
3. oktober 2025

# Sprinting towards sovereignty or locked into legacy: European defence at a crossroads

National Defence Technology Centre

# About the Authors

**Colleen Laughlin** is a national security and emerging technology expert with over 20 years of experience at the US Department of Defense. She advises frontier tech companies on navigating innovation ecosystems across government, academia, and investment communities. Her past roles include Senior Advisor to the Deputy Secretary of Defense and Executive Director of the Defense Innovation Board, and she currently serves on the board of Station DC.

**Jeffrey Saunders** is a global leader in foresight and innovation, with over 20 years of experience. He has served at the US Strategic Assessment Center, worked onsite at the Office of the Secretary of Defense, and advised the Office of Net Assessment, among others. His work has focused on shaping long-term security and technology strategy. Today, he is CTO of the National Defence Technology Centre and CEO of Nordic Foresight.

# Acknowledgements

The authors gratefully acknowledge Lars Bo Larsen, CEO, and Ciarán Carey, Strategic Advisor, both of the National Defence Technology Centre, for their valuable feedback and suggestions.

Special thanks to Dr. Christine Nissen (Tænke Tanken Europa), Laura Klitgaard, and René Højmark (IDA) for their invaluable assistance in organizing a closed-door session for subject matter experts and for their thoughtful contributions.

# Table of Contents

# Executive Summary

## Dilemmas ahead

Europe is striving to assert itself as a sovereign security actor in an increasingly volatile and contested world. Russia's invasion of Ukraine shattered assumptions of lasting peace and exposed Europe's dependency on foreign technologies, fragmented procurement systems, and slow-moving innovation pipelines. At the same time, the global race for dominance in emerging technologies like AI, quantum computing, autonomous systems, and space is accelerating, with China and the United States pulling ahead.

Europe must reconcile two imperatives: urgently closing critical capability gaps by 2030 while investing in the disruptive technologies that will shape future warfare. With a cumulative €1.1 trillion defence funding shortfall, weak economic growth, and different abilities to afford higher military spending, the challenge facing Europe is stark. The dilemmas posed by these imperatives raise questions about what European strategic autonomy entails and whether it is feasible.

The European Union, however, is uniquely positioned to foster a more autonomous Europe—leveraging legal authority, financial tools, and industrial policy—but only if member states align on priorities and overcome entrenched national interests.

## The scenario framework

This document outlines four plausible scenarios for European defence and dual-use technology innovation through 2035, structured around two core axes of uncertainty:

- Europe's ability to achieve tech sovereignty – Will Europe's legal and budgetary power lead to a renaissance of European defence innovation, or will Europe continue to rely predominantly on foreign (mainly US) procured offerings
- Innovation tempo and openness – Will capability development follow an *open, agile* mode, where emerging technologies feature strongly in new military capabilities, or remain *closed and legacy-bound*, dominated by traditional procurement cycles, incumbents, and legacy equipment?

The four scenarios – *Sovereign Sprint*, *Fortress Europe*, *Alliance-Driven Acceleration,* and *Locked-In Legacy* – explore how these forces interact with political shocks and operational realities. Each scenario considers implications for the transatlantic alliance, the Nordic region's strategic role, and the interplay between defence and civilian innovation.

*Fortress Europe*: Europe imposes "buy-European" rules and prioritises national champions. While capability gaps narrow, protectionism and fragmentation undermine interoperability and long-term innovation. Europe arms itself but lacks collective power projection.

*Sovereign Sprint*: A strong EU-led push creates a vibrant defence-tech ecosystem with startups, dual-use technologies, and integrated Ukrainian innovations. NATO standards ensure interoperability, but industrial and data frictions with the U.S. intensify. Europe achieves real sovereignty but at the cost of transatlantic tensions.

*Alliance-Driven Acceleration*: NATO and the EU synchronise innovation. The Rapid Adoption Action Plan (RAAP) and EU instruments form a joint engine that delivers interoperable systems at speed and scale. Europe gains strength through deepened transatlantic cooperation but remains dependent on U.S. technology leadership.

*Locked-In Legacy*: Europe fails to reform. Procurement fragmentation, risk aversion, and reliance on foreign primes persist. Innovation stagnates, startups exit the market, and Europe continues to be a consumer of off-the-shelf foreign systems. Ambitions of sovereignty and agility fade into irrelevance.

## Cross-cutting implications

The following highlights some of the critical cross-cutting implications from the scenario framework.

- Industrial Base: The strength of Europe's future defence industrial base hinges on its ability to scale startups, integrate dual-use innovation, and avoid overreliance on legacy primes or U.S. suppliers.
- Political Choice: Strategic sovereignty requires pooling resources and prioritising EU-level instruments over national silos. Without this, Europe risks wasting funds on duplication.
- Transatlantic Balance: Interoperability with NATO remains essential, but Europe must decide how far to push autonomy without rupturing its alliance with the U.S.
- Nordics and Ukraine: The Nordic dual-use innovation base and Ukraine's battlefield-tested technologies are crucial enablers. Whether these are scaled at the European level or absorbed piecemeal will shape outcomes.
- Research Institutions: Universities and RTOs will see increased funding, but their role diverges across scenarios—from central actors in a sovereign ecosystem (Sovereign Sprint) to marginal players in a stagnant environment (Locked-In Legacy).

## Conclusion

Europe stands before a generational choice. Should European countries remain dependent on external suppliers and locked into legacy structures, or seize the opportunity to build a sovereign, agile, and innovative defence ecosystem? The four scenarios are not predictions. They are a strategic tool for political leaders, policymakers, and industry executives to navigate choices that will shape Europe's security and industrial posture over the coming decade. The framework is designed to help identify robust strategies under uncertainty, challenge assumptions, and guide Europe toward becoming a credible and technologically advanced security actor by 2035.

# EUROPE AT A CROSSROADS

# Introduction

By 2035, the European defence and dual-use tech innovation ecosystem could be drastically different. Russia's invasion of Ukraine shattered assumptions about the permanence of peace. For the first time in a generation, there is a broad consensus in Europe that it must be ready to defend itself by 2030. However, divisions persist over the level of ambition, the extent of European power in procurement, and how to strike a balance between sovereignty and the transatlantic partnership. Europe must also contend with long-standing challenges, including fragmented procurement systems, sluggish innovation, closed development pipelines, and persistent reliance on US technology.[1]

Europe stands at a crossroads, facing structural challenges – including a decade-long cumulative €1.1 trillion shortfall in defence funding – that have created several critical capability gaps. Economic stagnation since the financial crisis means Europe's economy is now 50% smaller than the United States', limiting its defence spending capacity. Meanwhile, the race for dominance in emerging technologies – from AI and autonomy to quantum computing and next-generation space systems – intensifies. China aggressively pursues its quest for technological supremacy, and the United States leverages its technological edge in transatlantic negotiations.

