

EUROPE 2040

Today, Tomorrow, and the Day After



STUDY - JUNE 2026

Europe in 2026 stands at an inflection point. The convergence of six structural crises – economic divergence, technological dependence, strategic vulnerability, institutional paralysis, demographic decline, and energy insecurity – means that the trajectory of the continent over the next fifteen years is genuinely uncertain. There is no default path. The future will be made by a series of choices, shocks, and compounding interactions that no single actor fully controls.

Yet uncertainty should not be understood as decline. Rather, it reflects the fact that Europe is entering a period in which multiple futures remain possible. The decisions taken today by governments, institutions, businesses, and societies will determine whether Europe emerges stronger, more fragmented, more autonomous, or increasingly dependent on external powers. In many ways, Europe is being asked to redefine itself at a time when the rules that shaped the post-Cold War era are rapidly being rewritten. This study adopts a scenario-led approach to explore how Europe may evolve by 2040. Instead of attempting to decide on a single future, it examines several plausible pathways that could emerge from the interaction of political, economic, technological, demographic, and geopolitical forces. The scenarios presented in the first chapter are not forecasts; they are tools designed to challenge assumptions, identify risks, and illuminate opportunities.

Building upon these scenarios, the subsequent chapters examine the key drivers that are expected to shape Europe's future, including economic competitiveness, technological sovereignty, energy security, demographic transformations, geopolitical shifts, defence and strategic autonomy, and the evolution of Europe's role in an increasingly multipolar international system. Together, these chapters seek to answer a broader question: not simply what Europe's future will look like, but what kind of Europe will emerge from the choices being made today.

Ultimately, this study is built around a simple premise: Europe's future is not predetermined. It will be negotiated, contested, and continuously reshaped by events both within and beyond its borders. The continent's greatest challenge over the coming years may therefore be learning how to navigate uncertainty itself.

Chapter 1: Three Futures for Europe: Scenarios A, B, and C

The three scenarios presented here are not equally likely, nor equally desirable. They are, however, all defensible extrapolations from the evidence. Each scenario is built from the same evidentiary foundation: the six structural chapters that make up this research project. They share a common starting point – Europe as it exists today, in 2026 – and diverge along different trajectories depending on how key variables resolve: whether Europe achieves fiscal integration, how it manages the energy transition, whether its regulatory architecture stifles or enables innovation, and how geopolitical shocks reshape its external environment.

Domain	Critical Vulnerability (2026)	Key Uncertainty to 2040
Governance	Democratic deficit; unanimity bottleneck; enlargement pressure	Will EU institutions reform fast enough to act at crisis speed?
Economics	GDP share 13.8%; VC pool 22% of US; 19 insolvency regimes	Will fiscal federalism and a Savings Union materialise?
Technology	40 US AI models vs. 3 EU; 70% cloud US-owned; 13.5% AI adoption	Will the Brussels Effect stifle or shape a European tech ecosystem?
Defence	50% spending rise but no unified command; nuclear gap with Russia	Can Europe build autonomous deterrence without full US support?
Demographics	Dependency ratio 34.5% and rising; fertility at 1.46 TFR	Will managed migration and pronatalist policy prevent workforce collapse?
Energy	Industrial energy 2-3× US cost; China controls 90% rare earth processing	Will the green transition deliver competitive parity, or lock in new dependencies?

SCENARIO A

European Renaissance

Probability by 2040: 25–35%

The European Renaissance is the most demanding of the three scenarios. It requires not one structural breakthrough but a cascading sequence of difficult political decisions, each building on the last. It is not inevitable, but it is achievable – and the fact that it is the least probable scenario says more about the difficulty of political coordination than about the absence of underlying capability. Europe possesses the resources, the human capital, and in many areas the policy frameworks to succeed. What it has historically lacked is the political will to deploy them at the required scale and speed.

In this scenario, a combination of external pressure and internal political realignment creates the conditions for deep institutional reform between 2026 and 2030. The scenario is best understood not as a single political moment but as a reinforcing spiral: each reform makes the next one easier, and each success builds the political legitimacy for further integration.

How It Comes About

The Triggering Conditions (2026–2029)

The Renaissance does not begin in calm waters. It is galvanised by a convergence of crises that finally overcome the institutional inertia that has blocked reform for decades. Three events, occurring in close proximity, prove decisive.

First, a severe rare earth supply disruption – triggered by Beijing's April 2025 restrictions escalating into a broader export embargo in response to EU semiconductor export controls – causes factory shutdowns across German automotive, French aerospace, and Dutch electronics supply chains. The economic shock is immediate and visible. For the first time, European publics directly experience the cost of strategic dependence.

Second, the US under a transactional administration significantly reduces its forward presence in Europe, conditioning NATO commitments on defence spending targets and threatening withdrawal from the integrated command structure unless European allies assume greater operational responsibility. This is not a full withdrawal, but it is a credible threat – and it concentrates minds in Berlin, Warsaw, and Paris in ways that years of diplomatic pressure had not.

Third, a series of state elections across France, Germany, and the Nordics deliver centrist, pro-integration governments that identify European reform as the defining political project of their mandates. In France, a presidency committed to Macron's long-deferred vision of European sovereignty finally commands a parliamentary majority. In Germany, a grand coalition agrees that deepening integration is preferable to the slow erosion of German industrial capacity.

The Fiscal Breakthrough (2028-2031)

The central structural reform of the Renaissance scenario is fiscal federalism: the creation of a common EU fiscal instrument capable of raising debt at the supranational level and directing investment toward strategic priorities. This has been the critical missing piece since the Eurozone crisis. Without it, every other reform – from industrial policy to defence investment – remains dependent on the willingness of individual member states to fund it, which inevitably reintroduces the North-South fragmentation that has repeatedly derailed European ambitions.

The fiscal union does not emerge as a comprehensive, constitutionally perfect architecture. It emerges pragmatically, modelled on the NextGenerationEU precedent of the COVID-19 response but made permanent and substantially larger. A European Treasury is established, accountable to the European Parliament, with borrowing authority of approximately €300-400 billion annually. Its investment mandate covers three domains: defence industrial capacity, green energy infrastructure, and digital sovereignty.

The political economy of this breakthrough is important. It is made possible not by Germany's altruism but by Germany's self-interest: without a common instrument, German industry – facing energy costs twice those of its US competitors and losing supply chain access to Asian semiconductors and rare earths – faces a structural decline that no purely national policy can arrest.

KEY REFORM

THE MASTER KEY: FISCAL FEDERALISM

As the six-chapter analysis argues, fiscal federalism is the sequentially prior reform on which all others depend. Without it, regulatory relief fails — member states cannot co-finance industrial scaling. Corporate champions cannot emerge. Cross-border labour transitions remain underfunded. The Savings Union, the Capital Markets Union, and the common defence industrial base all require a central fiscal anchor.

Technology Sovereignty (2028-2034)

The technology trajectory in the Renaissance scenario combines three complementary strategies that Europe has previously pursued in isolation but never simultaneously. The first is the open-source advantage: Europe's community of more than three million open-source contributors is among the largest in the world. In the Renaissance scenario, this ecosystem is actively channelled toward sovereign capability — not by centralised direction, but by procurement policy, data access, and infrastructure investment that creates favourable conditions for European AI development.

Mistral AI, DeepMind (London-based), and a new generation of EU-funded open foundation models emerge as credible alternatives to US frontier models in specific high-value domains: medical diagnostics, legal reasoning, industrial automation, and public administration. Europe does not overtake the US in general AI capability, but it achieves meaningful sovereignty in the domains that matter most for industrial and governance applications.

The second strategy is semiconductor capacity. The Chips Act 2.0, passed in 2026, targets €120 billion in investment across a decade. In the Renaissance scenario, this investment is sustained, and the regulatory environment — planning permissions, grid connections, water use approvals — is streamlined through a new 'strategic projects' fast-track mechanism. TSMC's Dresden fab reaches full production by 2030. A second European fab cluster develops in Northern France. By 2035, Europe produces approximately 20-22% of the chips it consumes, up from 9% in 2024.

The third strategy is the regulatory reset. The AI Act and GDPR are not abolished – they remain valuable frameworks – but compliance timelines are restructured so that startups below a certain revenue and user threshold are exempt from the most burdensome provisions for their first five years of scaling. This ‘regulatory nursery’ model, inspired by the FDA’s breakthrough designation and the UK’s regulatory sandbox concept, reduces the compliance tax that currently favours US incumbents over EU challengers.

Defence Autonomy (2029-2038)

In the Renaissance scenario, European defence integration advances along two parallel tracks. The first is spending and capability: by 2030, all EU member states meet the NATO 2% GDP target, and seven – led by Poland, Germany, Sweden, and the Baltic states – exceed 2.5%. This spending is increasingly pooled through a European Defence Investment Programme, avoiding the wasteful duplication that has characterised national procurement and generating genuine economies of scale in platform development.

The second track is institutional: a European military headquarters is established, initially as a planning and coordination body but evolving toward genuine operational command authority. France’s nuclear deterrent – already ‘Europeanised’ in rhetoric if not yet in command structure – is formally extended to cover EU partners through a new strategic doctrine agreed at the 2031 EU Security Council. Turkey, outside the EU but central to NATO’s southern flank, is integrated through a new EU-Turkey Security Compact that trades market access concessions for defence industrial cooperation and border management assistance.

By 2038, Europe cannot fully replicate US strategic lift, satellite intelligence, or nuclear deterrence. But it can sustain a conventional defence of its territory independently, deter hybrid and cyber attacks through credible counter-capabilities, and project limited force into its neighbourhood. This is ‘sovereign enough’ – a deterrence posture that no longer depends on guaranteed US commitment as its load-bearing foundation.

The Social and Demographic Settlement

The Renaissance scenario requires a sustainable resolution to Europe’s demographic crisis, and this is perhaps its most politically delicate element. The evidence is clear: with a total fertility rate of 1.46 and a dependency ratio that hit 34.5% in 2025 and is still climbing, Europe cannot sustain its welfare model or its workforce without managed immigration. The political question is whether a coalition can be built to support a rational migration system in an environment poisoned by two decades of migration controversy.

In the Renaissance scenario, this coalition forms around a skills-based, transparent, and regionally distributed migration framework. The EU Blue Card system is radically simplified and actively marketed in Africa, South Asia, and Latin America. Bilateral labour agreements with sending countries include co-development provisions that reduce the brain drain criticism. Critically, the internal politics of this shift are made viable by a simultaneous increase in pronatalist spending – subsidised childcare, extended parental leave, housing support for young families – that reassures publics that immigration is a complement to, not a substitute for, supporting European families.

The welfare model itself is restructured along Nordic flexicurity principles: higher employment flexibility, enabling firms to adapt rapidly to technological change, combined with genuinely generous retraining and income support for displaced workers. The transition is painful for those in declining industries, but its costs are demonstrably shared, building the political durability that previous liberalisation efforts lacked.

Europe in 2040: What It Looks Like

By 2040 in the Renaissance scenario, Europe has not become a superpower. Its GDP share has stabilised at approximately 16%, and it remains economically smaller than the US and China. What has changed is its strategic posture: it is a maker of rules, not merely a taker of them; a shaper of digital infrastructure, not merely a user; a credible military actor, not merely a dependent ally. The von der Leyen formulation – that Europe must control the technologies that keep its hospitals running, its grids stable, and its services secure – has been substantially, if not fully, achieved.

The political signal this sends to the Global South is significant. A Europe that has successfully navigated the energy transition, demonstrated that democracy and strategic competitiveness are compatible, and built a migration model that is both humane and economically rational, becomes an attractive partner and model. The Brussels Effect, previously criticised as regulatory imperialism, is recast as standards diplomacy – and it works, because Europe's market and model are now visibly competitive alternatives to the US and Chinese systems.

Indicator	2040 Projection (Scenario A: Renaissance)
EU GDP Share of World	~16% (stabilised from 13.8%)
US-EU GDP Per Capita Gap	Narrowing toward 30%
AI Enterprise Adoption	~55% of EU firms
EU Cloud Sovereignty	~35% EU-owned infrastructure
Semiconductor Self-Supply	~20% of EU consumption
Defence Spending	Average 2.5% GDP; EU command architecture established
Renewable Energy Share	~65% of electricity generation
Industrial Energy Cost vs. US	Near parity via storage, grid reform
Global Role	Co-shaper of international digital and security order

SCENARIO B MANAGED DECLINE

Probability by 2040: 45–55%

Technology Sovereignty (2028-2034)

Managed Decline is the base case – the most probable outcome by the weight of evidence and historical precedent. It describes a Europe that neither collapses nor transforms, but persists: preserving its welfare model and democratic institutions at the cost of steadily diminishing strategic weight. It is the scenario in which Europe remains a large, wealthy, and rule-governed entity, but one whose voice in shaping the international order diminishes, whose industrial base gradually erodes, and whose technological infrastructure remains fundamentally dependent on others.

This scenario is not a catastrophe. European citizens continue to enjoy high living standards, freedom of movement, and legal protections unmatched in most of the world. But the implicit promise of the European project – that integration would generate not just peace but prosperity, not just internal market efficiency but strategic autonomy – goes unfulfilled. Europe becomes, in a phrase worth taking seriously, a technologically dependent market: a large and regulated consumer of the products, platforms, and infrastructure that others build.

The Managed Decline scenario is characterised above all by incrementalism: small reforms that address symptoms without resolving structural causes, coordination without integration, ambition without delivery. Each year, the gap between what Europe says it intends and what it actually does narrows slightly, but not enough to close the structural distance separating it from the US and China.

How It Comes About

The Persistence of Institutional Inertia

The default setting of the EU's institutional architecture is coordination without binding commitment. Decisions require unanimity at the Council, which gives every member state effective veto power over reforms that threaten national interests or domestic political coalitions. The history of European integration is a history of crises overcoming this inertia – the single market, the euro, NextGenerationEU. But in the Managed Decline scenario, no crisis of sufficient magnitude arrives early enough, with sufficient political clarity, to force the next integration breakthrough.

The fiscal union discussion continues. Papers are written, proposals are tabled, and the Franco-German axis periodically recommits to the principle. But the details always prove intractable: Germany worries about moral hazard; the 'frugal four' (Netherlands, Austria, Denmark, Sweden) resist common liability; Southern member states resist the conditionality that Northern states demand in exchange. The result is a Partial Capital Markets Union – genuinely useful, modestly improving the cross-border flow of investment – but not the structural transformation that would allow EU-level funding of strategic priorities at scale.

The regulatory environment undergoes incremental reform: compliance timelines are extended for small firms, a few flagship burdensome regulations are reviewed, and the AI Act's implementation is softer than originally feared. But the architecture remains one in which the compliance baseline is set for the largest and best-resourced organisations, and startups navigate it with difficulty. The talent that might have built European AI champions continues to emigrate to the Bay Area and London, or gets hired by US firms through their EU operations.

The Technology Trajectory: Rule-Maker, Not Builder

The most analytically important feature of Managed Decline's technology trajectory is the divergence between Europe's regulatory power and its productive capacity. The Brussels Effect continues to operate: because Europe is the world's largest single market, and because operating in it requires compliance with EU rules, global firms adapt their products and practices to EU standards. GDPR exported a data privacy framework to over 160 countries. The AI Act will export risk management requirements to any AI system targeting EU users. European standards become global standards.

But this rule-making power does not translate into technology building. The firms that comply with EU rules are predominantly American – Google, Meta, Amazon, Microsoft, Apple – and they absorb the compliance cost while remaining the dominant players. The regulatory burden that falls equally on all firms in absolute terms falls disproportionately on smaller European competitors in relative terms, because US hyperscalers can amortise compliance costs across vastly larger revenue bases. A startup building an LLM in Berlin faces the same compliance framework as OpenAI; OpenAI can afford a larger legal team.

