence industry players. These recommendations aim to reinforce cooperation, address remaining capability constraints and secure a sustainable deterrence threshold, all while acknowledging Europe's current industrial and political realities.

1.

FOR EUROPEAN POLICYMAKERS AND MILITARY AGENCIES

Member States to entrust the EU as 'architect' of a comprehensive European defence master plan

Europe's defence technological and industrial base (EDTIB) holds great potential for participants to work together to increase efficiency and reduce overspending. According to the European Parliamentary Research Services, overlapping programmes and disconnected efforts represent a cost of EUR 10.9 billion per year[25]. Although defence lies mostly outside formal EU competences, the Union can still act as an 'architect', guiding Member States' priorities on military capabilities and promoting a more coordinated industrial base – all without undermining national sovereignty.

- **On military capability,** the EU-as-architect role involves guiding doctrine convergence for shared assets – especially strategic enablers such as continental missile defence, air transport, aerial refuelling and logistics. Initiatives like the EATC[26], the MMU[27] and the Binational Air Transport Squadron Rhin/Rhein already illustrate the advantages of pooling resources. Once Member States align their needs, the EU can structure 'flagship programmes' around critical needs requiring investments considered too large to be tackled by any single Member State. A compelling example is missile defence: integrating space-based early-warning systems, high-altitude interceptors and national capabilities into a cohesive framework – similar to how Europe's Copernicus programme merges Sentinel Missions with Contributing Missions from Member States or the commercial sector and how GOVSATCOM[28] pools satellite communications across nations. This alignment should leverage existing EDA initiatives – such as CARD[29] and CDP[30] – where Member States identify priorities.

- **On the industrial side,** the EU can spur specialisation or 'Centres of Excellence', reducing duplication without forcing Member States to forgo critical, sovereign-controlled production lines. For example, France, Italy and Germany successfully split radar and optical payload competences for military Earth observation satellites, thus leveraging specialised national expertise rather than spreading it thin across the continent. Through EU-awarded flagship programmes, the EU can set award and funding criteria that reward specialisation (or rationalisation) of defence capabilities, which can trigger consolidation of the European industrial base.

25 EPRS - Improving the quality of European defence spending - Cost of non-Europe report (November 2024)
26 European Air Transport Command
27 Multinational Multi Role Tanker Transport Unit
28 EU Agency for the Space Programme - GOVSATCOM programme overview (February 2025)
29 Coordinated Annual Review on Defence
30 Capability Development Plan

Strengthen R&D innovation synergies - potentially through a medium-term 'catalyst agency'

Genuinely advanced defence capabilities rely on robust R&D that stretches beyond production lines, prioritising future-ready technologies such as digital, space, advanced materials and energy solutions. While Europe's defence innovation ecosystem is relatively well connected, it remains underfunded in early stages – pre-seed, seed and Series A – leaving many promising spin-offs without sufficient capital. We recommend significantly boosting R&D budgets and improving access to private financing, possibly via tax or subsidy incentives that encourage investment in European tech.

To provide broad clarity and foster convergence, public decision-makers should set up a comprehensive European Defence Technology Roadmap, building on existing initiatives (e.g. the European Defence Agency's OSRA TBB[31]). In the medium term, policymakers may also explore creating a 'catalyst agency' – expanding the European Defence Agency's scope and drawing inspiration from ESA[32], CERN[33], NATO's DIANA[34], the JRC[35], or US counterparts like DARPA[36] and the SDA[37] – provided it enhances rather than duplicates ongoing efforts. Such an agency would align EU and Member State investments around shared research goals, fostering cross-pollination with civil programmes (e.g. Horizon Europe) to accelerate dual-use breakthroughs. For instance, co-locating research near industrial hubs could help Europe break through the 'TRL 7 wall'[38] and move swiftly from lab discoveries to real-world applications for both civil and military uses.

Reinvent defence procurement mechanisms for speed and innovation

Modern warfare evolves in rapid, iterative cycles of threat and counterthreat – far too fast for traditional peacetime procurement models. Systems must be quickly acquired or upgraded on demand, ideally both, necessitating a fundamental shift in how Europe approaches defence acquisition. Several actions should be explored:

- **Adopt agile contract frameworks:** Legacy procurement processes spanning years cannot match adversaries who pivot within months. Drawing inspiration from commercial IT, governments could adopt new contract models (e.g. IDIQ-like[39] or 'as-a-service' frameworks) for systems requiring frequent updates. This is particularly the case for software-defined systems where agile contract models incorporating robust DevSecOps[40] principles – while upholding strict military standards – can enable continuous improvement and rapid adaptation to new threats.