To regain its global competitiveness, Europe must rethink its defence and security strategy to ensure more efficient investment – an effort that engenders both opportunities and pressures. The European Union is uniquely positioned to lead this transformation. It can fund, legislate, and directly shape industrial development, whereas NATO primarily focuses on coordination, standards setting, and operational leadership.

The European Union's shared goal, as outlined in the Commission's White Paper for European Defence Readiness 2030, is twofold: to urgently close critical defence capability gaps today and to prepare for future threats through innovation. Meaning Europe must be ready for a significant military contingency before 2030, while also transforming defence with disruptive technologies.

Balancing short-term readiness with long-term innovation is and will be a challenging task for Europe, particularly in the face of tight budgets and societal pressures. Defence readiness also depends on the availability of Europe's future workforce. According to the Danish Society of Engineers' analysis, EU labour markets will shrink by 12.5 million workers by 2035, while demand for advanced skills—particularly in STEM—will surge. Without decisive action, Europe's demographic headwinds could erode its ability to mobilise the engineers, technologists, and skilled workers required for defence innovation.

To counter these head winds, European capitals must also invest in education, re-skilling, and talent attraction. Without this coordinated approach, even the most ambitious defence-industrial programmes may stall for lack of engineers, data scientists, and technicians. The EU's funding push must therefore be

[1] From 2020 to 2024, approximately 64% of European NATO countries' defence procurement came from the United States, according to Goldman Sachs.

matched by a human-capital strategy—expanding STEM pipelines, attracting global talent, and fostering cross-border mobility within the Union.

Many European countries[2], already strained by debt and rising interest costs, face little public appetite for higher defence budgets, which would mean cuts to other priorities like education, health care, and pension. The downfall of François Bayrou's premiership, triggered by disputes over how to reconcile spending ambitions with the demands of a deficit equal to 5.4 per cent of GDP and a €3.3 trillion national debt, illustrates the fiscal quandaries confronting governments across Europe.

Brussels is trying to step into the breach by deploying key instruments. ReArm Europe helps raise capital for immediate production and rearmament, while the proposed Multiannual Financial Framework supports the R&D needed for next-generation warfare.

Together, these initiatives aim to mobilise up to €800 billion in public and private funding across several critical domains.[3]Reinforcing this ambition, the July 2025 budget proposal allocates €131 billion for defence, resilience, and space – an amount that could be tripled or quadrupled through national co-financing. Additionally, the European Union has removed the "civilian-only" restriction from the Horizon Europe research programme. Its next iteration will adopt a "dual-use by default" approach, potentially unlocking an additional €200 billion for dual-use research, development, and innovation – pending complex negotiations with Member States and the European Parliament.

Several countries are also moving in step. Germany has relaxed limits on funding defence investments, and European leaders are committed to investing 5 per cent of GDP in defence and security. These commitments could significantly strengthen domestic capabilities—but only if they are pursued with urgency, coordination, and a clear strategic vision. Turning intention into action, however, remains a challenge. Europe has previously struggled to deliver on its R&D ambitions, and[4]European countries often default to US solutions in defence tech because they are familiar, reliable, and easy to operate.

European leaders must address urgent questions about how to build sovereign capability while preserving transatlantic interoperability. If European defence platforms depend on U.S.-based AI or cloud systems,

[2] European countries struggling to increase defence spending include Belgium, Greece, France, Italy, and Spain.

[3] Europe's key strategic defence priority areas are 1) Air and missile defence, 2) Artillery systems, 3) Ammunition and missiles, 4) Drones and anti-drones systems 5) Military mobility 6) AI, quantum, cyber and electronic warfare and 7) Strategic enablers and critical infrastructure protection including strategic airlift, air-to-air refuelling, maritime domain awareness, and protection of space assets.

[4] Despite strategic efforts like the Lisbon 2000 and EU 2020 programmes, the EU has consistently underinvested in R&D—spending only slightly above 2% of GDP—falling short of its 3% target and trailing behind the US, Asian tigers, and China, which hampers its economic growth. A Deeper Union: From a Failed Project to the European Quality Lead - Intereconomics.

who controls the critical data? Can Europe build a sovereign tech stack while rebuilding its forces—and is it willing to bear the cost?

Defence contracts still overwhelmingly favour legacy primes and US firms. Can European startups compete, or is the system too rigid to allow disruption? Unlike the United States, which has fostered new defence tech firms like Anduril through agile procurement and investment, Europe has yet to produce a defence tech unicorn. Is that due to cultural resistance, ESG-related hesitations, or risk-averse capital? Should governments step in to bridge the gap?

Breakthroughs in AI and robotics are increasingly coming from the commercial sector, but Europe's regulatory and ethical frameworks often hinder their adoption. Are these constraints protecting European values or simply stifling progress? As the line between civilian and military tech blurs, where should Europe anchor its defence future? What institutions or mechanisms can overcome the structural barriers limiting European defence technology development? How will these answers shape the future transatlantic alliance and Europe's relationship with the United States?

NATO's Rapid Adoption Action Plan (RAAP), endorsed during the NATO Summit, is designed to dramatically accelerate the adoption of emerging technologies, reducing timelines from years to within 24 months. The ambition is to encourage nations and their militaries to embrace risk, increase pace and guide funding more effectively as technologies move from mere concepts to deployable capabilities. Through innovation ranges and NATO Innovation Badges, NATO will help create permanent testing and experimentation facilities, as well as marks of credibility for companies. Will the RAAP help Europe deliver on its ambitions and help lead a cultural change, overcoming ingrained cultural aversions to risk and uncertainty in European capitals and procurement agencies?

Europe's ability to deliver innovation at pace also depends on whether it can integrate Ukraine's battlefield lessons into its defence R&D machinery. Alongside Israel, Ukraine remains one of the few EU partners able to offer hard operational feedback- the lifeblood of rapid defence innovation. Without the steady infusion of insights from the field, even the most lavishly funded programs risk becoming slow, siloed, and expensive. Will Europe be able to integrate Ukraine's defence industry into its defence industry, or will US entities acquire these companies?