By 2040, the EU cloud market remains approximately 65-70% controlled by AWS, Azure, and Google. European challengers – OVHcloud, Hetzner, Deutsche Telekom's T-Systems – carve out significant niches in regulated sectors (healthcare, public administration, finance) where data sovereignty requirements create a protected market. But they do not become global hyperscalers. The kill-switch vulnerability identified in the ICC prosecutor case – where Microsoft cancelled a sanctioned official's email account – is partially mitigated by sovereign cloud arrangements in the most sensitive government applications, but remains an unresolved structural risk in the commercial and civil society domains.

Economic Stagnation and the Capital Drain

In the Managed Decline scenario, the long-running divergence between US and EU economic performance continues at a slower but persistent pace. The US-EU GDP per capita gap – already approximately 40% in 2026 – widens to around 50% by 2040. This is not because European living standards fall in absolute terms; they continue to rise, modestly. It is because US productivity growth, driven by AI adoption, energy cost advantages from domestic natural gas, and a deeper risk-capital ecosystem, consistently outpaces European performance.

The capital drain westward continues through several channels. European pension funds and insurance companies, managing the savings of an ageing continent, continue to invest predominantly in US equities – not out of disloyalty to Europe, but because US markets offer higher returns. The IPOs of SpaceX, Anthropic, OpenAI, and subsequent AI companies in the late 2020s draw further European capital. Sweden's Klarna, which listed in New York in 2025 rather than Stockholm, becomes a template: the most promising European growth companies systematically choose US or UK capital markets because European institutional investors cannot provide comparable late-stage funding.

Germany's industrial adjustment is the most visible economic story of the decade. The energy-intensive sectors – chemicals (BASF, Covestro), primary aluminium, fertilisers – do not fully recover their pre-2022 output. Some capacity permanently relocates to the US, attracted by IRA subsidies and cheaper energy. The automotive sector navigates the EV transition with substantial pain, losing market share to Chinese manufacturers in the middle and lower segments. Germany remains an industrial power, but a diminished one – its trade surplus narrows, its current account weakens, and its political economy becomes less capable of financing EU-level integration.

STRUCTURAL RISK THE CAPITAL DRAIN AS SELF-REINFORCING DYNAMIC

Over half of European equity funds are tied up in US shares. SpaceX, Anthropic, and OpenAI IPOs in 2026 draw further European capital. Sweden's Klarna floated in New York rather than Stockholm. Without a Savings Union or common borrowing, European innovation is perpetually under-funded at scale. This is not merely an economic inefficiency — it is a mechanism by which European savings actively finance the technological competitors that are displacing European industry.

Defence: Dependent Deterrence

The defence trajectory in Managed Decline is one of genuine but insufficient progress. NATO remains the primary architecture for European security, and in this scenario it survives, albeit in a modified form. The US maintains its formal commitment to European defence, but the implicit guarantee of automatic, unconditional response to Article 5 invocations is replaced by a more transactional relationship in which US support is conditioned on European burden-sharing and on alignment with US foreign policy priorities in the Indo-Pacific.

European defence spending stabilises at an average of approximately 2.5% of GDP by 2030, up substantially from the post-Cold War lows but short of the transformative rearmament that a full strategic autonomy trajectory would require. The spending increase generates real capability improvements: more ammunition stocks, better logistics, more deployable ground forces.

But the structural gaps identified in the six-chapter analysis – the absence of a unified command, the duplication of equipment programmes across 27 national procurement systems, the dependence on US strategic lift and satellite intelligence – are not resolved.

France's nuclear deterrent remains a national rather than European capability. Proposals to extend it to EU partners under a credible extended deterrence arrangement founder on the unwillingness of smaller member states to formalise a nuclear relationship with France that would imply political subordination, and on German constitutional constraints that preclude participation in nuclear sharing arrangements outside the NATO framework. Europe retains its own nuclear weapons, but they do not add up to an integrated deterrent.

Demographics and the Welfare State Under Strain

The demographic trajectory in Managed Decline is one of managed stress rather than collapse. The workforce shrinks, the dependency ratio climbs, and pension systems are repeatedly reformed – raising retirement ages, adjusting benefit formulas, increasing contributions – to remain technically solvent without generating the political crisis that a more abrupt adjustment would cause. Healthcare systems are under chronic pressure, with long wait times and staff shortages that are managed through increased immigration of healthcare workers but not fundamentally resolved.

Migration continues to flow into Europe at rates broadly comparable to the 2010s, but the political management of it becomes more sophisticated and more selective. The EU develops more robust external border management and more coherent burden-sharing arrangements for asylum seekers. Skilled migration pathways are expanded and simplified. But the political debate around migration remains toxic in many member states, constraining the scale of labour immigration that economic logic would support. Anti-immigration parties continue to gain votes, forcing mainstream parties to adopt increasingly restrictive rhetoric even as they quietly maintain the immigration flows their labour markets require.

Europe in 2040: What It Looks Like

By 2040 in the Managed Decline scenario, Europe is a large, comfortable, and increasingly marginalised actor. Its GDP share has fallen to approximately 11%. Its digital infrastructure remains predominantly foreign-owned. Its defence posture is credible against conventional threats but dependent on US partnership for anything requiring power projection or deterrence against a nuclear-armed adversary. Its regulatory power remains significant, but its productive capacity has not grown to match.

The most accurate description of Managed Decline’s Europe is a ‘regulatory middle power’: a jurisdiction that shapes global rules without building global technology, that consumes the digital order without shaping it, and whose citizens enjoy high living standards while the strategic decisions that affect their lives are increasingly made in Washington, Beijing, and a handful of US tech company headquarters. The window for transformative reform has not closed entirely, but it has narrowed considerably.

Indicator	2040 Projection (Scenario B: Managed Decline)
EU GDP Share of World	~11% (continued erosion from 13.8%)
US-EU GDP Per Capita Gap	Widening to ~50%
AI Enterprise Adoption	~35% of EU firms
EU Cloud Sovereignty	~30–35% EU-owned infrastructure
Semiconductor Self-Supply	~12–15% of EU consumption (partial Chips Act delivery)
Defence Spending	Average ~2.5% GDP; NATO-dependent; no unified EU command
Renewable Energy Share	~55% of electricity generation
Industrial Energy Cost vs. US	1.5× (improved but not competitive)
Global Role	Regulatory standard-setter; diminishing geopolitical weight

SCENARIO C FRAGMENTED CONTINENT

Probability by 2040: 20–30%

The Fragmented Continent is the scenario that Europeans most want to avoid and most systematically underestimate. It is not a scenario of invasion or institutional dissolution in the legal sense – the EU, NATO, and the euro continue to formally exist. It is a scenario of functional collapse: of institutions that persist on paper while ceasing to generate the solidarity, investment, and coordinated action that give them meaning. It is, in the language of political science, a scenario of ‘institutional decay’ rather than institutional rupture.

What makes this scenario particularly dangerous is that it can arrive gradually, and that each step toward it can appear manageable in isolation. No single event triggers fragmentation – it is the product of a cascade of shocks, each of which European institutions absorb imperfectly, eroding trust and solidarity in the process. By the time the cumulative damage becomes visible, the political coalitions needed to repair it have disintegrated.

The probability assigned to this scenario – 20-30% – is not negligible. Given that it is largely irreversible once advanced, its expected disutility is substantially higher than Managed Decline even at a lower probability. This is the scenario that justifies treating the current window of opportunity with urgency.

How It Comes About: The Shock Cascade

The Fragmented Continent does not emerge from a single catastrophic event. It emerges from a cascade of shocks that arrive in rapid succession, overwhelming Europe’s institutional capacity to absorb and respond. The sequence is not the only path to fragmentation – any severe enough shock to a sufficiently vulnerable system could trigger a similar dynamic – but the following represents the most analytically plausible pathway.

Shock 1: The US-NATO Fracture (2027-2029)

The first shock is the degradation of the US-NATO commitment to a point that fundamentally alters European security calculations. This does not require a formal US withdrawal from NATO – it requires only the credible threat of one, sustained for long enough to force European states to act on the assumption that the guarantee is conditional. Under a US administration pursuing a transactional foreign policy, the Article 5 commitment is repeatedly qualified: it depends on burden-sharing, on alignment with US trade policy, on European acquiescence to US positions on China.

The Baltic states and Poland – those with the most direct exposure to Russian pressure – respond by dramatically increasing their own defence spending and seeking bilateral security arrangements with the US. But this bilateralism fragments European solidarity: each country pursues the arrangement that best serves its national interest, rather than contributing to a collective European architecture. Germany, France, and the Southern states, less immediately threatened, reduce their political investment in European defence integration, calculating that the worst case is less likely for them.

Russia, reading the ambiguity in the US commitment and the disarray in European responses, intensifies pressure on Georgia and Moldova – states aspiring to EU membership but outside the formal NATO umbrella. Hybrid campaigns combining cyberattacks, energy supply manipulation, and political interference test European solidarity without triggering Article 5. European responses are slow, divided, and insufficient to deter further pressure.

Shock 2: The Rare Earth and Energy Crisis Redux (2028-2031)

The second shock is an escalation of the rare earth supply crisis that China initiated in April 2025. In the Fragmentation scenario, Beijing's initial restrictions, rather than prompting successful European diversification, expose the depth of European dependence and the inadequacy of the Chips Act's implementation timeline. European Critical Raw Materials Act targets prove impossible to meet on schedule: environmental permitting for new mines in Scandinavia and the Iberian Peninsula takes years, processing capacity takes decades to build, and diplomatic efforts to secure African supply chains are outpaced by Chinese investment in the same regions.

The result is a sustained period – three to five years – in which European manufacturers cannot obtain reliable supplies of the rare earth elements essential for EV batteries, wind turbines, military electronics, and advanced industrial equipment.

The defence industry, which had just begun a serious rearmament programme, finds itself unable to procure the materials needed for its own production plans. German automotive output falls 25% below 2024 levels. European wind turbine manufacturers, having lost their supply chains, cede further market share to Chinese competitors who control the full vertical from mining to finished product.

Energy prices, which had begun to stabilise as renewables expanded, spike again – this time because the rare earth shortage delays the installation of new wind capacity and battery storage, preventing the decoupling from fossil fuel price-setting that the energy transition was meant to achieve. Industrial competitiveness deteriorates sharply. Unemployment in energy-intensive manufacturing regions climbs above 15% in parts of Eastern Germany, Northern Italy, and the Czech Republic.

CRITICAL VULNERABILITY THE RARE EARTH CHOKEPOINT

China processes 85% of global rare earth elements; Europe processes approximately 1%. In April 2025, Beijing restricted exports of seven critical rare earths, triggering factory shutdowns across the continent. In the Fragmentation scenario, this initial restriction escalates into a sustained embargo that exposes the fundamental inadequacy of European supply chain diversification efforts. The EU's Critical Raw Materials Act sets the right targets — but current extraction and processing capacity is a fraction of the 2030 benchmarks, and the geopolitical timeline is moving faster than the industrial one.

Shock 3: The Political Wave (2029-2033)

The economic pain of the rare earth and energy crisis provides the fertile ground for a political realignment that has been building for a decade. Far-right and nationalist parties, which had been gaining seats in European Parliaments throughout the 2010s and 2020s, achieve governing majorities or governing coalition positions in Italy, France, and Hungary by the early 2030s. This is not the first time such parties have participated in government — but their simultaneous presence in three major member states creates a structural blocking coalition that fundamentally alters the political physics of the European Council.

The governing coalition in Rome pursues aggressive repatriation of legislative competences. The new French presidency — a successor to the Le Pen political tradition, whether Marine Le Pen herself or a next-generation figure — abandons Macron's Europeanist vision in favour of a sovereigntist doctrine that uses EU institutions instrumentally, vetoing reform proposals while demanding budget transfers.

Hungary's continued democratic backsliding, now openly emulated by the Italian government, creates a rule-of-law crisis that consumes the European Commission's political bandwidth.

The immigration crisis provides the most politically charged flashpoint. As climate-related displacement in the Sahel and North Africa intensifies, and as the economic deterioration in Southern Europe generates secondary northward migration within the EU, the political salience of migration reaches new heights. Border controls between Schengen members are reinstated, not as temporary measures but as semi-permanent features. The Schengen Area does not formally dissolve, but its practical operation as a zone of free movement is severely curtailed.

The Institutional Erosion

In the Fragmented Continent scenario, the EU's institutional architecture does not collapse overnight – it becomes progressively hollowed out. The European Council, paralysed by the blocking coalition, fails to agree on the fiscal union that Scenario A achieves. The Chips Act 2.0 is not renewed at the required scale. The defence integration agenda stalls as the sovereigntist governments in Rome and Paris insist on national control of defence procurement. The Capital Markets Union generates reports but not legislation.

The most consequential institutional failure is in energy and technology infrastructure. Without a common fiscal instrument, the investment required to complete the energy transition, diversify rare earth supply chains, and build European cloud capacity cannot be mobilised. Member states pursue national solutions – France deepens its nuclear power programme, Germany accelerates its LNG infrastructure, Poland extends the life of its coal plants – that are individually rational but collectively undermine the EU's stated climate and industrial sovereignty objectives.

The Commission attempts to maintain momentum through regulatory action, tightening digital market rules, extending AI Act enforcement, and introducing new obligations on cloud providers to offer EU-based data portability. But regulation without investment is insufficient: the rules become more demanding while the European alternatives to US and Chinese infrastructure fail to materialise. The regulatory burden on the small European tech sector increases without creating the protected market conditions that might allow European challengers to develop.

Digital Vassalage: The Infrastructure Problem

By the mid-2030s in the Fragmentation scenario, the structural vulnerability identified in the EU's cloud and AI infrastructure has become politically acute. The proportion of EU government, healthcare, and critical infrastructure data processed on US-owned cloud infrastructure has not declined – it has increased, as the promised European alternatives have failed to achieve commercial viability at scale. AWS, Azure, and Google Cloud now process an estimated 75-80% of EU cloud workloads.

The incident pattern that predicted this risk – Microsoft's cancellation of the ICC prosecutor's email account following US sanctions – recurs in more serious forms. US administrations, pursuing an assertive economic statecraft doctrine, use control of digital infrastructure to pressure European governments on trade, defence spending, and China policy. The leverage is not always exercised, but its existence is widely understood and shapes European policy in ways that are difficult to quantify and impossible to publicise.

The semiconductor dependency is similarly acute. Europe's defence industry, now attempting to rearm at scale, discovers that its ability to produce advanced military electronics is constrained by its dependence on chips manufactured in Taiwan, South Korea, and the US. The Chips Act targets have not been met. A Taiwan Strait crisis in the late 2020s – not a full military conflict, but a sustained escalation that disrupts commercial shipping and creates TSMC production uncertainty – reveals the fragility of European supply chains in real time.

Social Fracture: The Human Cost

The social consequences of Fragmented Continent's economic and political dynamics are severe and unevenly distributed. The pension systems of Southern European member states – already under stress from demographic ageing – require either dramatic benefit cuts or fiscal transfers that the Northern member states refuse to provide in the absence of a common fiscal instrument. Greece, Italy, and Spain implement pension reforms that reduce real retirement incomes by 15-25% for those retiring in the 2030s. The political consequences are predictable: general strikes, loss of confidence in mainstream parties, and a further surge in support for extremist alternatives.

Brain drain, long a feature of intra-EU migration, accelerates dramatically. European universities continue to train world-class researchers, engineers, and doctors, but they increasingly do so for export: to the US, the UK, Canada, and Australia, which offer higher salaries, lower compliance burdens for entrepreneurs, and in many cases more functional public services.

The migration of talent from East to West within the EU, and from South to North, intensifies regional divergence.

Youth unemployment exceeds 30% in five or more EU member states by the mid-2030s. This is not simply an economic statistic – it is a political time bomb. A generation of young people in Southern and Eastern Europe, educated to a high standard but unable to find meaningful employment in economies that cannot compete with US or Chinese industry, represents the primary recruitment pool for the populist and nationalist movements that are simultaneously driving the political fragmentation of European institutions.

Europe in 2040: What It Looks Like

In the Fragmented Continent scenario, Europe in 2040 is formally intact but functionally divided. The EU exists. The euro exists. Schengen exists in attenuated form. But the political solidarity, institutional trust, and collective ambition that these structures require to function effectively have been severely depleted. The European project has not failed – but it has ceased to advance, and in several dimensions it has demonstrably retreated.