- **Plan for wartime production and business continuity:** Governments, through their defence procurement agencies, should incentivise industrial players to keep production lines ready to scale quickly. In addition, business continuity planning (e.g. exercises, simulations enforced by the public sector) can help companies pivot faster to wartime output. Moreover, identifying or certifying key suppliers – including those from the non-defence sector as part of an expanded EDTIB – further strengthens industrial resilience. Finally, an accelerated approval certification track for non-defence suppliers with comparable civil certifications can inject fresh innovation and avoid protracted procurement cycles.

31 Overarching Strategic Research Agenda Technology Building Blocks
32 European Space Agency
33 European Organisation for Nuclear Research
34 Defence Innovation Accelerator for the North Atlantic
35 EU Joint Research Centre
36 Defence Advanced Research Projects Agency
37 Space Development Agency
38 Technology Readiness Level
39 Indefinite-Delivery/Indefinite-Quantity
40 Development, Security and Operations

- **Pool procurement and swiftly award contracts to provide volume and visibility to the industry:** Whether through national bodies or central agencies (e.g. NATO's NSPA, EU's EDIRPA), faster procurement and pooled requirements should be reinforced. Once budgets are validated, contracts on 'must have' capabilities must be awarded promptly, as European industry has repeatedly stressed that it is a necessary (but often delayed) first step before actual production can begin. Rapidly placed orders provide certainty and financial security, enabling companies to ramp up production, invest in production assets or R&D and fortify supply chains, ensuring that capabilities are delivered on time in a context where speed is critical.

2.

FOR DEFENCE INDUSTRY PLAYERS

Make your company offering fit for the 'new world'

We firmly believe that legacy defence firms – deeply anchored in Europe's national industrial bases – have both the capability and the responsibility to evolve to meet 'new world' realities. While foundational legacy platforms remain critical, the shifting warfare paradigm also requires:

- **Software-defined enhancements:** updating or augmenting existing platforms with advanced digital capabilities (e.g. AI-supported decision-making) and continuous system upgrades – a path some legacy defence players have already taken, often through partnerships with 'new defence' companies[41].

41 Handelsblatt - Deutschlands wohl geheimnisvollstes Start-up steht vor Rüstungsauftrag (July 2023)

- **'Smart, affordable mass':** complementing high-end systems with cost-effective assets that can saturate the battlespace with volume and quickly adapt to threat-counterthreat cycles.

For defence industry players, neglecting either approach could lead to the marginalisation of their company, given how these technologies are already reshaping military doctrines. Furthermore, long-established defence players can leverage their influence and credibility with national procurement agencies to guide them towards adopting software-defined and 'smart, affordable mass' solutions, while encouraging adjustments in procurement processes to better align with 'new world' realities. We see a practical way to unlock the potential of software-defined enhancements or 'smart, affordable mass' through small-scale, coordinated pilot projects. This approach gathers public agencies, researchers, industry primes and tech innovators around a limited number of use cases – while committing the necessary resources to make those pilots a reality. Such pilots should then serve as blueprints that can be replicated and progressively scaled up across different capabilities. By uniting diverse stakeholders around limited but concrete use cases, defence players can not only accelerate near-term innovation but also lay the groundwork for broader 'new world' solutions that bolster military readiness and industrial leadership.

Build flexible industrial models by combining multiple ramp-up pathways

Industry stands at the forefront of Europe's push to reach a sustainable deterrence threshold across a vast spectrum of defence equipment – from main battle tanks and effectors to rifles, drones, tactical radios and transport vehicles. This is a substantial endeavour and the key to success lies in unlocking the right combination of ramp-up pathways for industrial operations.

Companies must balance insourcing vs. outsourcing, avoid under- or overinvestment and adapt to shifts in demand and workforce constraints. Above all, defence firms need a resilient industrial model – one capable of scaling up or down as geopolitical conditions evolve. A fundamental mindset change is needed, particularly in teaming up with the civil sector. Defence manufacturers should scout unfamiliar industry verticals – for instance, leveraging automotive expertise in forged metals or high-volume assembly – to alleviate bottlenecks in production speed, cost and overall capacity. Embarking on the 'radical' Pathway D to develop 'smart, affordable mass' offerings necessitates a similarly bold approach to industrialisation. Beyond designing the systems themselves, companies must embrace radically new production methods. By judiciously blending multiple pathways, defence players can retain a stable core for high-end systems while tapping external partnerships and mass-production techniques to expand more rapidly when needed.

Adapt operating models targeting agility

Even after deciding which offerings to prioritise – software-defined enhancements, 'smart, affordable mass' or both – defence firms must still adjust their governance and organisational structures accordingly. Not every product line requires a major transformation: established offerings that focus on fundamental capabilities – such as conventional land systems or ships – may need only efficiency gains if their core products remain unchanged. By contrast, newer solutions that rely on digital expertise, rapid prototyping or high-volume, low-cost manufacturing – like 'smart, affordable mass' – may require a dedicated business unit or even a separate entity. Our experience shows this approach can help to bridge cultural and talent gaps, especially where digital skills are underrepresented in traditional teams.