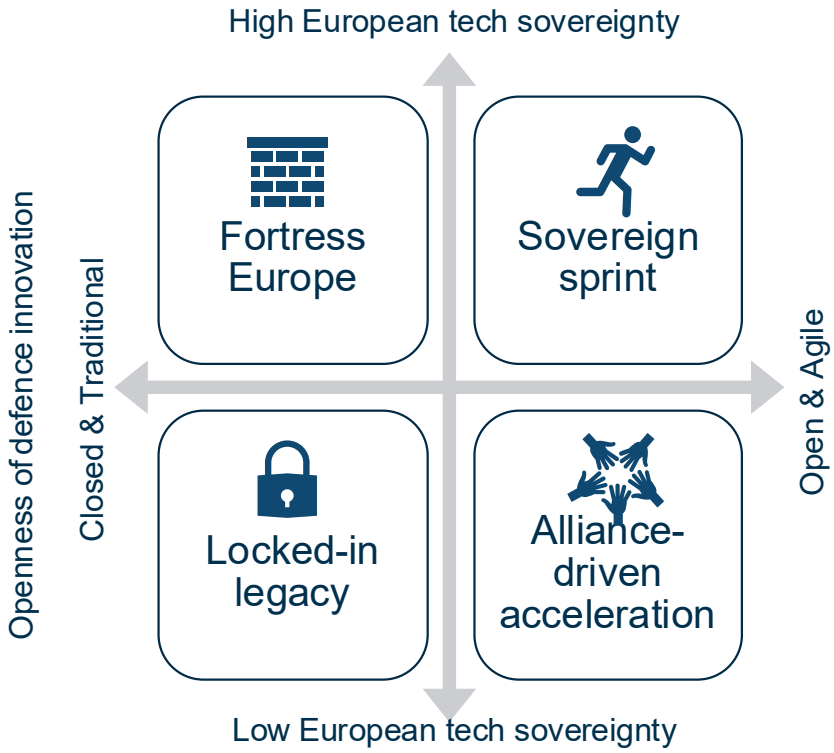
Europe's future and the future of the transatlantic depend on two key choices: Will it invest in the capabilities, talent, industrial, digital, AND innovation base needed for true tech sovereignty, or will it remain tethered to US defence technology out of habit, convenience, or necessity? And will it embrace open, agile, and entrepreneurial innovation models – tapping the dynamism of start-ups, non-traditional players, and dual-use innovators – or will it double down on closed, legacy structures dominated by traditional primes and entrenched bureaucracies?

How the United States responds to European reforms will also help set the tone for future developments. A confrontational posture could nudge Europe toward a more insular mindset—sealed-off systems, protectionist industrial policy, and fraying interoperability. Paradoxically, a more patient, enabling approach might lay the groundwork for the emergence of a more capable ally.

To better understand the implications of the dilemmas ahead for Europe, the transatlantic alliance, and the Nordics, the authors have employed a scenario methodology to help structure uncertainty and design more robust strategies through four provocative yet plausible scenarios: Fortress Europe, Sovereign Sprint, Alliance-Driven Acceleration, and *Locked-In Legacy.*

Readers should use the scenarios to challenge assumptions, test strategies under different conditions, and identify robust actions. The report intends to spark a dialogue about the critical choices that will shape Europe’s security and innovation and the transatlantic relationships towards 2035.

Figure 1 Scenarios: Sprinting towards sovereignty or locked into legacy




The Axes of Uncertainty are:

**Axis 1**: Europe's ability to achieve tech sovereignty

- High: Europe's legal and budgetary power leads to a renaissance of European defence innovation, building more independent AI, Cloud, and Defence Innovation Ecosystems, among other technologies.
- Low: Europe continues to rely predominantly on foreign (mainly US) procured offerings

**Axis 2**: Innovation Tempo & Openness of Defence Innovation Industry

- Open & Agile model: Capability development enables startups, dual-use technology, and rapid procurement, allowing emerging technologies to feature more prominently in military capabilities.
- Closed & Legacy-bound system: Defence primes and slow national systems control development in a system dominated by traditional procurement cycles, incumbents and legacy equipment.

Figure 2 Summary Scenarios: Sprinting towards sovereignty or locked into legacy

| | **Closed & Traditional Innovation** | **Open & Agile Innovation** |
|---|---|---|
| **High European Tech Sovereignty** | **Scenario 1: Fortress Europe**<br>Europe walls off its defence sector, imposing strict “buy-European” rules and empowering national champions at the expense of startups and integration. The result is a fragmented but heavily armed continent—strong in static defence behind its walls, but weak in collective power projection. | **Scenario 2: Sovereign Sprint**<br>Europe leverages its legal and budgetary power to drive a unified innovation push, embedding NATO standards but prioritising European tech sovereignty. A vibrant defence-tech ecosystem emerges, though frictions with the US grow over access, data, and industrial competition. |
| **Low European Tech Sovereignty** | **Scenario 4: Locked-In Legacy**<br>Europe fails to reform. The continent is stuck with fragmented procurement systems, risk-averse institutions, and reliance on legacy primes. Innovation stagnates, startups exit, and Europe remains a defence consumer dependent on foreign suppliers. Armed forces continue to rely on off-the-shelf kits. | **Scenario 3: Alliance-Driven Acceleration**<br>NATO's RAAP and EU funding converge into a joint innovation engine, producing interoperable systems at pace and scale. Defence focuses on interoperability and military adoption of emerging tech, but critical dependencies remain. The European defence ecosystem continues to rely on US technology and industrial leadership. |

# FORTRESS EUROPE

# Scenario: Fortress Europe

*2035 – The Continent that turned inward*

| Macrotrends driving this scenario | Weak signals supporting this scenario |
|---|---|
| • Strategic autonomy is pursued through national procurement<br>• Defence reshoring with strong protectionist clauses<br>• Fragmentation of innovation ecosystems<br>• Parallel AI and cloud ecosystems<br>• Weaponisation of infrastructure | • "National security" trumps NATO/EU standards<br>• National cloud initiatives expand<br>• Ukraine battlefield innovations are adopted piecemeal, without EU-wide scaling<br>• Capitals raise alarm about interoperability issues<br>• Procurement remains closed to startups<br>• US primes initially squeezed out of tenders, bilateral deals reopen over time |

Europe's drive for strategic autonomy and resilience has hardened into protectionism, resulting in increased fragmentation. Europe has turned inward, constructing what some call a "Fortress Europe," where the priority is on national sovereignty above integration. SAFE loans and modest EDIP grants were meant to catalyse cooperation. But, as they flowed mainly through capitals, they reinforced national preferences. "Buy European" clauses helped shield domestic industries, yet stifled startups and delayed scaling.