The global consequences of this scenario extend well beyond Europe's borders. A fragmented Europe cannot coordinate effectively in international institutions, cannot present a unified position in WTO disputes, cannot sustain the Global Gateway infrastructure initiative that was meant to provide a democratic alternative to China's Belt and Road. The regulatory power of the Brussels Effect diminishes as other jurisdictions, seeing the EU's declining productive relevance, become less willing to harmonise with EU standards that serve no active EU technology ecosystem.

Most consequentially, a fragmented Europe cannot provide the strategic anchor that the international liberal order requires. The post-1945 architecture of multilateral institutions, open trade, and rule-based conflict resolution was built on the premise of a coherent Western bloc capable of underwriting it. A Europe that cannot defend itself, cannot agree on climate targets, cannot coordinate on AI governance, and cannot fund its own industrial base is not a co-architect of international order – it is a vulnerability within it.

Indicator	2040 Projection (Scenario C: Fragmented Continent)
EU GDP Share of World	~9% (accelerated decline)
US-EU GDP Per Capita Gap	Widening beyond 55%
AI Enterprise Adoption	~20–25% of EU firms
EU Cloud Sovereignty	<20% EU-owned infrastructure
Semiconductor Self-Supply	<10% of EU consumption
Defence Spending	Divergent: high in East, declining in South/West; no EU architecture
Renewable Energy Share	~40% of electricity (transition stalled)
Industrial Energy Cost vs. US	3–4× (worsening due to rare earth and grid failures)
Global Role	Fragmented voice; declining regulatory credibility

The Window and What Must Be Done

The three scenarios share a common starting point but diverge on the basis of decisions, investments, and institutional choices that are available to European actors today. The distance between Scenario A and Scenario C is not the distance between a good and a bad external environment – it is the distance between a Europe that chooses to act on its structural vulnerabilities and a Europe that defers those choices until they are made for it by events.

Several conclusions follow from the comparative analysis of the three scenarios.

The Sequencing Insight

All the evidence from the six structural chapters points to the same conclusion: fiscal federalism is the master key. Not because it solves every problem directly, but because it removes the financing constraint that prevents every other reform from reaching the required scale. The Chips Act delivers half of its target not because the target is wrong, but because the investment cannot be sustained at the national level in the absence of common fiscal capacity. The energy transition stalls not because the technology is unavailable, but because the infrastructure investment – grid upgrades, storage deployment, mineral supply chains – requires coordination and financing at a scale that member-state budgets cannot provide.

The political difficulty of achieving fiscal federalism is real. But the analysis suggests that the political difficulty of not achieving it – the gradual erosion of competitiveness, the capital drain, the demographic pressure – is greater. The question is whether Europe's political leaders can make that case compellingly enough to build the coalition that has always been attainable in principle but elusive in practice.

The Regulatory Paradox

Europe's regulatory power is simultaneously its greatest soft power asset and one of the structural constraints on its industrial development. The resolution of this paradox is not deregulation – it is sequencing. The compliance requirements of the AI Act, GDPR, and the Digital Markets Act serve genuine purposes and generate genuine global influence. The question is who bears the cost of those requirements: if the answer is EU startups competing against US hyperscalers with armies of compliance lawyers, the regulatory framework becomes a competitive handicap. If the answer is the largest and most established players, with protected space for smaller challengers to scale, the same framework becomes a competitive advantage.

This sequencing insight – which the Nordic countries applied to labour market regulation with great success – is the most tractable near-term reform available to European policymakers. It does not require treaty change. It does not require the political breakthroughs that fiscal federalism requires. It requires only a clear-eyed recognition that the current implementation of EU regulation systematically advantages incumbents over challengers, and a willingness to redesign the application rules accordingly.

The Urgency Imperative

Von der Leyen's June 2026 statement – that Europe cannot afford to depend on others for the technologies that keep its hospitals running, its energy grids stable, and its services secure – captures the urgency correctly. The risks identified in the six-chapter analysis are not future risks. They are present realities: the semiconductor vulnerability is real today; the cloud dependence is real today; the energy cost premium is real today; the demographic clock is running now. The window for addressing these through proactive reform is open, but the evidence from all three scenarios suggests it is narrowing.

The specific pace at which the window narrows varies by domain. On demographics, the timeframe for meaningful pronatalist intervention is effectively already past for the next twenty years – the workforce entrants of 2040 are already born or unborn in 2026. On semiconductors, building fabrication capacity takes fifteen years from investment decision to production readiness. On energy, the infrastructure required to reach competitive parity with US costs requires sustained investment through the 2030s. On AI, the development of foundation models and the ecosystem around them is moving at the pace of months, not decades.

In each of these domains, delay is not neutral. It is not the case that the same action taken in 2028 instead of 2026 produces the same result two years later. In many cases, delay is compounding: it allows dependencies to deepen, talent to depart, investment windows to close, and political coalitions for reform to fracture. The urgency is not rhetorical – it is structural.

Chapter 2: The Competitiveness Trap: Europe's Institutional Dilemma in the Age of Scale

This chapter argues that Europe is ensnared in a Competitiveness Trap: a structural deadlock in which the institutional architecture designed to deliver social cohesion, regulatory stability, and coordinated capitalism has, under current global conditions, become a constraint on the capital deployment, technological scaling, and innovation velocity needed to finance that very architecture. The trap does not arise from a single misguided intervention or an aberrant political cycle. It emerges from the deep logic of the European model itself—from the interaction between coordinated wage bargaining, fragmented capital markets, conservative fiscal rules, and a regulatory culture that systematically prioritises precaution over permissiveness at precisely the moment when global competition rewards the opposite.

The external pressures of the past decade have not created the trap; they have accelerated and revealed structural vulnerabilities already embedded within Europe's institutional architecture. The 2022 severance of cheap Russian pipeline gas permanently elevated input costs for energy-intensive manufacturing. The United States (U.S.) Inflation Reduction Act (IRA) paired massive state subsidies with local-content requirements that incentivise European industrial relocation. Decades of Chinese state capitalism have produced enormous scale in photovoltaics and electric vehicles, flooding global markets at price points European producers cannot match. Each constitutes a geo-economic pressure, deploying economic instruments in pursuit of strategic objectives, that has compressed the timeline for reckoning with vulnerabilities that pre-date all three events.

One further precision is necessary. Europe is not in absolute decline, and its institutional arrangements retain genuine comparative advantages in advanced manufacturing, precision engineering, regulatory standard-setting, and vocational education. The problem is structural mismatch: the sectors generating the highest productivity returns in the contemporary economy—large-scale AI, cloud infrastructure, advanced semiconductors—are characterised by network effects and winner-take-most dynamics that systematically favour the Liberal Market Economy (LME) environment of the U.S. over the Coordinated Market Economy (CME) framework that defines most of continental Europe.

The chapter examines the institutional logic underpinning these tensions, evaluates the trade-offs between social protection, market openness, and strategic economic adaptation, and assesses the conditions under which the trap can be mitigated, or whether its resolution ultimately requires a more fundamental reconsideration of the fiscal and institutional architecture of European integration itself.

1. The European Economic Trilemma

Building on Rodrik's foundational global trilemma (2011)—which demonstrates that nations cannot simultaneously achieve deep economic integration, national sovereignty, and democratic politics—this chapter proposes a specifically European variant. The European Economic Trilemma holds that, under prevailing global conditions, the Union can credibly pursue at most two of the following three objectives simultaneously:

(i) Social Market Preservation: the maintenance of high welfare floors, robust labour protections, universal public services, and the redistributive mechanisms embedded in European social contracts;

(ii) Deep Global Integration: competitive participation in open global trade, attracting mobile capital, and scaling European firms to operate at global technology frontiers; and

(iii) Regulatory Sovereignty: the exercise of independent, precautionary regulatory authority over product markets, data governance, competition policy, and environmental standards without conceding to common frameworks that constrain domestic policy autonomy.

The trilemma has a structural logic that clarifies why Europe's implicit attempt to pursue all three simultaneously has produced institutional deadlock. An economy committed to Social Market Preservation and Deep Global Integration faces relentless competitive pressure from lower-cost jurisdictions; maintaining Regulatory Sovereignty compounds this by fragmenting markets, raising compliance costs, and eliminating the unified fiscal capacity needed to subsidise transitional adjustment. An economy that preserves Social Market institutions and Regulatory Sovereignty while forgoing Deep Global Integration risks technological exclusion and capital flight as mobile firms and talent relocate to more liquid, less regulated markets. In each corner, attempting the full combination generates contradictions that the institutional architecture cannot resolve without explicit, politically costly choices.

This framework extends and refines earlier contributions. Sapir (2006) distinguished four European social models—Nordic (Denmark, Finland, Iceland, Norway, Sweden), Anglo-Saxon, Continental, and Mediterranean—each exhibiting distinct efficiency-equity trade-offs, but did not fully account for the competitive pressures of the digital economy’s winner-take-most dynamics. Pisani-Ferry (2024) has argued for an activist industrial state capable of steering the green transition competitively, but the fiscal and institutional preconditions for such a state remain contested. The Draghi 2024 Report, the most authoritative recent synthesis of European competitive challenges, implicitly recognises the trilemma by calling for a reorientation toward integration and innovation while acknowledging the trade-offs this entails with existing regulatory and social commitments. The trilemma framework’s claim, that those trade-offs are structural rather than incidental, is tested against empirical evidence in the section that follows.

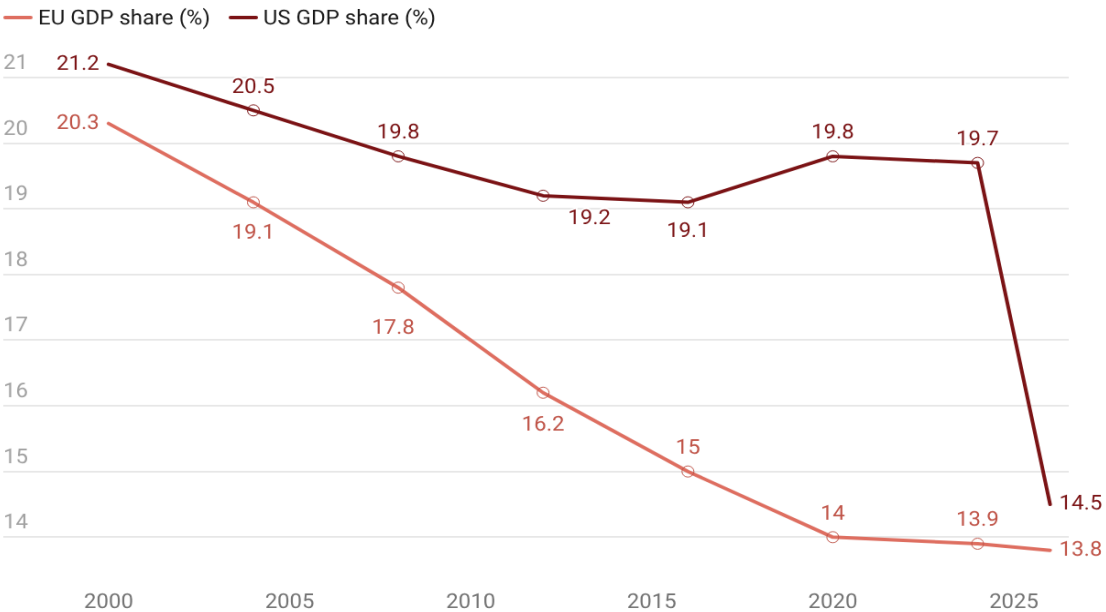
2. Anatomy of the Competitiveness Deficit: Evidence and Mechanisms

- **The Productivity-Technology Gap**

The European Union (EU)’s share of world GDP on a purchasing power parity basis has contracted from over 20% in 2000 to 13.77% in 2026, while the U.S. has maintained its global weight at 14.54%.

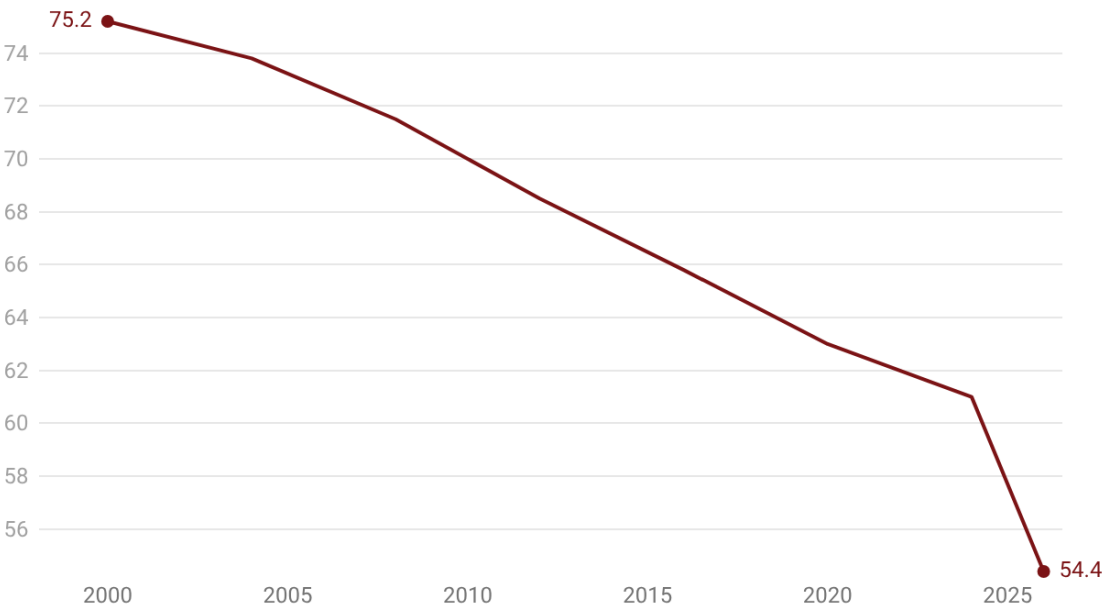


Share of World GDP



The EU's nominal GDP per capita stands at \$51,030, which is exactly 54.04% of the U.S.' level of \$94,430, confirming a massive economic divergence. This gap highlights a structural slowdown in European productivity, innovation, and demographic growth compared to the vibrant tech-driven expansion of the American economy.

EU per capita GDP as % of US



The mechanism is not capital scarcity in the conventional sense: EU gross fixed capital formation stands at approximately 21.2% of GDP, comparable to US levels. The shortfall lies in Total Factor Productivity, Europe's capacity to convert inputs into value, which has declined sharply since the mid-2000s in precisely the sectors generating the highest global returns. This is the first dimension in which the Regulatory Sovereignty corner of the trilemma extracts a concrete cost: the same regulatory density that stabilises established industries imposes friction on the rapid iteration and data accumulation that digital productivity growth requires.

EU R&D expenditure stands at 2.24% of GDP, below Japan (3.44%), the U.S. (3.45%), and South Korea (4.96%). European technology firms spend roughly 3-4% of revenues on research, while their U.S. counterparts average approximately 12%.