Deciding on the right combination of offerings and ramp-up pathways provides a strategic target for each defence firm, yet an effective organisational model is what truly catalyses success. Rather than allowing their ambitions to be bogged down in layers of bureaucracy or outdated structures, defence companies should design processes, team configurations and workflows that accelerate the delivery of new capabilities.

This calls for proactively identifying both internal catalysts (e.g. streamlined decision-making, nimble cross-functional teams) and potential barriers (e.g. cultural biases, talent gaps, rigid delivery models). Such challenges can be especially pronounced for pan-European players, where differing national priorities or fragmented expertise can hinder collaboration. A poorly suited organisational set-up may stifle critical innovations – particularly if the firm aims for Pathway D solutions involving 'smart, affordable mass'. Venturing into bold new offerings will likely demand unconventional cooperation with non-defence sectors and more iterative procurement arrangements with military agencies. By ensuring that the company's internal structures and cultural mindset facilitate rather than impede these partnerships, defence organisations can avoid costly delays and stay sufficiently agile.

3.

FOR NON-DEFENCE INDUSTRY PLAYERS

Explore defence opportunities thoroughly and document your value proposition

Non-defence companies often possess capabilities that could play critical roles in Europe's defence supply chain. Yet many such firms lack visibility over the sector's specific programmes, certification paths and market potential. To bridge this knowledge gap, these companies should 'break the ice' by conducting a thorough exploratory phase, either alone or in collaboration with

defence players. This phase involves mapping out relevant defence initiatives, assessing certification requirements and estimating market opportunities. By completing this groundwork, non-defence players can move beyond a generic 'technology push' and develop a clear value proposition that aligns with actual defence needs. For example, a metal processing firm might demonstrate capabilities that could speed up ammunition production, citing potential throughput increases and cost savings to ammunition integrators. A targeted approach of this kind helps prospective defence partners to see the immediate benefits, boosting credibility while reducing the risk of mismatched expectations.

Build your defence market strategy: short term vs. long term

Entering the defence sector can take various forms – some companies pursue short-term, high-impact contracts, while others opt for a sustained, strategic engagement. A short-term approach might involve bidding on time-sensitive projects, such as supplying Tier 2 parts for air-defence systems. This route can generate immediate revenue and credibility but also leaves firms vulnerable to abrupt policy or budget changes. By contrast, a long-term strategy emphasises deeper integration into the defence ecosystem, usually through dedicated business units and close collaboration with prime contractors and government entities (for instance, piloting 'smart, affordable mass' solutions in tandem with defence players and government agencies). Although this path promises greater stability and influence – potentially shaping next-generation programmes – it demands heavier investments of time, capital and organisational commitment. Companies must carefully weigh these trade-offs against their broader vision, risk tolerance and available resources. An 'in-between' stance often leads to diluted outcomes and missed opportunities in both civil and military domains.

Implement the right operating model for sustainable growth

After deciding in favour of a short-term or long-term defence strategy, non-defence firms must adapt their operating models to address defence-sector requirements. This may involve creating a dedicated defence business unit, spinning off a separate subsidiary for sensitive projects or assigning specialised teams which are typically not found in non-defence organisations (e.g. export control). Some companies may transition into dual-use enterprises – as seen in the case of drone manufacturers evolving from civilian to military applications – while others could detach a defence-focused unit from the parent organisation to handle unique defence demands more effectively. Additionally, firms headquartered outside the EU (e.g. in the UK) may need to 'Europeanise' certain operations to access EU financial instruments and meet requirements for Union-sourced capabilities to bolster strategic autonomy. In every scenario, deriving the right organisational structure that suits both everyday operations and specialised defence work is crucial. By doing so, non-defence players can stay responsive to changing military needs while achieving sustainable growth.

Outlook

With the return of hostile and revisionist powers, the security landscape in Europe has shifted dramatically. Neglecting military deterrence is no longer an option. Bolstering defence capabilities is now essential – not only to safeguard Europe's borders but to defend the very essence of what defines the continent: its unique way of life and the social achievements that underpin its democratic fabric.

The good news? Europe has the means and the potential to rise to the challenge. Time is short, but if European countries manage to better coordinate their national efforts – particularly with the aim of accelerating development and production cycles – then the industrial base could scale more rapidly than many expect. The key lies in adapting the defence value chain to the new realities of modern warfare, as outlined in the foregoing chapters.

History shows that Europe has always emerged stronger from major crises. With unity, determination and a clear strategic vision, the continent can once again lead industrially – and lay the groundwork for sustainable deterrence.

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