European leaders justified this course of action by arguing that US solutions are tailored for the Pacific theatre and a conflict with China, not Europe's requirements. Europe, they argued, needs solutions for containing Russia and addressing migration challenges across the Mediterranean. This logic masked latent rivalries and competing priorities: Europe argued over which threats should be given greater priority—the Russian threat or migration from Africa, the Middle East, and Asia.

Fiscal reality also intervened. Many countries struggled to expand defence spending without cutting popular social programs, constraining military budgets. ReArm/Readiness 2030 loosened fiscal rules and enabled EU-backed borrowing, but ministers still faced the trade-off between defence and social spending. As a result, many capped expenditures to protect welfare budgets.

National champions were jealously protected. European capitals bickered over who should host new AI centres, drone factories, and semiconductor foundries. Nordic countries feared duplication, while southern states pushed for sovereign alternatives to NATO-certified systems.

As a result, initiatives like NATO's Rapid Adoption Action Plan were quietly sidelined. While European leaders acknowledged the importance of RAAP's ambitions of 24 months from concept to fielding, national procurement agencies quickly diluted them by narrowly interpreting the goals, "buy-European" quotas, and siloing innovation ranges. NATO Innovation Badges have lost weight. They are respected by some and disregarded by others. Some capitals replace them with domestic certifications.

Ukraine's accession had the potential to inject battle-tested innovation into Europe's innovation pipeline. However, instead of scaling Ukrainian lessons into EU-wide solutions, member states cherry-picked technologies like loitering munitions, counter-UAS, and EW sensors for their national use. The Nordic

countries attempted to champion a shared “one badge, many markets” approach, but larger powers—France, Germany, Italy, and Poland—insisted on upholding national prerogatives.

Today, Europe is better armed and has closed many of its capability gaps. However, fragmentation and duplication remain persistent problems. Differences in how armed forces adopt new technologies lead to gaps in doctrine and capability, which in turn weaken interoperability. Communications systems struggled with joint missions; national C4ISR networks could not be effectively linked, and AI-driven command tools fractured into incompatible clusters. Europe fielded mass but lacked coherence. As a result, European militaries are less effective, limiting the continent’s ability to contend with current and emerging threats.

### Indicative timeline & milestones

2025 – National political pressures lead to the launch of EU SAFE and ReArm with strict “buy European” clauses, which encourage member states to default to national solutions, as the desire for local investments, jobs, and resilience outweighs the need for scale. Nordic states invested in national R&D hubs and competed for the local establishment of Ukrainian and other European firms.

2027 – Acquisition quotas mandate that at least 55% of equipment come from EU producers by 2030. Political fights over primes escalate, and US primes are effectively shut out of more tenders. Defence primes with deep national ties continue to thrive, while new entrants and startups struggle and fail to gain a foothold. As a result, the industry has focused heavily on filling current capability gaps, with too little attention given to preparing for future warfare.

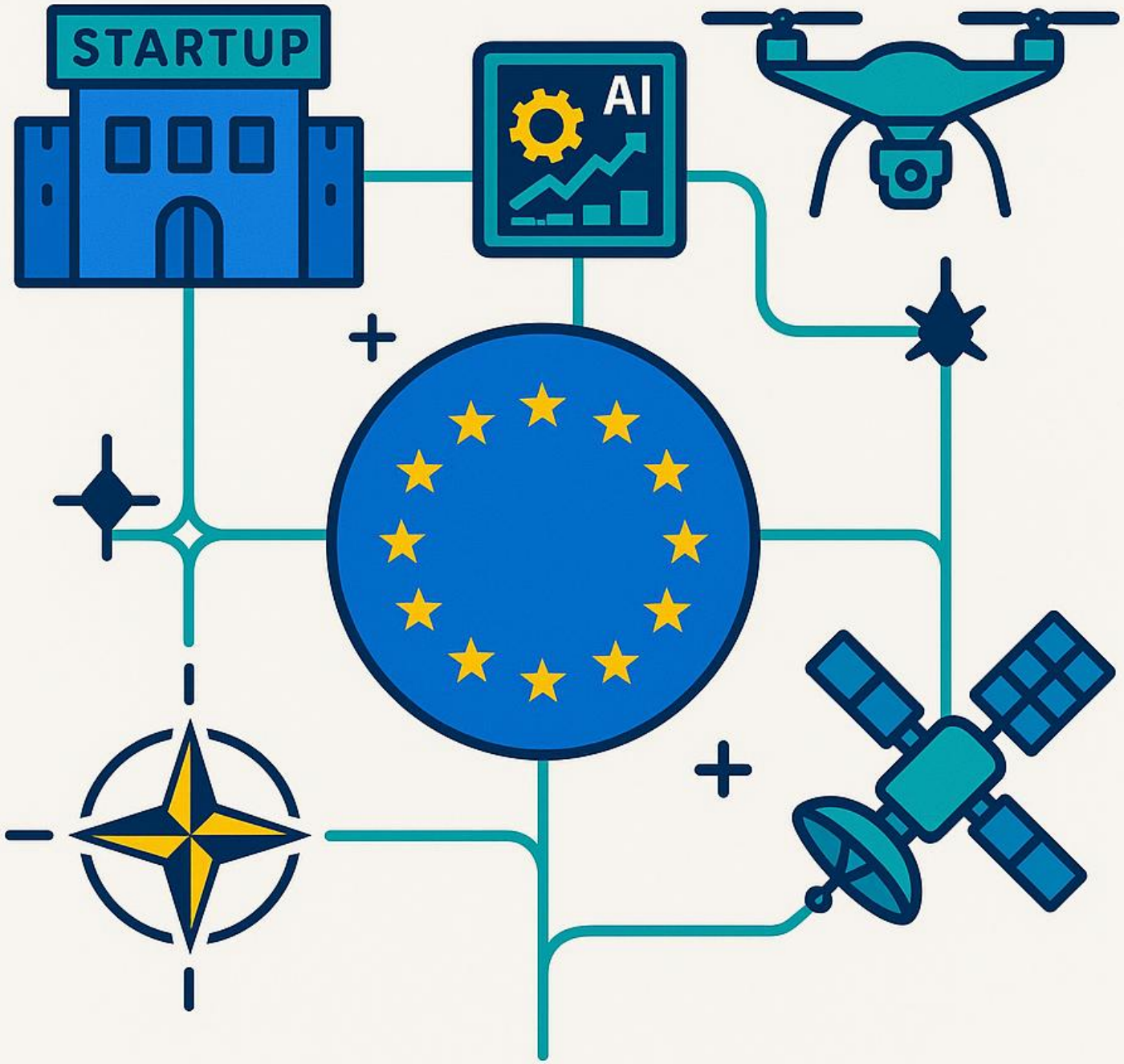
2029 – Ukraine is preparing to join the EU in two years. Battlefield innovations remain trapped in national stovepipes, fraying interoperability. France, Italy and Spain push for a “Defence Schengen,” which excludes key NATO partners. In the quest for sovereign AI, cyber, and encryption systems, Europe began introducing alternative standards. Nordic countries' concern about duplicate systems grows.