R&D Expenditure as a Percentage of GDP

South Korea US Japan EU

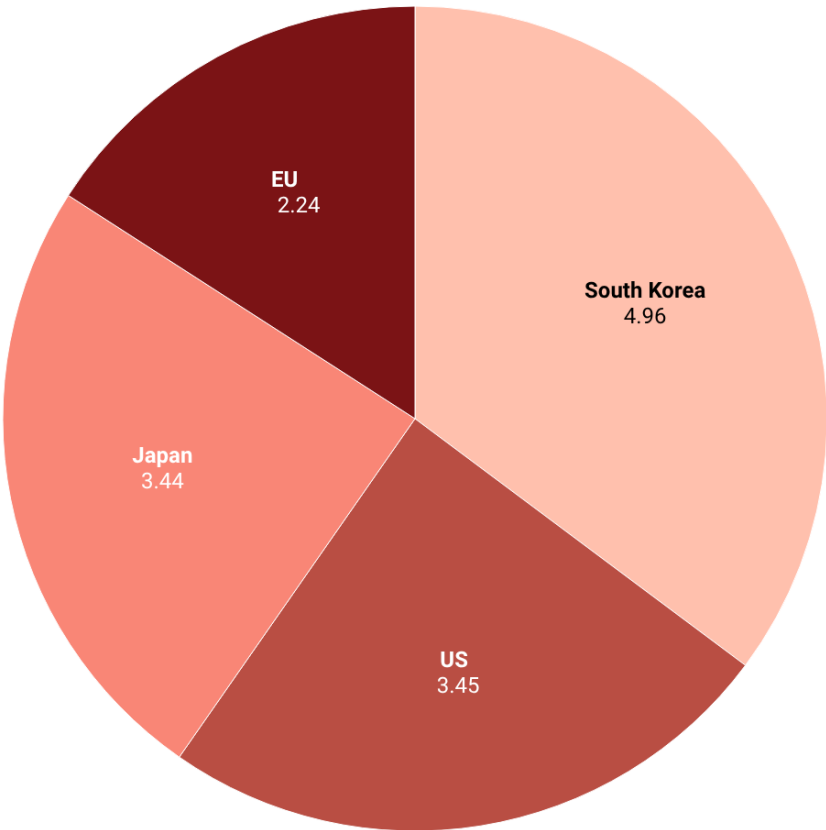


Chart: Al Habtoor Research Centre • Source: E • Created with Datawrapper

The EU's share of global technology patent applications has fallen from 30 to 17%; the gap in complex patent applications between the US and EU widened from 30 to 86% between 2000 and 2021. Only 8% of EU firms used AI in 2023, rising to 13.5% in 2024 and 20% in 2025. Yet adoption of tools built elsewhere is not equivalent to developing the infrastructure, platforms, and foundation models that capture the largest share of digital value – Europe remains without a hyperscale cloud provider, a leading AI foundation model company, or a dominant digital platform. Rapid diffusion of frontier technologies does not close the gap between being a consumer of AI capability and a producer of it. The ECB identifies a structural cause: euro-area business investment has lagged the U.S. in intangible assets and AI-related ICT since at least 2021, with R&D concentrated in automotive, precision machinery, and chemicals rather than the digital platforms generating the largest productivity spillovers.

- **The Capital Structure Deficit**

The second dimension reflects the Social Market Preservation corner of the trilemma: the same institutional arrangements that protect workers and stabilise established industries channel savings away from the risk-tolerant asset class that finances digital innovation. US venture capital assets under management exceeded \$1.25 trillion in 2024. European VC investment totalled €66.2 billion in 2025—22 percent of the U.S. equivalent despite roughly comparable aggregate economic size (Invest Europe 2025). In the preceding decade, EU venture capital as a share of GDP represented approximately one quarter of the US level. Nineteen different legal systems governing insolvency, securities regulation, and investor protection impede cross-border capital flows within the EU, systematically disadvantaging scaling firms.

The consequence is systematic leakage of European innovative capacity at the scaling stage. IMF analysis confirms the mechanism: venture capital injections double recipient European firms' intangible investments within a year, identifying capital access rather than entrepreneurial capacity as the binding constraint. The Capital Markets Union, launched in 2015, was designed to address this fragmentation, but its implementation has been serially frustrated by divergent national regulatory interests and the resistance of incumbent banking sectors to disintermediation. The green transition requires additional annual EU investment of approximately €620 billion; the digital transition a further €125 billion. Against these requirements, the Stability and Growth Pact's fiscal rules, even in their revised 2024 form, create a structural tension between macroeconomic prudence and transformational public investment that no amount of regulatory reform alone can resolve.

- **Demographic Drag and Fiscal Sustainability**

A third dimension reflects the Deep Global Integration corner of the trilemma under stress: an ageing demographic base reduces the fiscal capacity needed to sustain the social model while simultaneously constraining the labour supply and public investment that integration requires. The EU's old-age dependency ratio reached 34.5 percent in 2025, up from 26.8 percent in 2004. Projections place this ratio at 55 percent by 2050 and 65 percent by 2100. Absent immigration, the EU's working-age population is projected to fall by 21 percent between 2022 and 2050—from 264 million to 207 million.

Bruegel's analysis of the 2024 EU Ageing Report projections concludes that member states face substantial required increases in structural primary balances to maintain debt sustainability under current fiscal rules, a requirement that directly competes with the investment needs of the twin transitions. Neither pension reform nor managed immigration is politically tractable: the former triggers severe electoral backlash; the latter has already reshaped party systems across the continent. The demographic constraint is not merely an economic parameter; it is a political economy boundary condition that shapes what reform combinations are feasible.

- **The Causal Mechanism: How Institutions Produce the Deficit**

The preceding subsections document correlations between European institutional arrangements and competitive underperformance. Four causal mechanisms trace how institutional design produces those outcomes, and their interaction is what makes the trap structural.

Patient capital lock-in. CME institutional arrangements—bank-centred financing, cross-shareholding, long-term relationship lending—generate patient capital suited to incremental innovation in stable sectors. But European pension funds and insurance companies are constrained by Solvency II from allocating significantly to illiquid, high-risk asset classes. The architecture does not merely fail to generate venture capital; it structurally channels savings away from the asset class that finances digital innovation.

Regulatory complementarity reversal. The regulatory density that supports CME coordination creates positive complementarities with incremental innovation by stabilising competitive environments. In the digital economy, the same density becomes a barrier to the rapid iteration, data accumulation, and market experimentation that platform development requires. GDPR data minimisation principles, normatively defensible as privacy protections,

Simultaneously obstruct the large-scale data collection that trains competitive machine learning systems. Regulatory complementarities that supported CME advantages in the manufacturing era have become obstacles in the platform era.

Market fragmentation's compounding effect on scale. A US technology startup scales into a single legal and regulatory market of 335 million people; a European counterpart faces 27 legal systems, 24 official languages, and fragmented consumer protection regimes at the moment of maximum capital sensitivity. This does not merely raise compliance costs—it structurally limits the network effects achievable in the home market, compressing European startup valuations at the scaling stage and constraining the talent acquisition and R&D investment that determine long-run competitive position.

Fiscal crowding-out. Demographic pressure on welfare expenditure combined with fiscal rules constraining deficit financing creates a structural competition between welfare state maintenance and transformational investment. The political economy systematically favours near-term distributional commitments over long-horizon investment, because the constituencies for the former are organised, electorally proximate, and vocal. The output is chronic underinvestment in the public goods—research infrastructure, digital infrastructure, retraining systems—that are complements to private innovation.

These four mechanisms interact and reinforce each other, producing the self-reinforcing equilibrium from which exit requires coordinated changes across multiple institutional domains simultaneously. Their internal logic is compounded by a further dimension: the external competitive environment has shifted in ways that increase the cost of remaining trapped, precisely as the mechanisms described above make escape harder. It is to that external dimension that the analysis now turns.

3. Asymmetric Competition, the Energy Asymmetry, and the Nordic Exception

- **The US and Chinese Industrial Policy Paradigms**

The structural vulnerabilities documented above are compounded by an external competitive environment in which Europe's two principal rivals have made explicit, large-scale commitments to strategic industrial policy. The U.S. executed a historic reorientation with the 2022 IRA, the CHIPS and Science Act (2022), and the Infrastructure Investment and Jobs Act, mobilising an estimated \$2 trillion in public and induced private investment over a decade.

The IRA's design is analytically significant: by relying on tax credits rather than grants, it combines strategic directionality with market-conforming allocation mechanisms that reduce bureaucratic friction. This represents a hybridisation of LME and developmental state logics that has no direct institutional counterpart in the EU framework.

The European response was constrained and asymmetric. The Temporary Crisis and Transition Framework extended state aid flexibility, but the absence of an EU-level funding vehicle comparable to the IRA meant the fiscal response was mediated through national governments with divergent fiscal capacities. Germany and France deployed substantially greater subsidy support than Southern and Central European partners, a dynamic that risks fragmenting the Single Market in the high-value sectors where integration yields its largest competitive returns. The Chinese paradigm presents a different but equally acute challenge: state-directed overcapacity in electric vehicles and solar photovoltaics has produced price points European manufacturers cannot match. Chinese EV exports to Europe approximately tripled between 2021 and 2023. The EU's safeguard tariffs on Chinese EVs (2024) illustrate the trilemma in operational form, protection preserves incumbents but imposes consumer costs and risks retaliation against German and French luxury exports. Neither the protectionist nor the free-trade response is unambiguously optimal; the dilemma is structural.

- **The Structural Energy Asymmetry**

The energy dimension warrants separate treatment because it is structural rather than transitional. As of 2025, EU industrial electricity prices averaged more than twice U.S. levels and approximately 50 percent above Chinese prices according to International Energy Agency. EU gas wholesale prices have averaged nearly five times their U.S. equivalents in the post-2022 period. These differentials directly compress the margins of energy-intensive manufacturing—chemicals, steel, aluminium, glass—that constitutes the industrial backbone of Germany, Italy, France, and the Visegrád economies (Czech Republic, Hungary, Poland, and Slovakia). German chemical production fell 15 percent below pre-COVID levels by 2024, reflecting not cyclical weakness but a permanent repricing of inputs. Projections from the IEA and Bruegel suggest that even under an ambitious decarbonisation scenario, EU electricity costs will remain approximately 50 percent above U.S. and Chinese levels at mid-century, meaning the current differential of over 100 percent will compress but not close. The challenge is therefore not merely cyclical but structural, particularly for energy-intensive industries competing in global markets.

Energy-intensive industries face a twenty-year transition window during which the cost asymmetry is at its most severe, requiring explicit strategic choices about which sectors to sustain—choices that map directly onto the Deep Global Integration corner of the trilemma.

- **The Structural Energy Asymmetry**

The energy dimension warrants separate treatment because it is structural rather than transitional. As of 2025, EU industrial electricity prices averaged more than twice U.S. levels and approximately 50 percent above Chinese prices according to International Energy Agency. EU gas wholesale prices have averaged nearly five times their U.S. equivalents in the post-2022 period. These differentials directly compress the margins of energy-intensive manufacturing—chemicals, steel, aluminium, glass—that constitutes the industrial backbone of Germany, Italy, France, and the Visegrád economies (Czech Republic, Hungary, Poland, and Slovakia). German chemical production fell 15 percent below pre-COVID levels by 2024, reflecting not cyclical weakness but a permanent repricing of inputs. Projections from the IEA and Bruegel suggest that even under an ambitious decarbonisation scenario, EU electricity costs will remain approximately 50 percent above U.S. and Chinese levels at mid-century, meaning the current differential of over 100 percent will compress but not close. The challenge is therefore not merely cyclical but structural, particularly for energy-intensive industries competing in global markets. Energy-intensive industries face a twenty-year transition window during which the cost asymmetry is at its most severe, requiring explicit strategic choices about which sectors to sustain—choices that map directly onto the Deep Global Integration corner of the trilemma.

- **The Nordic Exception: Counterargument and its Limits**

The chapter's thesis confronts an obvious empirical challenge: Denmark, Sweden, and Finland are all CMEs with robust social contracts and extensive welfare states, yet they consistently outperform the EU average on innovation, digital adoption, and productivity growth. If the European model is a trap, why do the Nordic cases partially escape it? The counterargument must be taken seriously, it demonstrates that high social protection and competitive performance are not in principle incompatible. What it does not demonstrate is that this combination is achievable at Union scale without explicit trilemma choices. Nordic success rests on four institutional conditions that are not replicable Union-wide: exceptional fiscal capacity (Denmark spends approximately 2 percent of GDP on active labour market policies,

An order of magnitude above most EU members); an implicit trilemma choice made during the 1990s reforms that traded elements of Regulatory Sovereignty for competitive flexibility, through more flexible labour law and firm-level wage bargaining, in ways the Continental model has resisted; size and homogeneity effects—high-trust, compact polities with long traditions of consensus governance—that cannot be engineered across a Union of 450 million people in 27 member states; and sector-conditionality in competitive success, illustrated most sharply by Finland’s Nokia moment, which demonstrated how swiftly CME advantages collapse under platform competition pressure. Novo Nordisk and Sweden’s fintech sector succeed where CME institutions remain comparatively advantaged; neither demonstrates that those institutions can generate winner-take-most platform competition.

The Nordic exception therefore refines rather than refutes the thesis. It confirms the trilemma: the Nordics succeeded by making a clear institutional choice that most of continental Europe has not made. This is instructive for next section’s analysis of pathways—each of the three routes to renewal can be read as a version of the choice the Nordics made implicitly, applied at Union scale and made explicit.

4. Pathways to Renewal: Reading the Trade-offs Through the Trilemma

- **The Regulatory Paradox: Sovereignty vs. Scale**

The first pathway addresses the tension between the Regulatory Sovereignty and Deep Global Integration corners of the trilemma. Europe’s most distinctive geo-economic asset is its regulatory power: the capacity to set global standards through the gravitational force of its single market. The General Data Protection Regulation (GDPR) has become the effective global privacy standard; the Digital Markets Act is reshaping platform competition internationally; the AI Act, entering substantive enforcement in 2025, represents the world’s first comprehensive horizontal framework for algorithmic governance. This Brussels Effect constitutes genuine soft power with real strategic value.

The paradox is that the same apparatus creates barriers to the industries it governs. The AI Act’s compliance architecture—risk categorisation, mandatory conformity assessments, technical documentation requirements—imposes costs disproportionately burdensome for smaller firms. A decade of GDPR evidence suggests precautionary regulation can entrench the dominance of the U.S. hyperscalers it ostensibly sought to constrain, because compliance costs are fixed costs that large incumbents absorb as rounding errors while they represent existential burdens for challengers.

The emerging tri-polar regulatory landscape—EU rights-based precaution, U.S. market-driven sectoralism, Chinese state control—generates costly regulatory balkanisation that extracts efficiency costs from the global innovation system. As the Nordic exception demonstrates, regulatory burden is mediated by the quality of the surrounding institutional ecosystem: Sweden and Denmark absorb AI Act and GDPR requirements more efficiently because their capital markets, labour flexibility, and administrative capacity reduce effective compliance cost per firm. The lesson for EU-level reform is that regulatory sequencing, applying comprehensive compliance frameworks after rather than during the critical scaling phase, must be paired with the capital market and fiscal preconditions that the next two pathways address.

- **Fiscal Federalism and Strategic Autonomy: Integration vs. Sovereignty**

The second pathway addresses the tension between the Deep Global Integration and Social Market Preservation corners—specifically, whether Europe can achieve the investment scale that competitive integration requires while maintaining the social commitments that the European model is built on. The concept of strategic autonomy—reducing dependencies on external actors for critical technologies, materials, and supply chains—has become the organising frame for European industrial policy since 2020. The economic literature on reshoring and friendshoring is unambiguous: relocation to higher-cost jurisdictions and duplication of fixed capital generate welfare losses estimated at one to three percent of GDP under significant decoupling scenarios. The insurance case for accepting those costs has merit, but requires institutional capacities for industrial targeting and patient capital provision that EU governance structures have historically struggled to develop.

This operational deficit exposes the fiscal federalism fault line. Closing Europe's investment gap requires either a significant expansion of common EU borrowing capacity, triggering constitutional resistance from net-contributor states wary of transfer union dynamics, or reliance on national balance sheets alone, which allows only fiscally dominant members to bankroll their industries and produces a bifurcated Single Market that reproduces the core-periphery inequalities the EU's cohesion policy was designed to prevent. True strategic autonomy cannot be sustained through fragmented national subsidies that simultaneously fragment the Single Market. The trilemma logic is direct: the Regulatory Sovereignty corner must be partially ceded, through genuinely common fiscal instruments, if the Social Market Preservation and Deep Global Integration corners are to be held simultaneously. This is precisely the choice the Union has avoided making.

- **Labour Market Recalibration: Social Market Preservation Under Transition**

The third pathway addresses the Social Market Preservation corner directly: whether the European social contract can be maintained through a structural economic transition rather than becoming its casualty. The automotive sector employs approximately 13.8 million people across the EU value chain; the chemical sector a further 1.2 million directly. Transition timelines imposed by European climate commitments and Chinese competitive pressure imply workforce dislocations that European labour market institutions were not designed to manage at current speed.

The Nordic flexicurity model offers the most credible institutional template, combining labour market flexibility with robust income support and state-directed retraining, but its replication requires fiscal resources, administrative depth, and centralised collective bargaining that are absent across much of Southern and Central Europe. The trilemma constraint is visible here too: maintaining Social Market Preservation through the transition requires the fiscal capacity that the Regulatory Sovereignty and fiscal federalism barriers currently prevent from being mobilised at Union scale. A scalable European Transition Fund—dedicated to cross-border upskilling and labour mobility, treating human capital adjustment with the same structural urgency as carbon reduction—would address this, but its creation requires precisely the common fiscal instrument whose absence defines the binding constraint identified in the conclusion. The three pathways are therefore not independent options; their feasibility is sequentially dependent on resolving the fiscal federalism question first.



5. Synthesis: The Policy Matrix and the Binding Constraint

The analysis converges on a conclusion that cannot be resolved by technical ingenuity: there is no politically costless path from Europe's current competitive position to sustained renewal. The Competitiveness Trap is structural, and its resolution requires explicit choices about which institutional commitments can be maintained, which must be reformed, and which must be relinquished. Four dilemmas constitute the core of the matrix.

The antitrust dilemma. European competition policy has prevented the formation of dominant European firms in network-effect sectors, leaving Europe without a hyperscale technology platform. Relaxing antitrust enforcement to permit European Champions in AI, cloud, and semiconductors offers scale economies at the cost of reduced domestic competition. This is a Regulatory Sovereignty trade-off: the choice between protecting European consumers today and producing European competitors for tomorrow.

The regulatory timing dilemma. Applying comprehensive compliance architectures to nascent industries at critical scaling junctures disadvantages European innovators relative to rivals under lighter frameworks. This is the operational expression of the Regulatory Sovereignty vs. Deep Global Integration corner of the trilemma. The Nordic evidence confirms that regulatory burden is mediated by institutional ecosystem quality—meaning the dilemma cannot be resolved by regulatory design alone, but requires the capital market and fiscal preconditions the other pathways address.

The fiscal federalism dilemma. Closing Europe's investment gaps requires either common borrowing capacity with transfer union implications or fiscal asymmetry that bifurcates the Single Market. This is the Deep Global Integration vs. Regulatory Sovereignty corner at Union level. The Nordic cases confirm that national industrial policy success reflects fiscal space that most EU member states do not possess—a Union-level problem requiring a Union-level instrument.

The social contract dilemma. Managed deindustrialisation of legacy sectors, labour market flexibilisation, and welfare compression to release fiscal space for investment impose transitional costs on constituencies whose political mobilisation has already destabilised European party systems. Proceeding without credible transition support undermines reform legitimacy; insufficient urgency risks competitive marginalisation. This is the Social Market Preservation vs. Deep Global Integration corner under democratic pressure.

Of these four dilemmas, the fiscal federalism dilemma is the binding constraint, the institutional keystone on which the resolution of the others depends. Without a Union-level fiscal instrument of sufficient scale and permanence, the regulatory timing dilemma cannot be resolved because member states lack the capacity to absorb compliance costs while investing in technology scaling; the antitrust dilemma cannot be resolved because European Champions created by relaxing competition rules will lack the common capital market depth to match rivals at scale; and the social contract dilemma cannot be resolved because the transition support needed to build democratic legitimacy for reform requires precisely the cross-border fiscal solidarity the current framework prohibits. The sequencing implication is direct: fiscal federalism is not one dilemma among four equals, its resolution is a precondition for making the others tractable.

The Competitiveness Trap is ultimately a political economy problem wearing the clothes of an economic one. The Draghi Report's diagnosis is accurate, but its recommendations presuppose an institutional willingness to make explicit trilemma choices that the existing European governance architecture systematically diffuses and delays. The Nordic cases demonstrate that CMEs can navigate the trilemma more successfully than the Continental average, but they do so by making implicit choices that the broader EU has not yet been willing to make explicitly. As the following chapter examines, the question of whether such second-order institutional reform is achievable under democratic conditions, who bears the transitional costs, which political coalitions make the choices credible, and at what speed the window for structural correction remains open, is the central political economy challenge facing the Union in the decade ahead.

The urgency of that challenge stems from the fact that the Competitiveness Trap is unlikely to remain static. Demographic ageing, intensifying technological competition, rising security expenditures, and the growing concentration of global capital around scale ecosystems all point toward a narrowing margin for incremental adjustment. The question facing Europe is therefore not whether reform is desirable, but whether the institutional adaptation required to sustain its economic model can occur before the fiscal, technological, and geopolitical pressures identified in this chapter become materially more difficult to reverse. The window for correction remains open, but it is unlikely to remain open indefinitely.

Chapter 3: Powering Europe: Energy Security, Resource Competition, and the Battle for Industrial Survival

Energy is no longer simply an economic variable. It has become a strategic determinant of industrial survival, geopolitical influence, and national security, and nowhere is this more consequential than in Europe, where the gap between domestic energy production and consumption has made affordability, security, and competitiveness simultaneously pressing and interlinked.

The scale of the challenge is measurable. In 2024, EU gas wholesale prices averaged nearly five times those in the United States. EU companies face industrial electricity prices two to three times higher than those in the U.S. and China, while gas retail and wholesale prices are between three- and five-times U.S. levels. These are not temporary distortions; they reflect structural realities, Europe's deep reliance on imported fossil fuels, contrasting with the U.S., which is a net energy exporter, and with China, whose state-directed industrial policy has systematically subsidised energy-intensive production. The Draghi Report concluded that no firm corrective measures have yet been enacted, and that EU countries are showing no clear desire to take the major steps needed to integrate European energy markets.

The transition to clean, domestically generated energy is both the long-run answer to this problem and the source of its most acute near-term tensions. Renewables, with fixed capital costs and no fuel requirements, are progressively transforming the electricity sector and reducing exposure to fossil fuel price shocks. As electrification deepens across heating, transport, and industry, the structure of energy costs shifts from variable fuel expenditure toward fixed capital investment, a shift that, if managed well, makes prices lower and more stable over time. How far costs fall, and how equitably they are shared, will depend on policy choices across four dimensions: fair allocation of system costs in the short term; demand flexibility in the medium term; and coordinated EU-level investment and deeper cross-border interconnection in the long term.

This chapter examines the energy dimension of Europe's strategic position across five interconnected areas: the end of cheap energy and its structural legacy; the new energy geopolitics reshaping supply relationships; the race for critical minerals that underpin the transition; the green transition viewed through a strategic rather than purely environmental lens; and the ultimate question of whether Europe can secure the energy and resources necessary to remain an industrial and economic power.

Chapter 3: Powering Europe: Energy Security, Resource Competition, and the Battle for Industrial Survival

1. The End of Cheap Energy

The COVID-19 pandemic was the first warning. Lockdowns caused a sharp collapse in energy demand, pushing gas prices to multi-decade lows and forcing producers to cut investment and production. When the recovery came faster than the supply chains could adjust, markets tightened sharply. Years of underinvestment in fossil fuel production, delayed maintenance, constrained LNG supply growth, and low European storage levels entering 2021 combined to set the conditions for the crisis that followed. Russia’s invasion of Ukraine ignited it.

The Impact of COVID-19 Pandemic on Europe, 2020



Chart: Al Habtoor Research Centre • Source: iea • Created with Datawrapper

The IEA notes that gas consumption began recovering during the second half of 2020 and accelerated further in 2021 as industrial activity resumed and electricity demand rebounded. Global natural gas demand returned rapidly, while producers and infrastructure operators were still adjusting to the disruptions caused by the pandemic.

Several factors tightened the market simultaneously:

- Years of underinvestment in fossil fuel production reduced spare capacity.
- Maintenance schedules and infrastructure projects had been delayed during the pandemic.
- Global LNG supply growth was constrained by outages and logistical disruptions.
- European gas storage levels entered 2021 at relatively low levels following a cold winter and stronger-than-expected withdrawals.

Ukraine and Russia

The energy crisis triggered by Russia's invasion of Ukraine in 2022 reshaped global energy markets and placed Europe on a new energy trajectory. The war represented a much deeper structural shock. Before the invasion, Russia was Europe's largest external energy supplier.

Before 2022, Europe relied on Russian natural gas imports

Energy Type	Russia's Share of EU Imports	Specific Figures
Natural Gas	45% of total EU gas imports	155 bcm imported (142 bcm pipeline + 14 bcm LNG)
Gas Consumption	~40% of EU gas consumed	European Commission data
Petroleum Oil	25–30% of EU oil imports	25% by trade value (2021)
Coal	48% of EU coal imports	By trade value (2021)
Total Energy Imports	Largest exporter to EU	Largest exporter of oil AND natural gas to EU in 2021

The crisis demonstrated that concentrated energy dependency can be weaponised. Russia's deliberate slow-filling of European storage in summer 2021 – before any invasion, was a calculated coercive act. Europe's 45% Russian gas dependency gave a single adversary leverage over the continent's industrial base. This was not a market failure; it was a strategic architecture failure, decades of integrating a potentially hostile power as the critical swing supplier.

The paradigm shift triggered by 2022 was not just about replacing Russian gas, it forced a wholesale rethink of Europe's economic model, which had rested on three pillars simultaneously exposed as liabilities: cheap Russian energy, export-led trade with China, and a U.S.-backed security umbrella.

Despite extensive interventions by the European Commission and national governments, the energy shock has left a lasting impact on Europe's economy.

Although emergency measures helped prevent severe shortages and stabilize markets, energy prices remain significantly above pre-pandemic levels, increasing production costs and weakening industrial competitiveness. This has added to Europe's already fragile economic outlook, with businesses facing growing uncertainty over future investment and growth prospects.

High energy costs have been particularly damaging for energy-intensive industries such as chemicals, steel, aluminum, and fertilizers. As energy bills consume a larger share of revenues, many firms have been forced to postpone investments, reduce production, or reconsider expansion plans. Small and medium-sized enterprises (SMEs), which account for the majority of European businesses, are especially vulnerable due to their limited ability to absorb prolonged cost increases. These pressures have fueled concerns about industrial relocation and the gradual erosion of Europe's manufacturing base.

The crisis also revealed that part of Europe's reduction in energy consumption may reflect a loss of industrial activity rather than improved efficiency. In 2022, EU industrial gas demand fell by around 15% compared to the 2019-2021 average, while overall industrial output remained relatively resilient. However, the weak recovery in industrial gas consumption after prices declined in 2023 suggests that some energy-intensive production was permanently curtailed, relocated, or shut down. This raises concerns about long-term industrial capacity and economic growth.

Furthermore, structural weaknesses in Europe's electricity market continue to amplify the impact of gas price volatility. Although natural gas generates less than one-fifth of EU electricity, it often determines wholesale electricity prices through the marginal pricing system. Consequently, fluctuations in gas markets translate into higher power costs for businesses across Europe. The crisis demonstrated that energy security is no longer merely an economic issue but a strategic prerequisite for industrial competitiveness, economic resilience, and Europe's future position in the global economy.

2. Five Structural Fault Lines

The recent energy crises exposed not only Europe's dependence on external energy supplies but also a range of structural weaknesses within its own energy system. Despite significant progress in diversifying suppliers and expanding renewable energy capacity, several vulnerabilities continue to undermine Europe's long-term energy security and industrial competitiveness.

Europe's energy system carries five structural vulnerabilities that precede the 2022 crisis, were exposed by it, and remain substantially unresolved. Together they constitute not a temporary supply disruption but a deep-seated architectural problem that will constrain industrial competitiveness for the rest of this decade.

The first and most acute vulnerability is the electricity grid. Europe's transmission infrastructure was designed for centralised, dispatchable fossil generation, not for distributed, variable renewables flowing in multiple directions across borders. The mismatch between build-out rates is severe: wind and solar projects can be permitted and constructed in two to three years, while major transmission lines take a decade or more. In 2024, renewable projects totalling 1,700 gigawatts across 16 European countries were stuck in connection queues, more than six times Germany's total installed generation capacity, while 72 terawatt-hours of clean electricity was curtailed at a cost of €8.9 billion simply because the grid could not carry it. More than half of the transmission projects needed by 2030 are still awaiting permits, and around 80% of the EU power system is expected to miss the 2030 interconnection target.

The second vulnerability is the structure of the Liquefied natural gas (LNG) pivot itself. The emergency diversification away from Russian pipeline gas was necessary, but it exchanged one concentrated dependency for several new ones. By 2030, the U.S. could supply up to 40% of all EU gas and LNG imports, while an overreliance on U.S. LNG, the most expensive LNG for European buyers, directly contradicts REPowerEU's stated goal of enhancing energy security through diversification and affordability. Meanwhile, more than a third of EU LNG imports remain on spot contracts, exposing Europe to the same outbidding by Asian buyers that characterised the 2021 crisis.

Third, energy storage remains a fraction of what the system requires. Europe will need to scale its battery fleet to around 750 gigawatt-hours by 2030, roughly ten times today's installed capacity, to support a fully flexible, renewables-based power system, and current annual deployment levels are still insufficient to reach that goal.

Fourth, investment is structurally misallocated. Grid and storage spending lags far behind renewable generation investment, producing a compounding mismatch: clean electricity is generated but cannot be transmitted, balanced, or stored.

Fifth, the price premium versus the United States and China is structural rather than cyclical. Despite Europe significantly reducing its dependence on Russian pipeline gas, diversifying gas suppliers has not reduced exposure to gas price volatility, European gas prices are now more closely linked to global LNG markets, influenced by demand in Asia, supply risks in the Middle East, and global infrastructure constraints. Until the marginal pricing link between gas and electricity is severed through renewable depth and storage, every geopolitical shock in a gas-producing region will continue to transmit directly into European industrial energy costs.

3. A Price Gap That Will Not Close Itself

Europe's energy cost problem is not resolving. The central finding of the Draghi Report, that EU companies face electricity prices that are 2-3 times higher than those in the U.S. and China, while gas retail and wholesale prices are between 3-5 times U.S. levels, describes a structural condition, not a cyclical overhang from the 2022 crisis. No credible baseline forecast projects convergence with U.S. or Chinese price levels before 2030, and it was found that no relief in prospect for European industry across either fuel or current policy trajectories.

The cost premium is now being compounded by new demand pressures arriving into a system that is already strained. Electricity consumption in Europe, which had stagnated for two decades, is rising again, driven by industrial electrification, heat pump adoption, electric vehicle charging, and above all, the rapid growth of AI-driven data centres. According to IEA modelling, data centres are expected to account for 10% of electricity demand growth in the European Union to 2030, with European data centre electricity demand projected to grow by approximately 70% between 2024 and 2030. This surge is arriving precisely when grid congestion and storage deficits are most acute. The ECB has noted directly that access to affordable energy will be essential for Europe to remain competitive in artificial intelligence, creating a feedback loop in which high energy costs constrain the very sectors that could modernise the industrial base.

The most urgent signal is not forecast but observed. Deindustrialisation driven by energy costs is already underway and accelerating. Production levels in energy-intensive industries in 2025 have declined by up to 40% in the worst-affected sectors, and by over 14% for most, compared to 2018 levels, with approximately 200,000 jobs lost across these industries in 2025 alone. In chemicals, steel, aluminium, and fertilisers, the pattern is consistent: energy price shock, production curtailment, partial recovery at lower volumes, then permanent closure or relocation.

The chemicals sector alone has lost some 20,000 jobs from plant closures in recent years, with companies relocating activities to lower-cost regions. Some of this lost capacity will not return.