2031 – The inability to scale drives up costs and slows technological advancement. Rising costs are quickly using up the loans provided through ReArm Europe, driving up inflation and interest rates. AI in command systems remains underdeveloped, as systems diverge among clusters. As a result, glaring interoperability problems in communications systems and combat management software are becoming a worrying concern.

2033 – R&D inefficiencies mount, and the Draghi Report’s warnings are realised: fragmented spending entrenches disparities between large and smaller states. Some quietly re-open defence-related R&D projects with the United States to plug the gaps.

2035 – Fortress Europe stands with more equipment and independent value chains. However, Europeans struggle to make systems interoperable, and redundancy abounds. Europe can defend its borders but struggles when it attempts operations beyond its borders. Battlefield lessons around the world reveal new tech-driven trends in warfare that Europe struggles to keep up with.

# Sovereign Sprint



# Scenario: Sovereign Sprint

*2035 – Europe Leads the Sprint, NATO Sets the Rhythm*

| Macrotrends driving this scenario | Weak signals supporting this scenario |
|---|---|
| • Strategic push for tech sovereignty<br>• NATO standards provide a baseline for interoperability<br>• Defence industrial reshoring across Europe<br>• EU-Ukraine integration accelerates feedback loops<br>• Shift from fragmented procurement to EU-integrated acquisition frameworks<br>• Startups and VC drive dual-use militarisation | • Startup-oriented defence market<br>• "One badge, many markets" NATO/EU innovation badge<br>• Adjacent defence clouds<br>• Dual-use AI spillovers from Nordic civilian tech<br>• European-based AI frameworks adapted for military use |

Galvanised by Russia's brutality in Ukraine and the United States' mercurial foreign policy, European leaders have maintained their commitment to following a common goal: strategic sovereignty in defence technology without sacrificing NATO interoperability. This commitment led to deeper European integration as countries agreed to new funding mechanisms, coordinated to build an autonomous innovation base, and prioritised domestic defence production while reducing reliance on external suppliers. This sprint required integrating Ukraine's battlefield innovations into the EU's development pipelines. Military relations remain strong, but industrial and political strains between the United States and Europe remain a challenge.

The European Union had the legal and financial levers to shape the industry. Leaders committed to raising defence expenditure with most reaching 2,5 – 3 per cent of GDP by the early 2030s. Leaders also pooled funds into new EU-level instruments. SAFE loans, joint procurement facilities, and Horizon Europe's lifted "civilian-only" clause unleashed both primes and startups into the defence ecosystem. Nordic countries quickly capitalised on their dual-use civilian sectors—turning maritime autonomy, energy tech, and Arctic test ranges into Europe's proving grounds.

European leaders view NATO and its decades-long focus on standardisation and interoperability as crucial in helping Europe align and develop its capabilities. When NATO members adopted the Rapid Adoption Action Plan (RAAP) in 2025 with its 24-month "from need to fielding" target, Brussels and EU members copied and localised it. Challenge statements flowed from the Commission into the Hub for European Defence Innovation (HEDI), where SMEs and research labs competed to deliver solutions. Nordic-based innovation ranges, where military personnel and tech innovators work hand in hand, stress-test new concepts, innovations, and technologies under Arctic and maritime conditions. Successful solutions are awarded an EU-NATO Innovation Badge, which procurement agencies recognise. This one-badge, many-markets approach opened the market for more Nordic tech deployment across the EU and NATO.

Ukraine's experiences turbocharged the European ecosystem. Battle-tested AI logistics systems, drone and counter-drone swarms, and cyber tools flowed into European pipelines, cutting development cycles. For the first time in decades, Europe's innovation had an operational feedback loop: European battlefield-tested systems rolling into European battlegroups.

Europe's surging defence industry has also created considerable friction with the United States. While US policymakers appreciate Europe's new capabilities and the continued focus on interoperability, they bitterly

complain about the EU-specific requirements and sovereignty clauses that limit access for US startups and primes. The same applies to other non-EU countries like the UK, Korea, and Japan, with which some Member States are keen to work.

Data governance remains a perennial challenge as US suppliers resist data localisation requirements and integration of European tech into US supply chains. Congress debated reciprocal barriers, while the White House oscillated between supporting a stronger Europe and protecting American industry.

Despite the strain, the focus on military interoperability holds firm. NATO continues to set the rhythm through standards and operational leadership, but Europe now has strong hardware and software supply chains. Nordic testbeds and Ukraine's battlefield experience have become cornerstones of Europe's innovation cycle, ensuring both speed and credibility. Military interoperability remains strong, yet political and industrial frictions with the US simmer. Europe delivers its solutions at pace and increasingly exports its model globally.

### Indicative timeline & milestones

2025 – The Commission's *White Paper for European Defence Readiness 2030* sets the course, and the SAFE program raises €150 billion in low-interest loans for procurement. European leaders returned to their capitals and began the hard work of developing new budgetary prioritizations and handling the necessary tradeoffs. New loans, facilities, and funding mechanisms have awakened an industrial base that has been semidormant for the better part of two decades, bringing more jobs and a more skilled workforce that yields wider benefits to the entire economy.