There is a credible path to lower costs, but it is conditional. Meeting current national 2030 solar and wind targets could reduce electricity price volatility by an average of 20% across 29 European countries, with the intensity of price spikes predicted to fall in every country. Deeper renewable penetration structurally reduces the hours in which gas sets the marginal price. But renewable expansion alone is insufficient – it must be accompanied by grid build-out, storage deployment, and reform of the energy taxation and system levy structures that constitute a fixed cost premium independent of generation prices. The transition does not automatically restore cost competitiveness; it creates the conditions under which competitiveness becomes possible, if the full infrastructure stack is delivered at pace.

4. The New Energy Geopolitics

Energy has become one of the defining geopolitical issues of the twenty-first century. The Russia-Ukraine war exposed the strategic risks associated with energy dependence and accelerated a fundamental reconfiguration of global energy relationships. As Europe seeks to reduce its reliance on Russian fossil fuels while pursuing ambitious climate objectives, it must navigate an increasingly competitive and fragmented energy landscape. Access to oil, natural gas, critical energy infrastructure, and emerging clean-energy technologies is now shaping diplomatic partnerships, trade relations, and geopolitical influence. Consequently, Europe's future economic resilience and strategic autonomy will depend not only on securing energy supplies, but also on managing the geopolitical dynamics surrounding them.

While “REPowerEU” has been widely credited for reducing Russian gas imports by approximately 75% between 2021 and 2025, this achievement should not be mistaken for energy independence. Rather than eliminating external dependence, Europe has reconfigured it. The continent has successfully diversified its sources of supply, but it remains heavily reliant on imported energy, with the vast majority of its natural gas still originating from outside the EU. In particular, the rapid expansion of U.S. liquefied natural gas (LNG) imports has replaced Russian pipeline gas as a cornerstone of Europe's energy security strategy. As a result, the geopolitical nature of Europe's energy dependence has shifted, but the underlying structural vulnerability persists.

The challenge facing Europe is therefore not simply reducing reliance on a specific supplier but addressing the broader dependence on external energy sources that continues to constrain its strategic autonomy and expose it to geopolitical and market disruptions.

Energy Imports Dependency Rate for The European Union

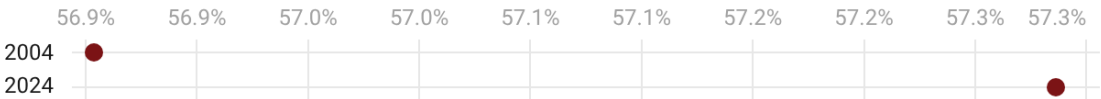


Chart: Al Habtoor Research Centre • Source: Eurostat • Created with Datawrapper

Europe's energy system remains heavily dependent on external suppliers despite ongoing efforts to enhance energy security. In 2024, the EU imported nearly 57% of the energy it consumed, highlighting the extent to which its economy relies on foreign sources. Oil and petroleum products accounted for two-thirds of all energy imports, followed by natural gas, which represented nearly one-quarter. The United States emerged as the EU's largest supplier of oil, while Norway became its primary source of natural gas. Although dependency levels vary significantly among member states, the overall picture underscores a persistent structural vulnerability: Europe's economic stability and industrial competitiveness remain closely tied to external energy markets.



Energy Imports Dependency Rate for The European Union (27 countries)

%

TIME	2004	2024
Belgium	80	75
Bulgaria	48	42
Czechia	25	39
Denmark	-47	38
Germany	61	67
Estonia	30	5
Ireland	92	80
Greece	72	78
Spain	78	69
France	51	42
Croatia	52	60
Italy	84	74
Cyprus	95	88
Latvia	69	29
Lithuania	46	66
Luxembourg	98	91
Hungary	61	49
Malta	100	98
Netherlands	32	71
Austria	71	53

Additional 19 rows not shown.

Energy Imports Dependency Rate for The European Union (27 countries)

%

TIME	2004	2024
Poland	15	46
Portugal	84	65
Romania	30	30
Slovenia	51	46
Slovakia	68	54
Finland	55	33
Sweden	37	27
Iceland	32	17
Norway	-703	-677
Bosnia and Herzegovina	:	28
Montenegro	:	33
Moldova	:	79
North Macedonia	42	65
Georgia	:	78
Albania	48	27
Serbia	33	41
Türkiye	70	68
Ukraine	45	:
Kosovo*	27	:

5. Relations with energy-producing regions

Since the outbreak of the Russia-Ukraine war, Europe has undertaken one of the most ambitious energy diplomacy efforts in its history. Faced with the need to replace Russian energy supplies, the European Union has expanded partnerships with producers across North America, North Africa, the Gulf, and the Caspian region. While these efforts have significantly diversified supply sources, they have not produced a single long-term partner capable of replacing Russia's former role in terms of volume, affordability, and infrastructure integration. Instead, Europe has developed a more diversified but also more complex network of energy relationships.

The United States has emerged as Europe's most important alternative supplier, particularly through liquefied natural gas (LNG) exports. However, this relationship raises concerns about cost and dependency, as LNG remains more expensive than pipeline gas and exposes Europe to global market volatility. Norway has become the EU's most reliable energy partner, supplying roughly 90 bcm of natural gas annually through pipeline networks. Yet Norwegian production is approaching its capacity limits, reducing its ability to significantly expand exports in the future.

Meanwhile, North Africa has gained strategic importance as both a gas supplier and a potential hub for green hydrogen production. Algeria remains a key source of pipeline gas, while initiatives such as the SouthH2 Corridor aim to connect North African renewable energy resources with European markets. However, political instability and governance challenges continue to pose risks to long-term cooperation.

Europe has also strengthened ties with Azerbaijan through the Southern Gas Corridor, which has helped diversify supplies but remains constrained by limited pipeline capacity. In parallel, Gulf states such as Qatar, the United Arab Emirates, and Saudi Arabia have become increasingly important partners through LNG exports, clean-energy investments, and hydrogen projects. Despite these developments, Europe remains vulnerable to geopolitical disruptions, particularly in critical transit routes such as the Strait of Hormuz.

Consequently, Europe's new energy geography is characterized by diversification rather than independence. While dependence on Russia has declined substantially, the continent's energy security continues to depend on maintaining stable relations with a broad and geographically dispersed network of energy-producing regions.

6. Emerging energy partnerships

Beyond the immediate gas supply picture, Europe is constructing a second-tier partnership architecture oriented toward the long-term transition: green hydrogen corridors, undersea electricity interconnectors, and clean technology cooperation frameworks. These partnerships are strategically sound, but most remain at MoU or feasibility stage and face a significant gap between ambition and operational reality. Their strategic importance lies not in current energy flows but in their potential to provide genuine energy autonomy by the late 2030s.

- **SouthH2 Corridor – North Africa green hydrogen**

The SouthH2 Corridor is a 3,300km pipeline network connecting North Africa to Central Europe, targeting 4 Mt/year of green hydrogen imports to the EU by 2030 – 40% of the EU's 10 Mt/year import target. Italy, Germany, Austria, Algeria and Tunisia signed a Joint Declaration of Political Intent in Rome in January 2025. Feasibility studies are underway with Sonatrach, VNG, Snam, and VERBUND. If delivered, it would represent the first large-scale clean energy export corridor between Africa and Europe, transforming a fossil fuel import relationship into a renewable one. Operational by 2030 remains ambitious; pilot infrastructure is not yet built.

- **Mediterranean electricity interconnectors**

A high-voltage undersea electrical interconnection between Egypt and Greece was approved in 2023 under the EU's Global Gateway Africa-Europe Investment Package. Morocco-Spain interconnectors are being developed under bilateral agreements leveraging Morocco's solar and wind resources. Tunisia's electricity network is integrated with Algeria and could connect to EU markets. These infrastructure projects would allow Europe to import solar electricity from North Africa's vast and cheaply-producible resource base, a qualitatively different relationship from gas dependency, as solar electricity is a domestically produced resource in North Africa, not an extractive export.

- **H2Med and the European Hydrogen Backbone**

H2Med is a proposed offshore hydrogen pipeline connecting the Iberian Peninsula to France and then Central Europe, designed to carry both domestically produced and North African imported green hydrogen. It is a Projects of Common Interest (PCI) listed project. Spain, Portugal and France have signed the BarMar/CelZa interconnection agreements. The European Hydrogen Backbone (EHB) initiative aims to repurpose existing natural gas pipelines for hydrogen across 28 countries by 2040.

The backbone concept recognises that repurposing existing infrastructure is far cheaper than new build but requires a hydrogen market to develop at sufficient scale to justify the conversion costs.

- **EU Global Gateway – the geopolitical framing**

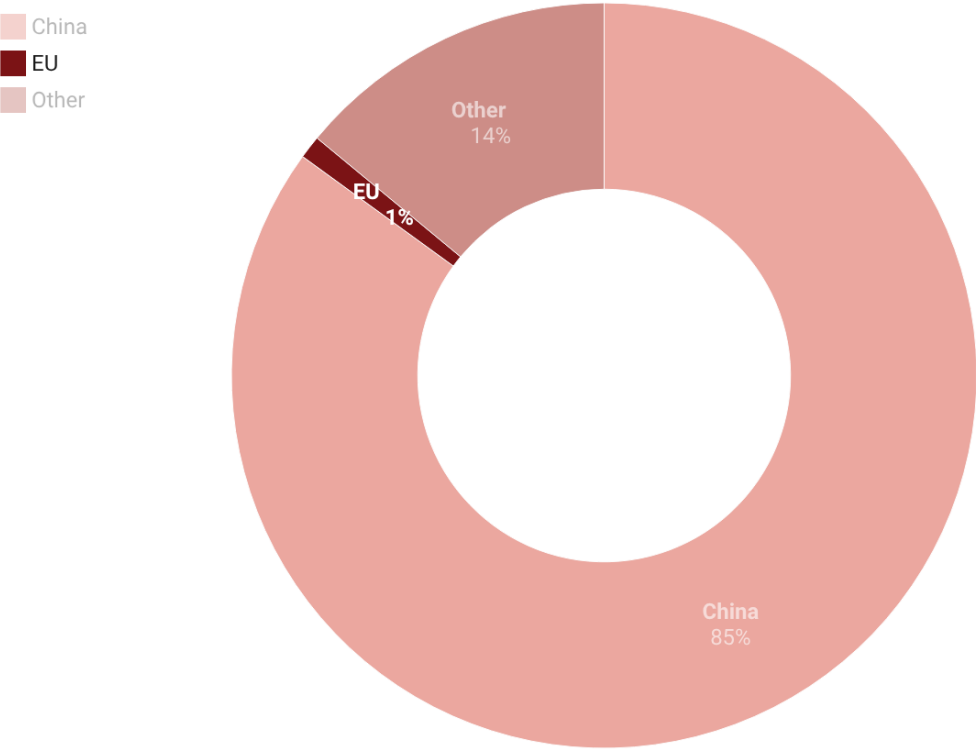
The EU's Global Gateway initiative, its response to China's Belt and Road, has €30 billion leveraged through €7 billion of EU investment in the southern Mediterranean (2021-2027). A new Directorate-General for MENA under Commissioner Šuica signals the EU's recognition that energy partnerships with the southern neighbourhood require institutional depth, not just project-by-project engagement. The proposed New Pact for the Mediterranean aims to integrate energy security, economic cooperation and climate resilience into a single regional strategy, addressing the EU's historical failure to develop genuine win-win partnerships with North African producers.

The strategic assessment: these partnerships are the right architecture, but they are at least a decade away from providing meaningful energy security at scale. The gap between ambition and delivery is the core risk. In the interim, Europe remains dependent on fossil fuel imports from geopolitically unreliable or transactionally motivated suppliers. The partnerships matter most as an investment signal, demonstrating that Europe's long-term energy strategy is oriented toward autonomy rather than simply replacing one set of fossil fuel dependencies with another

- **The Critical Minerals Race**

Europe's energy transition and its digital industrial ambitions both run on the same foundation: a set of critical minerals that Europe does not meaningfully produce, barely processes, and is only beginning to secure through dedicated policy. The rare earth problem, the strategic resource problem, and the supply chain vulnerability problem are in practice one problem, China controls approximately 69% of global rare earth mining output and more than 90% of the downstream value chain, including oxide separation, metal refining, and magnet production, with a near-monopoly on the separation of dysprosium and terbium, which are critical for permanent magnets capable of withstanding high temperatures. The chokehold is not at the mine. It is in the refinery.

Global processing for REEs



Demand for rare earth elements is expected to increase fivefold by 2030 compared to 2020 levels, reaching approximately 6,800 tonnes, driven by electric vehicles, wind turbines, batteries, and defence systems. The strategic exposure is deepening precisely as demand accelerates.

The strategic significance of this concentration has been demonstrated with increasing explicitness. In April 2025, Beijing restricted exports of seven heavy rare earth elements, including dysprosium and terbium, essential for high-performance permanent magnets in electric vehicles, wind turbines, and defence systems, triggering production shutdowns at automotive manufacturers across the United States and Europe. This followed earlier export controls on gallium, germanium, and antimony imposed in 2023-24. The pattern is deliberate: China has built dominant positions across the critical minerals' ecosystem through decades of state subsidies and vertically integrated supply chains and has proven willing to exploit that position as a geopolitical instrument. In 2024 alone, China exported 58,000 tonnes of rare earth magnets, enough to manufacture components for millions of cars, industrial motors, or aircraft, or to build thousands of strategic military systems, data centres, or wind turbines.

The dependency extends beyond rare earths. By 2035, China is projected to supply over 60% of refined lithium and cobalt, around 80% of battery-grade graphite and rare earth elements, and approximately 70% of battery-grade manganese. Lithium demand alone rose nearly 30% in 2024. The minerals that underpin the green transition – the batteries, the magnets, the electrolyzers – are the same minerals that underpin AI infrastructure, defence systems, and advanced manufacturing. Europe is exposed across all of them simultaneously.

The Critical Raw Materials Act (CRMA) represents the correct strategic diagnosis. The question is whether the targets are operationally achievable on the timeline set. Current EU extraction and processing capacity is a fraction of the 2030 benchmarks. Permitting timelines remain long even under streamlined procedures. And the mid-stream processing gap, the refinery problem, is the hardest to close, requiring not just capital investment but the development of industrial chemistry capabilities that China has spent four decades building. Diversifying mining sources while remaining dependent on Chinese processing simply displaces the vulnerability without resolving it. Genuine strategic autonomy in critical minerals requires Europe to build the full value chain, from mine to magnet, and to do so at a pace the market, without sustained policy support and demand-side signals, will not deliver on its own.

7. The Green Transition and the Competitiveness Dilemma

The renewable energy build-out is the most significant structural transformation of Europe's energy system in a generation, and its most important long-term answer to the vulnerability and cost problems documented in earlier sections of this brief. The headline numbers are genuinely impressive. Driven by expanding wind and solar, renewables rose from a 34% share of EU electricity generation in 2019 to 47% in 2024, while the fossil fuel share fell to a historic low of 29%. Solar alone surpassed coal in the EU generation mixes for the first time in 2024. In 2025, just 32% of EU electricity hours saw prices set by gas-fired generation, compared to 74% in 2019, a direct measure of how renewables are beginning to structurally decouple electricity prices from gas markets. The transition is real, it is accelerating, and it is delivering the security dividend that justified the investment.

EU member states target 66% renewable electricity by 2030, slightly short of the REPowerEU 69% goal, a pace that current deployment, despite record years, has not yet consistently reached. Battery storage, the essential complement to intermittent generation, remains at roughly 10% of the 750 GWh capacity the system will require by 2030. Grid investment continues to lag the pace of renewable additions.

The infrastructure stack that would allow the generation build-out to translate into structurally lower and more stable prices is incomplete.

The deeper strategic tension, however, is not technical but geopolitical. Europe faces a direct trade-off: increasing reliance on Chinese clean technology manufacturing may offer the cheapest route to meeting its climate targets, but China's state-sponsored competition represents a threat to European industries and to the promise that the green transition will bring good green jobs at home. By 2030, China's annual manufacturing capacity for solar photovoltaic is projected to be double the level of global demand; for battery cells, it is expected to at least cover global demand. The U.S. Inflation Reduction Act has compounded this pressure, offering a combination of subsidies, low energy prices, and regulatory simplicity that is actively pulling clean technology investment away from Europe. The fear is that the IRA could push European clean technology manufacturers to relocate to the United States in search of an attractive mix of subsidies and lower energy costs.