2027 – The EU's Hub for Defence Innovation (HEDI) network has become fully operational, coordinating R&D on AI, autonomy, cyber and space across member states. Ukraine battlefield data and experiences become more formally integrated into development pipelines. Specialised integration teams are embedded within the European Defence Agency (EDA) and national ministries to accelerate the adoption of emerging technologies. These specialists write flexible contracts and help startups navigate NATO- and EU-aligned regulations and standards.

2029 – Ukraine formally joins the EU, bringing a battle-hardened tech sector into Europe's defence industrial base. The EU achieves its target of having 50% of defence equipment made in Europe. The EU-wide Defence Innovation Accelerator demonstrates results: a startup deploys new autonomous supply robots within EU battlegroups within 24 months of the prototype's development.

2031 – Europe fields prototype sixth-generation fighters (the UK–Italy–Japan "Tempest" and the Franco-German-Spanish FCAS). The EU's SAFE loans, which co-financed a European semiconductor foundry, are delivering the chips and processors for these next-generation fighters, among other platforms.

2033 – The European Union and NATO continue to strengthen coordination and collaboration. NATO focuses on operational planning, while the EU strengthens its commitment to capacity building. The Commission has achieved its acquisition goals two years ahead of schedule. Now 60% of all acquisitions are sourced from the European defence industrial base.

2035 – Europe's sprint for sovereignty culminates in a technologically advanced, interoperable European force. EU–NATO cooperation has yielded a credible deterrent on Europe's borders based mainly on European kit. NATO missions in Europe routinely integrate EU-developed systems with minimal American support, a stark contrast from a decade prior.

# ALLIANCE-DRIVEN ACCELERATION

# Scenario: Alliance-Driven Acceleration

*2035 – NATO facilitates an Innovation Engine*

| Macrotrends driving this scenario | Weak signals supporting this scenario |
|---|---|
| • NATO sets interoperability and development targets; EU instruments align to them<br>• Institutionalised NATO-EU coordination<br>• Faster uptake of software-centric emerging tech (C2, AI/ML, cyber, EW, uncrewed)<br>• Selective pooling and sharing procurement for common families of systems (not whole inventories)<br>• Federated, interoperable "battle-cloud" services (identity, data models, gateways)<br>• Long-term integration of Ukrainian experiences and firms | • Permanent Innovation Coordination Cell (PICC) in Brussels, co-staffed by NATO/EU<br>• Shared NATO–EU competitions for UAVs, air defence, and cyber tools<br>• US primes co-developing with European SMEs on autonomy and other technologies<br>• Nordic innovation ranges used as proving grounds for alliance-wide adoption |

By the mid-2030s, a pragmatic approach has strengthened enabled the transatlantic bond to survive and deepen. Faced with mounting threats from Russia and China, European and US leaders put aside old turf battles. Budgets were under strain, tax bases shrinking, and electorates demanding efficiency.

The only viable option was to pool resources, align standards, and accelerate innovation by better aligning NATO and EU frameworks. NATO remains the primary operational and standards framework, but the EU complements it by financing, coordinating industrial capacity, and enforcing interoperability conditions on projects it supports. To stretch budgets, many European governments focused on software-centric emerging technologies and common enablers rather than duplicate big-ticket platforms..

Policymakers in Europe and North America recognised that industry and research had to lead the next wave of transatlantic partnerships. They sought collaborative opportunities in research, development, and innovation. By aligning frameworks, NATO and the European Union have propelled European defence innovation over the last decade. NATO's Rapid Adoption Action Plan (RAAP), adopted in 2025, became the blueprint. The EU operationalised RAAP's principles with its instruments and cycles—SAFE loans, EDF grants, and ReArm conditionalities—all tied to NATO capability targets.

EU projects must focus on NATO interoperability from the outset. Innovation badges were issued jointly and recognised across all allied markets, creating an unprecedented opportunity for firms. For example, when selecting a new short-range air defence system, NATO and the EU facilitated a competition and common purchase arrangement. There are now a couple of major platforms rather than 10 separate programs.

Ukraine's deeper collaboration with EU and NATO partners further energised the ecosystem. Its battlefield-tested drone technologies, electronic warfare countermeasures, and logistics automation are fed directly into R&D pipelines.

Frictions remained. Although European leaders complained of US dominance in standards-setting and feared dependence on US platforms, European capitals recognised that they can no longer risk having

duplicative systems. The tax base has declined in 22 out of the 27 member states, and EU members had to ensure that every investment in defence counted. Therefore, if one nation's system proved excellent, most of the others adopted it.

By 2035, NATO's and the EU's joint innovation engine have produced results. European and American forces share a federated battle cloud, allowing a Finnish jet to instantly pull targeting data from a Spanish radar and a French frigate, without bureaucratic delays. The alliance operates as a single digital force, its capabilities reinforced rather than diluted.

Europe is interoperable, and politically it is a stronger partner than a decade before. These international institutions worked hand in hand to accelerate capability development, leveraging the strengths of all Allies – both European and North American. Europe is now a capable and integrated partner in a stronger, rejuvenated alliance. Its defence industrial base is more deeply intertwined with the North American value networks.

### Indicative timeline & milestones

2025 – NATO RAAP adopted, and DIANA continues to expand. EU initiatives, such as SAFE, aligned with NATO standards, and ReArm 2030, only provided loans to projects that meet NATO capability targets.

2027 – A joint EU-NATO innovation task force has helped remove trade barriers and boost transatlantic industrial cooperation. New systems for cross-border defence procurement and co-development are being tested and expanded.

2029 – Ukraine joined NATO as part of a peace deal and quickly moved toward EU membership. In Brussels, the EU and NATO established a Permanent Innovation Coordination Cell (PICC), staffed by both organisations, to reduce overlap and ensure that EU defence projects—such as a new European UAV—are compatible with US systems from the outset. NATO also conducted the Innovation Spearhead 29 exercise in Poland, showcasing integrated allied autonomy.

2031 – Several transatlantic R&D projects within sixth-generation fighters and new families of modular armoured vehicles are starting to show results. NATO established a Centre for AI and Autonomy to coordinate research among its members and align doctrines. Nordic SMEs supply advanced autonomy modules.