The Clean Industrial Deal, launched by the European Commission in February 2025, represents the institutional acknowledgement that competitiveness and decarbonisation cannot be managed as separate policy tracks. The strategic logic is sound: renewables are simultaneously the most credible path to energy security, price stability, and industrial autonomy. But the transition only delivers on that promise if the full infrastructure stack is built, if European manufacturers are protected from unfair competition long enough to reach scale, and if the political economy of higher near-term costs is managed in a way that does not provoke the backlash that would slow the build-out at the moment it is most needed.

Chapter 4: The Transformation of Europe's Security Architecture

Europe is entering a period of profound strategic uncertainty. For more than three decades, the continent benefited from a security environment shaped by American military guarantees, economic integration, and the assumption that large-scale interstate war had become increasingly unlikely. Today, many of these assumptions are being challenged simultaneously. The Russia-Ukraine war has exposed the return of geopolitical competition to Europe, while growing questions regarding the future trajectory of U.S. engagement in European security have forced policymakers to reconsider long-standing defence arrangements.

As a result, Europe faces a defining strategic moment. The central question is no longer whether the continent confronts a security threat, but whether it can adapt quickly enough to meet it. The future of European security will depend largely on how European states respond to a rapidly changing environment characterised by military rearmament, nuclear uncertainty, hybrid threats, technological competition, and shifting alliance dynamics. Decisions taken today regarding defence spending, military integration, industrial capacity, strategic partnerships, and deterrence will play a critical role in determining whether Europe emerges as a more autonomous and resilient security actor or remains dependent on external guarantees in an increasingly unstable world.

1. The Nuclear Umbrella

For the first time since 1945, Russia's 2026 Victory Day parade was held with reduced military displays amid growing security concerns following increasingly sophisticated Ukrainian drone attacks, including strikes near Moscow. In response, the Kremlin launched a campaign of strategic nuclear signalling, highlighted by a test of the RS-28 Sarmat ICBM and a large-scale strategic forces exercise involving nuclear-capable missiles, bombers, submarines, and surface vessels. Through these actions, Moscow sought to project strength, reassure domestic audiences, and reinforce the credibility of its nuclear deterrent despite mounting wartime pressures.

For Europe, these developments highlight the urgent need to strengthen NATO's conventional deterrence posture. Robust conventional capabilities reduce the credibility and effectiveness of nuclear coercion by limiting Russia's ability to compensate for conventional weaknesses through threats of escalation. In particular, European allies require greater investment in long-range precision-strike capabilities capable of threatening high-value military targets while remaining below the nuclear threshold.

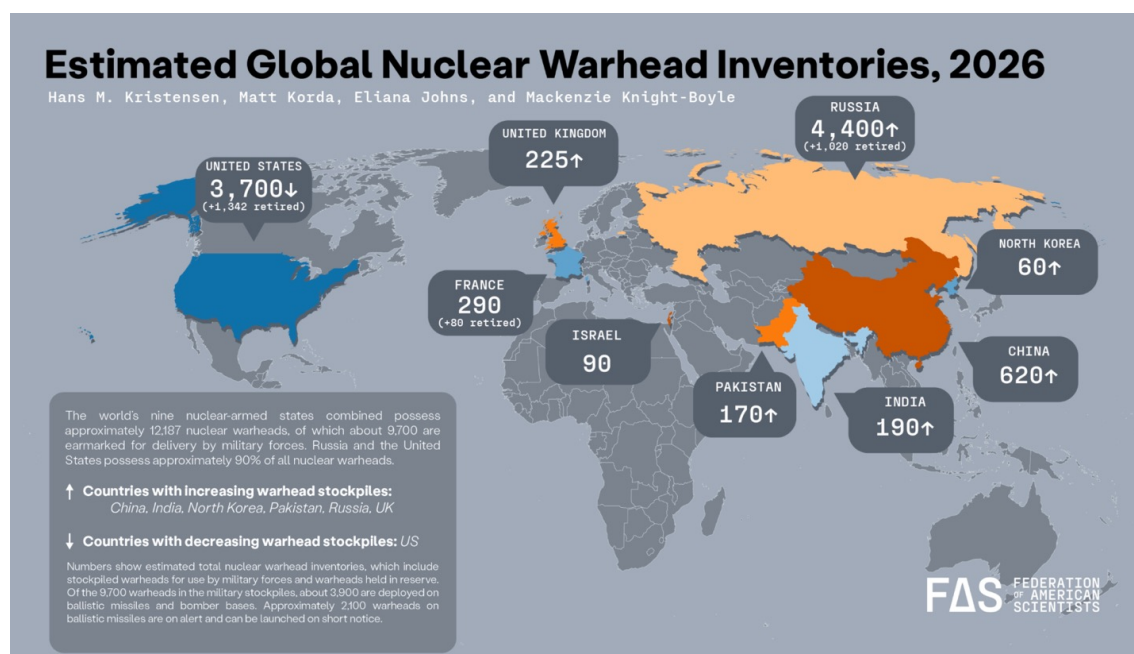
Such systems strengthen deterrence by increasing the costs of aggression without generating the escalatory risks associated with nuclear weapons.

At the same time, growing uncertainty regarding the future reliability of the American security guarantee has revived debate over Europe's nuclear deterrence arrangements. While the U.S. remains the foundation of NATO's nuclear umbrella, concerns regarding the long-term trajectory of American engagement in European security have encouraged policymakers to examine alternative options. Yet developing an independent European nuclear deterrent presents challenges far greater than often acknowledged. A distinction must be drawn between expanding the role of Europe's existing nuclear powers and creating an entirely new collective deterrent architecture. The former would build upon established capabilities and institutions, whereas the latter would require unprecedented political integration, financial commitments, and strategic consensus among European states.

France and the UK remain Europe's only nuclear powers. France maintains an independent arsenal of approximately 290 nuclear warheads, deployed primarily through submarine-based systems and complemented by an air-delivered component designed in part for strategic signalling. Importantly, France has preserved full autonomy over its nuclear forces and operates outside NATO's Nuclear Planning Group. The United Kingdom follows a different model. Although London retains sovereign control over its nuclear arsenal, its deterrent remains closely linked to the United States through dependence on American-supplied Trident submarine-launched ballistic missiles. Britain's nuclear forces are assigned to NATO's collective deterrence mission, making them more integrated into the alliance's broader strategic framework than their French counterparts.

In recent years, European attention has increasingly focused on France as a potential pillar of a more autonomous European deterrent. Successive French governments have argued that the country's vital interests possess a European dimension, and President Emmanuel Macron has repeatedly called for discussions regarding the future role of France's nuclear forces in protecting European allies. Most recently, Macron proposed opening a debate on extending elements of France's nuclear deterrent to cover European partners in the event of a weakening American commitment. The United Kingdom has been more cautious, although London's 2025 Strategic Defence Review signalled renewed interest in strengthening the country's nuclear posture, including assessments regarding the possible reintroduction of an air-based nuclear component and a broader role in European deterrence.

Nevertheless, neither France nor the United Kingdom is currently structured to provide a comprehensive substitute for the American nuclear umbrella. Both arsenals were designed primarily to deter existential threats to their own national survival rather than to provide extended deterrence for an entire continent. Europe's nuclear capabilities remain limited when compared with those of the U.S. and Russia. Collectively, France and the UK possess approximately 505 nuclear warheads, a fraction of the arsenals maintained by Washington and Moscow, each of which holds more than 5,000 warheads. Furthermore, only two European states possess nuclear weapons, while the majority of European countries continue to rely on NATO's nuclear umbrella and, ultimately, U.S. extended deterrence guarantees. Although ongoing French and British modernisation programmes will strengthen Europe's nuclear posture, the continent still lacks the scale, integrated command structures, and independent strategic architecture required to match the nuclear capabilities and global reach of the world's two leading nuclear powers.



Comparing Nuclear Powers

Indicator	United States	Russia	Europe (UK + France)
Total Nuclear Warheads	~5,200	~5,500	~515
Deployed Strategic Warheads	~1,770	~1,710	~410
Intercontinental Ballistic Missiles (ICBMs)	Yes	Yes	France: No; UK: No
Submarine-Launched Ballistic Missiles (SLBMs)	Yes	Yes	Yes
Strategic Bombers	Yes	Yes	France: Yes; UK: No
Nuclear Triad	Complete	Complete	France: Partial (air + sea); UK: Sea-based only
Independent Nuclear Deterrent	Yes	Yes	UK and France only
NATO Nuclear Sharing Role	Leads NATO deterrence	No	UK and France contribute to European deterrence
Global Nuclear Ranking	2nd	1st	3rd (combined)

Total Nuclear Warheads approximate figures based on recent SIPRI/FAS estimates. Numbers vary slightly depending on methodology and date.

Table: AI Habtoor Research Centre • Source: SIPRI and FAS • Created with Datawrapper

By 2040, France and the UK are expected to operate fully modernised nuclear forces centred on next-generation submarines, upgraded missile systems, and enhanced warhead capabilities. These developments will significantly strengthen the European pillar of nuclear deterrence and provide the foundation for a potential European nuclear umbrella.

However, such capabilities alone are unlikely to deliver full strategic independence from the United States. While France maintains a largely autonomous nuclear force, the United Kingdom remains closely integrated with U.S. nuclear infrastructure through the Trident system. Moreover, Europe lacks a unified nuclear command structure, common decision-making mechanisms, and a collective doctrine governing nuclear use. As a result, the modernisation of British and French nuclear forces may reduce Europe's reliance on U.S. security guarantees, but it is unlikely to eliminate it entirely unless accompanied by deeper political and military integration across the continent.

However, expanding their role would require significant investments in delivery systems, command-and-control structures, force posture, and political coordination. More fundamentally, it would require European governments to reach consensus on issues that remain deeply sensitive, including nuclear decision-making authority, burden-sharing arrangements, and the circumstances under which nuclear weapons could be employed in defence of allied states.

Projected Nuclear Modernisation of France and the United Kingdom by 2040

Capability (by 2040)	France	United Kingdom	Implications for Europe
Next-generation ballistic missile submarines (SSBNs)	SNLE 3G	Dreadnought-class	Ensures long-term survivability of European nuclear deterrence
Submarine-launched ballistic missiles (SLBMs)	M51.4	Trident D5LE2	Maintains credible second-strike capability
Air-launched nuclear capability	Rafale + ASN4G hypersonic missile	None	France provides additional flexibility and signalling options
2025	Yes (ASN4G)	No confirmed equivalent	Enhances penetration against advanced air and missile defences

Capability (by 2040)	France	United Kingdom	Implications for Europe
Continuous at-sea deterrence	Yes	Yes	Guarantees permanent nuclear presence at sea
Degree of strategic autonomy	High	Medium	France remains the most independent European nuclear actor
Dependence on U.S. technology	Low	High	UK deterrent remains linked to U.S. strategic infrastructure
Contribution to a future European nuclear umbrella	Very High	High	Forms the core of any potential European nuclear architecture

Table: AI Habtoor Research Centre • Source: Munich Security Conference • Created with Datawrapper

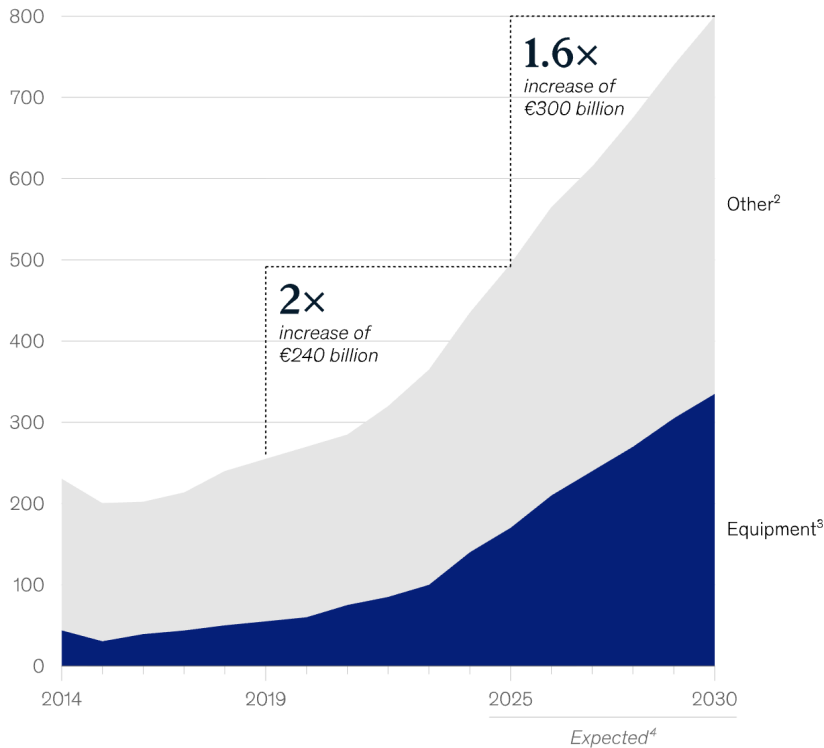
Consequently, Russia's nuclear signalling exposes a deeper strategic dilemma for Europe. The challenge is not simply whether Europe possesses nuclear weapons, but whether it can develop the military capabilities, political cohesion, and strategic autonomy necessary to sustain credible deterrence in an era of prolonged confrontation. While France and the UK may provide the foundations for a stronger European deterrent, they cannot by themselves replicate the scale, credibility, and global reach of the American nuclear guarantee, at least at the current moment. As a result, Europe's future security will likely depend on a combination of strengthened conventional capabilities, deeper defence integration, and a gradual reassessment of the role that European nuclear forces can play within an evolving security order.

2. Arms, Weapons, and Money

Europeans have been increasing their military expenditure and are expected to increase it more in the upcoming years with pledges to reach the 5% threshold of their GDP to security and defense by 2035. The main contributor to the global increase in military spending in 2025 was a 14% rise in Europe to \$864 billion. Spending by Russia and Ukraine continued to grow in the fourth year of the war in Ukraine, while ongoing rearmament efforts by European NATO members led to the sharpest annual growth in spending in Central and

European defense spending may increase to €800 billion in 2030.

Core defense spending of European NATO countries,¹ € billion



The transformation of Europe's security environment is naturally to be followed by an increase in military spending. The 29 European NATO members collectively spent approximately \$559 billion on defence in 2025, with 22 members meeting or exceeding the alliance's benchmark of allocating at least 2% of GDP to defence. Germany emerged as the continent's largest military spender, increasing defence expenditure by 24% year-on-year to approximately \$114 billion. This marked a historic turning point for German security policy, with defence spending surpassing 2% of GDP for the first time since 1990 and reaching 2.3% of GDP in 2025.

More broadly, military expenditure among European NATO members increased by roughly 50% between 2021 and 2025, reflecting a profound reassessment of the continent's security priorities.

This surge in spending reflects more than an immediate response to the war in Ukraine. It represents a broader effort to reduce Europe's long-standing dependence on external security guarantees and strengthen its capacity to defend itself in a more uncertain strategic environment. Growing concerns regarding Russia's long-term intentions, combined with recurring debates in Washington over burden-sharing and future American commitments to NATO, have reinforced calls for greater European self-reliance. Eventhough this is the situation, European defense spending still lacks behind when compared to other powers.

Military Spending by Country

In Billion USD

Country	Military Defence	Notes
Unitd States of America	954	7.5% lower in 2025 than in 2024, mainly because no new military aid for Ukraine was approved during the year.
European NATO members	864	14% rise tha previous years
Russia	190	
China	336	second largest military spender
Germany	114	largest spender among European NATO members
France	680	
United Kingdom	890	2% decrease
Poland	45	The highest spender among European NATO members as a share of GDP.