2033 – The combined EU and NATO approach accelerated integration. A secure federated EU-NATO battle cloud is now operational. European defence industries are thriving due to transatlantic co-development. For example, European primes win contracts to produce components for US hypersonic missiles. Nordic firms supply services within cloud infrastructure, analytics, and cybersecurity.

2035 – Allied forces can now operate with a unified view of the battlefield, significantly enhancing their effectiveness. The NATO and the European Union have established a transatlantic innovation ecosystem.

# LOCKED-IN LEGACY

# Scenario: Locked-in legacy

*2035 – The Decade Europe Stood Still*

| Trends driving this scenario | Weak Signals supporting this scenario |
|---|---|
| • Fragmented procurement cycles persist<br>• National programmes trump scale<br>• Defence industrial inertia entrenched<br>• Vendor lock-in with foreign primes<br>• Protectionist procurement<br>• Shrinking tax base, slowing budgets<br>• Risk-averse procurement dominates<br>• Europe fails to integrate battlefield lessons from Ukraine | • Innovation Ranges remain underfunded and nationalised<br>• NATO DIANA & Innovation Fund fail to attract startups<br>• Nordic countries quietly buy proven US and Korean systems<br>• European AI/cloud offerings lag behind the US and China<br>• Startups exit defence to pursue civilian markets |

The European ambition to turn rhetoric into action on defence has disappointed as many European governments met hard fiscal realities. As a result, the promises of 2024–25 – "5% defence spending," "European sovereignty," and "RAAP-driven agility" – never translated into practice. European governments were unable to find unity over the necessary reforms, and most capitals chose life-extension and piecemeal upgrades to legacy fleets. US unpredictability further strained transatlantic relationships, but Europe was too divided to capitalise on the opportunity. Each nation's government resorted to doing what it saw as fit.

Fearful of a remilitarised Russia, Northern and most Eastern European countries ramped up defence spending but with little coordination and almost no reform. Elsewhere, in countries less concerned about the Russian threat, funding dropped once the sense of urgency faded. Others broadened the definition of defence to include security and resilience, using defence funds for domestic infrastructure and migration control. The EU's SAFE and ReArm programmes became little more than subsidy streams for entrenched primes, while NATO's Rapid Adoption Action Plan languished in bureaucracy.

Innovation Ranges – proving grounds for new technologies and systems – remained small, underfunded, scattered, and siloed, lacking standardised test protocols. NATO's Innovation Badge, intended to provide access to multiple markets, ultimately became accessible only to the largest primes, following years of requirements-heavy evaluation. Even then, the badge provided few advantages in siloed, nationally oriented procurement systems.

DIANA and EU tech challenges were held, but participation dwindled as innovators realised that procurement systems would never buy at scale. European startups either pivoted back to civilian markets or crossed the Atlantic, where US programs moved faster.

Ukraine's best defence tech companies were acquired by US, South Korean, and Israeli primes. Ukraine's lessons never scaled into European programs, leaving gaps in autonomy, cyber, and missile defence. These gaps are addressed by purchasing off-the-shelf solutions from abroad.

By the early 2030s, Europe had achieved neither sovereignty nor integration, and the mid-2020s are remembered as a squandered opportunity. By 2035, Europe is armed, but incoherently: a patchwork of legacy systems, piecemeal upgrades, and imports. Ambitions of sovereignty and innovation remain unfulfilled.

## Indicative timeline & milestones

2025 – Commission's White Paper, ReArm 2030, and NATO RAAP launched, but implementation falters. Under pressure from national governments and major industry players, the European Commission has lost sight of the twin objectives outlined in the White Paper: to urgently close capability gaps today and utilise innovation to prepare for future threats. Differing national priorities and political squabbling over funding mechanisms left defence budgets scattered.

2027 – The Russo-Ukrainian conflict continues as a frozen conflict. Complacency and bureaucracy have set in, while the tightening of budgets has exacerbated nationalist tendencies. Many European development projects fail due to disagreements over capabilities and resources. Startups begin to leave the defence market.

2029 – The Draghi report's warnings realised. Europe has made little progress towards defence integration, and fragmentation sets in. For example, France continues to push for greater autonomy, while Poland continues to bypass collective solutions in favour of bilateral deals with non-EU partners. NATO interoperability frays, and Ukrainian lessons remain unincorporated.

2031 – New crises trigger another rush to buy equipment and modernise, and once again, most European countries rely on foreign suppliers and quick fixes. Commentators label the period 2025-2030 as "a lost half-decade".

2033 – Defence budgets shrink as tax bases erode. Innovation and R&D budgets are slashed, and joint programs are cancelled. China and the United States surge ahead in defence-oriented AI and quantum military applications. Europe is a military tech taker.

2035 – Europe remains a patchwork of outdated and foreign systems. The dream of sovereignty has waned, and innovation has stagnated. Europe in 2035 is "locked-in" to older paradigms and dependencies, with its leadership potential largely unfulfilled.


AI
€
$

# Implications for Research & Development Organisations

Universities and research and technology organisations (RTOs) will face a decisive decade ahead as defence and dual-use research moves from the margins to the centre of Europe's strategic agenda. Regardless of the scenario presented above, funding levels for security-related R&D will likely increase and become a larger part of these organisations' mission. At the same time, these institutions will also have to serve as talent pipelines for Europe's future innovation capacity. However, the political, industrial, and transatlantic conditions under which they will be required to operate will diverge.

Recommendations for R&D organisations across scenarios:

- Invest in talent development: Expand STEM enrolments, strengthen PhD pipelines, and integrate defence-relevant curricula (AI, cyber, quantum, autonomy). Collaboration with secondary schools and vocational institutions will be essential to attract students into high-demand fields.
- Enhance re-skilling and lifelong learning: Partner with governments and industry to provide mid-career training, ensuring Europe's existing workforce can pivot into defence and dual-use technology areas.
- Attract and retain global talent: Advocate for more flexible mobility rules, fellowships, and visa schemes. Without coordinated talent attraction, Europe will struggle to fill critical gaps.
- Safeguard openness while managing security: Design collaboration models that balance academic freedom with EU-first requirements—addressing data localisation, export controls, and citizenship restrictions without undermining Europe's attractiveness for top researchers.
- Prepare for geopolitical fragmentation: Build modular cooperation models that can adapt to EU-only, NATO-driven, or transatlantic-led projects, ensuring resilience of funding and partnerships.

Scenario-specific recommendations:

- *Sovereign Sprint*, universities and RTOs become central players in building a sovereign defence innovation base. R&D institutions will be drawn into large, EU-driven programmes with opportunities to scale breakthroughs in defence and dual-use applications. There will be several opportunities to host innovation ranges. Institutions will face pressure to align with EU-first priorities, particularly in areas such as academic freedom, research collaboration opportunities, and security. This could include stronger data localisation requirements and lead to the emergence of EU-citizen-only research and development projects.
- *In Fortress Europe*, research institutions can position themselves as national innovation arms; however, funding will become increasingly dependent on domestic sources from national agencies and defence primes. Countries like Denmark, with a relatively small defence industry, could face a more difficult time participating in cross-border collaborations and face marginalisation in the competition to become a European champion in certain technological areas. Research institutions will struggle to maintain active cross-border academic collaborations in sensitive technology areas.
- *Alliance-driven Acceleration,* driven by a strong transatlantic market pull, could lead to more and stronger transatlantic research consortia in AI, quantum, and space, as well as faster uptake of new technologies. Nordic institutions could gain access to capital, talent flows, and international testing facilities, often linked directly to NATO innovation hubs. European priorities could be sidelined in

favour of transatlantic cooperation. Research institutions could face loss of IP to US partners and primes.

- *Locked-in Legacy*, universities and RTOs could find themselves sidelined, as procurement inertia limits demand for research in disruptive and emerging technologies. Opportunities for academic defence R&D are limited to subcontracting or contract research for incumbents, prompting many researchers to pivot back to civilian applications. As a result, research institutions face declining relevance in security innovation and reputational costs without meaningful funding or impact.

# References

Allied Command Transformation. (n.d.). Digital Transformation Activities. Retrieved from https://www.act.nato.int/activities/digital-transformation/

Bruegel. (2023, June 14). How Europe can live with NATO's ill-conceived defence spending target. Bruegel. https://www.bruegel.org/first-glance/how-europe-can-live-natos-ill-conceived-defence-spending-target

Breaking Defense. (2025, July). EU to spend hundreds of billions on US arms? Maybe not, but demand is real, analysts say. Breaking Defense. https://breakingdefense.com/2025/07/eu-to-spend-hundreds-of-billions-on-us-arms-maybe-not-but-demand-is-real-analysts-say/

Breaking Defense. (2025, July). NATO may be Europe's best bet for tech at scale. Breaking Defense. https://breakingdefense.com/2025/07/nato-may-be-europes-best-bet-for-tech-at-scale/

Center for European Policy Analysis (CEPA). (2023). A recipe for revitalizing European tech. CEPA. https://cepa.org/article/a-recipe-for-revitalizing-european-tech/

Digital Europe. (2025). Redefining Defence Innovation: An Industry Blueprint for NATO's Rapid Adoption Action Plan. Retrieved from https://www.digitaleurope.org/resources/redefining-defence-innovation-an-industry-blueprint-for-natos-rapid-adoption-action-plan/

DSEI. (2025). NATO Ratifies New Rapid Acquisition Plan at Summit. Retrieved from https://www.dsei.co.uk/news/nato-ratify-new-rapid-acquisition-plan-summit

European Commission. (2023). EU budget 2028–2034: Protecting Europe. European Commission. https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/eu-budget-2028-2034_en#protecting-europe

European Commission. (2023). Defence investment gaps analysis. Directorate-General for Defence Industry and Space. https://defence-industry-space.ec.europa.eu/document/download/d106cb84-8051-43fe-9463-833cffd1da65_en?filename=Defence_Investment_Gaps_EN.pdf.pdf

European Defence Agency. (2025, March 19). Joint White Paper for European Defence Readiness 2030. European Defence Agency. https://eda.europa.eu/news-and-events/news/2025/03/19/joint-white-paper-for-european-defence-readiness-2030

European Parliamentary Research Service. (2023). European defence industry: Challenges and perspectives (Briefing No. 749805). European Parliament. https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/749805/EPRS_BRI(2023)749805_EN.pdf

EU Insider. (2025, June). NATO launches Rapid Adoption Plan for Defence Technology at The Hague Summit. Retrieved from https://www.euinsider.eu/news/nato-launches-rapid-adoption-plan-for-defense-technology-at-the-hague-summit

Financial Times. (2025). NATO seeks to accelerate defence innovation. Retrieved from https://www.ft.com/content/2998163b-bb65-48ff-a115-a4835c18f1da

Goldman Sachs. (2023). The future of European defense. Goldman Sachs. https://www.goldmansachs.com/insights/articles/the-future-of-european-defense

Intereconomics. (2021). A deeper union: From a failed project to the European quality lead. Intereconomics, 56(3). https://www.intereconomics.eu/contents/year/2021/number/3/article/a-deeper-union-from-a-failed-project-to-the-european-quality-lead.html

NATO. (2025, June 21). NATO launches Rapid Adoption Plan for defence technology at The Hague Summit. North Atlantic Treaty Organization. https://www.nato.int/cps/en/natohq/news_236516.htm

Politico. (2025, May 6). France's government collapses as François Bayrou resigns over debt crisis. Politico Europe. https://www.politico.eu/article/france-government-collapses-francois-bayrou-emmanuel-macron/

Science|Business. (2025, June). Horizon Europe will be dual-use by default, Zaharieva says. Science|Business. https://sciencebusiness.net/news/dual-use/horizon-europe-will-be-dual-use-default-zaharieva-says

Times Higher Education. (2025). Alarm over EU plan to use Horizon funding for defence. Times Higher Education. https://www.timeshighereducation.com/news/alarm-over-eu-plan-use-horizon-funding-defence

War on the Rocks. (2025, July). Titans, Trailblazers, and Translators: Forging a Unified Defence Industrial Paradigm. Retrieved from https://warontherocks.com/2025/07/titans-trailblazers-and-translators-forging-a-unified-defense-industrial-paradigm/

# The National Defence Technology Centre

In 2023, eight national universities and seven approved technological service institutes (RTOS) came together to establish a new national research center called the National Defence Technology Centre (in Danish, Nationalt Forsvarsteknologisk Center – NFC). The goal of NFC is to enhance the development of new technologies and to foster collaboration between the industry, the Danish Defence, and the universities..