Table: AI Habtoor Research Centre • Source: SIPRI • Created with Datawrapper

Looking ahead, the expansion of military spending is likely to have far-reaching implications for Europe's future. Defence technologies are expected to become central pillars of industrial policy, technological innovation, and economic competitiveness. Investments in artificial intelligence, satellite infrastructure, advanced manufacturing, cyber capabilities, and dual-use technologies may generate new sources of growth while strengthening Europe's strategic resilience. However, these investments will also require difficult political choices. As defence budgets continue to rise, European governments may face increasing pressure to balance security requirements against social spending, climate objectives, and economic development priorities.

Despite the growing emphasis on European strategic autonomy, NATO remains the foundation of European security and the United States continues to provide the backbone of the alliance's military power. Approximately 75,000 American troops remain stationed across Europe, while key command positions, including the Supreme Allied Commander Europe (SACEUR), continue to be held by U.S. officers. NATO's intelligence, logistics, strategic lift capabilities, missile defence architecture, and nuclear deterrence remain heavily dependent on American resources. Yet the central strategic question facing Europe is no longer whether NATO remains essential, but whether Europe could effectively defend itself if the reliability of the American security guarantee were to diminish.

This question has gained increasing prominence amid recurring debates in Washington regarding burden-sharing and the future scope of U.S. commitments to European security. While a complete American withdrawal from NATO remains unlikely, even a partial reduction in military engagement would fundamentally alter the continent's strategic landscape. Such a scenario would force European states to identify alternative centres of military power capable of sustaining deterrence and contributing to collective defence. While France, the United Kingdom, Germany, and Poland are frequently cited as the most likely candidates, Turkey is increasingly emerging as a critical component of any future European security architecture.

Turkey occupies a unique position within the alliance. Geographically, it controls NATO's southeastern flank and provides access to the Black Sea, the Eastern Mediterranean, the Middle East, and the Caucasus. Militarily, it possesses NATO's second-largest armed forces after the United States, with approximately 355,000 active personnel and a significantly larger reserve and paramilitary structure.

Unlike many European states that reduced military capabilities following the Cold War, Turkey maintained a large standing force and continued investing in indigenous defence production. As a result, Ankara has developed one of the most extensive defence-industrial bases within NATO.

Turkey's growing defence-industrial capacity further strengthens its strategic relevance. Turkish defence exports exceeded \$7 billion in 2024, more than tripling compared with 2021 levels. Turkish drones, including those used extensively in Ukraine, have become symbols of the country's technological progress and operational effectiveness. Beyond unmanned systems, Turkey has expanded production in armoured vehicles, naval platforms, missile systems, electronic warfare technologies, and aerospace industries. Today, Turkish defence products are exported to nearly 40 countries across Europe, the Middle East, Africa, and Asia, positioning Ankara as an increasingly important supplier at a time when European governments are seeking to expand military capabilities rapidly.

For Europe, Turkey's significance extends beyond military strength alone. As European governments reassess their dependence on the U.S., Ankara offers a combination of geographic reach, industrial capacity, operational experience, and strategic flexibility that few other NATO members can match. While political disagreements between Turkey and several European states persist, security realities may increasingly push both sides toward closer cooperation. The war in Ukraine, instability in the Middle East, tensions in the Black Sea, and uncertainty regarding future American commitments have all highlighted Turkey's importance as a regional security actor.

Looking ahead, a more autonomous European security architecture is unlikely to emerge around a single state. Instead, it will probably rest upon a network of major powers with complementary capabilities. France and the United Kingdom are likely to remain the continent's principal nuclear powers; Germany may serve as its economic and industrial backbone; Poland is rapidly emerging as a frontline military power on NATO's eastern flank; and Turkey could become an indispensable strategic bridge connecting European security to the Black Sea, Mediterranean, Middle Eastern, and Caucasus theatres. In this sense, the future of European security may depend not only on strengthening Europe itself, but also on redefining the role of key regional powers within a more multipolar and less American-centric alliance structure.

Turkey's Defense Exports to EU and U.S.

Amount in \$ BLN

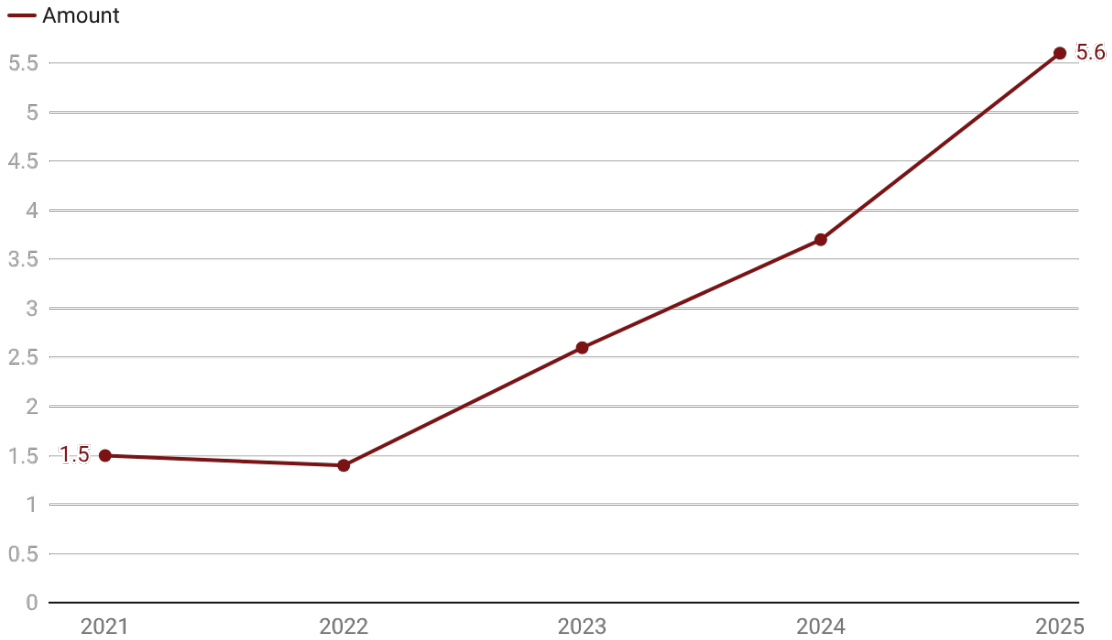


Chart: Al Habtoor Research Centre • Source: SASAD and SSB • Created with Datawrapper

Turkey's growing defence-industrial influence should not be understood solely through the lens of export figures, but rather through its potential contribution to Europe's evolving security architecture. Between 2015 and 2024, Turkish defence exports increased by more than 100%, transforming the country into one of the world's leading defence exporters. Today, Turkey hosts internationally recognised defence firms such as Baykar, Turkish Aerospace Industries (TAI), Aselsan, Roketsan, ASFAT, and MKE. Their product portfolios span a broad range of military capabilities, including drones, aircraft, naval vessels, missile systems, electronic warfare technologies, communications equipment, and advanced munitions. Turkish systems such as the Bayraktar TB2 and Akinci unmanned aerial vehicles, the Hurjet trainer aircraft, the Atmaca anti-ship missile, the Bora ballistic missile, and the Kaan fifth-generation fighter programme illustrate the increasing sophistication of the country's defence-industrial base.

The problem could be in the already existing problem of fragmentation in European military and security command. The introduction of Turkish weapons could add an extra layer of uncertainty and fragmentation.

Fragmentation and Diversity in European vs U.S. Military Systems

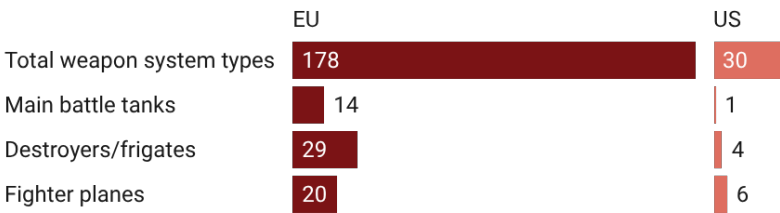


Chart: Al Habtoor Research Centre • Source: European Commission • Created with Datawrapper

Nevertheless, several Turkish systems occupy market segments that complement existing European capabilities. Turkish drones, for example, have demonstrated cost-effectiveness and operational flexibility in Ukraine, Libya, Syria, and Nagorno-Karabakh, providing capabilities that can be integrated alongside more sophisticated European and American platforms. Similarly, Turkish missile systems, naval vessels, electronic warfare solutions, and armoured vehicles can contribute to diversifying procurement options for European states seeking to rapidly modernise their armed forces. Such diversification reduces strategic dependence on a limited number of suppliers while enhancing resilience against future supply disruptions.

Ultimately, deeper defence-industrial cooperation between Europe and Turkey could become increasingly attractive as European governments seek to meet ambitious rearmament targets while simultaneously reducing dependence on external suppliers. If managed effectively, such cooperation could strengthen NATO's overall defence-industrial capacity, improve military readiness, and contribute to the development of a more resilient European security architecture. In this sense, Turkey's value to Europe extends beyond its military power or geographic location; it also lies in its ability to function as an important industrial partner in an era defined by large-scale rearmament and long-term strategic competition.

Looking toward the next decade, Europe is likely to continue increasing defence spending as security concerns become a long-term structural feature of the continent's strategic environment rather than a temporary response to the war in Ukraine. However, higher military expenditure alone will not guarantee strategic autonomy. The more fundamental challenge will be transforming fragmented national capabilities into a coherent European defence architecture capable of planning, coordinating, and sustaining large-scale military operations.

In a scenario where U.S. security commitments to Europe diminish significantly, European states would face substantial difficulties in replacing American intelligence, logistics, strategic lift, missile defence, and nuclear deterrence capabilities in the short term. As a result, the future of European security is likely to depend on the emergence of a broader network of security partners, including the UK, Turkey, and other key regional actors, alongside deeper defence-industrial cooperation and joint procurement initiatives. While Europe possesses the economic resources and technological capacity to build more integrated military forces over time, the development of a truly independent European defence framework would require unprecedented levels of political coordination, institutional integration, and strategic consensus. Consequently, a European security order operating entirely without the NATO framework remains unlikely in the foreseeable future, although Europe may gradually acquire greater capacity to share the burden of collective defence and reduce its dependence on American power.

3. The Rise of Hybrid Warfare

While the Russia-Ukraine war has transformed Europe's conventional security environment, it has also accelerated the emergence of a more ambiguous and persistent form of conflict. Increasingly, confrontation between Russia and Europe is taking place in the so-called "grey zone" between peace and war, where military force is combined with cyberattacks, economic coercion, sabotage, disinformation campaigns, espionage, and political interference. The objective of these activities is not necessarily to achieve immediate military victories, but rather to weaken adversaries over time, exploit societal vulnerabilities, undermine public confidence in institutions, and complicate decision-making processes without triggering a direct military response.

The war in Ukraine has demonstrated the central role of hybrid warfare in modern conflict. Cyberattacks targeting critical infrastructure, government institutions, financial systems, and communication networks have become a permanent feature of the confrontation. Energy has also emerged as a strategic weapon. Europe's dependence on Russian gas prior to 2022 exposed significant structural vulnerabilities, allowing Moscow to manipulate supply flows and contribute to an energy crisis that affected households, industries, and governments across the continent. At the same time, disinformation campaigns have sought to influence public opinion, amplify political divisions, and weaken support for Ukraine, illustrating how information itself has become a battlefield. Over the past two years, Europe has experienced a noticeable increase in hybrid activities linked to Russia.

Drone incursions into NATO airspace, cyberattacks against public institutions, interference with elections, sabotage of critical infrastructure, and covert intelligence operations have become increasingly common. In many respects, Eastern and Northern Europe have evolved into a testing ground for Russia's hybrid warfare doctrine. One of the most alarming incidents occurred when a Russian drone struck a residential building in Romania, marking the most serious event directly linked to the war on the territory of a NATO member since the invasion of Ukraine began. Although NATO described the incident as "reckless and unacceptable," it also highlighted persistent weaknesses in European air-defence systems and the challenges associated with responding to actions that fall below the threshold of conventional war.

Beyond physical incursions, Russia has increasingly employed electronic warfare as a tool of strategic pressure. Authorities in Lithuania and Poland have documented thousands of incidents involving GPS interference originating from the vicinity of Kaliningrad, disrupting civil aviation and maritime navigation throughout the Baltic region. Lithuanian authorities have also linked individuals connected to Russian intelligence networks to sabotage plots and deliberate attacks against commercial and logistical infrastructure. In Poland, investigations have focused on attempts to disrupt rail networks that play a critical role in supporting Ukraine. Further north, Norwegian authorities have warned of increased espionage activities and potential sabotage targeting energy infrastructure in the Arctic, while airlines continue to report recurrent electronic interference affecting flights operating near Russian territory.

Taken individually, many of these incidents may appear limited in scale. Collectively, however, they reveal a broader pattern. Rather than preparing for a direct military confrontation with NATO, Russia appears to be systematically probing European vulnerabilities, testing response mechanisms, and evaluating the political willingness of European governments to react to persistent low-level aggression. The repeated incursions into Romanian, Lithuanian, and other NATO airspace suggest that Moscow is not only assessing military capabilities but also examining the cohesion of the alliance and the thresholds that would trigger a meaningful response.

From a strategic perspective, this approach serves multiple objectives. First, it allows Russia to impose costs on European states without risking direct military escalation. Second, it creates uncertainty and ambiguity, making collective responses more difficult to coordinate.

Third, it enables Moscow to maintain pressure on Europe while rebuilding and modernising its military capabilities after the significant losses suffered in Ukraine. History provides several examples of states employing similar approaches during periods of strategic recovery. Following the First World War, Germany used political, economic, and diplomatic tools to gradually undermine restrictions imposed by the Treaty of Versailles before undertaking large-scale rearmament. More recently, China has relied extensively on grey-zone tactics in the South China Sea, using coast guard vessels, maritime militias, cyber operations, and economic coercion to expand influence while avoiding direct military confrontation with rival powers. In both cases, low-intensity pressure served as a means of advancing strategic objectives while buying time to strengthen national capabilities.

For Europe, the implications are profound. Hybrid warfare blurs the distinction between war and peace, creating a security environment in which confrontation becomes continuous rather than episodic. The challenge is no longer limited to deterring tanks, missiles, or aircraft; it increasingly involves protecting digital networks, energy systems, transportation infrastructure, information ecosystems, and democratic institutions. In response, European governments have accelerated investments in cyber resilience, energy diversification, strategic communications, and critical infrastructure protection. The United Kingdom, Poland, the Baltic states, and Nordic countries have been particularly active in strengthening resilience against hybrid threats, while the European Union has introduced new initiatives aimed at protecting critical infrastructure and countering foreign information manipulation.

Nevertheless, these efforts have also exposed deeper questions regarding Europe's future security architecture. The resurgence of hybrid warfare has simultaneously strengthened and strained transatlantic relations. On one hand, the Russian threat has revitalised NATO, increased defence spending, and reinforced military deployments along the alliance's eastern flank. On the other hand, debates over burden-sharing, strategic autonomy, and Europe's dependence on the United States continue to generate tensions within the alliance. Consequently, the rise of hybrid warfare is not only reshaping how Europe confronts Russia but is also forcing Europeans to reconsider how they define security, resilience, and deterrence in an era where the line between war and peace has become increasingly blurred.

Chapter 5: The Demographic Time Bomb: Ageing, Migration, and the Future of European Society

Societies are built and strengthened by the size of their population, their age group, and their ability to contribute to the national economy. Throughout the years, demographic transformations occurred in the world, notably depopulation, ageing, and migration. Europe, in particular, has witnessed a decline in its population growth rate coupled with an influx of immigrants, posing a change in the overall demographic structure of the continent. Demographic decline is no longer a distant challenge but an emerging reality with profound implications for economic growth, labour markets, social cohesion, and political stability. Demographic change is becoming one of Europe's most significant strategic challenges.

Europe is ageing way faster than the other parts of the world. Birth rates remain below the replacement level in most European countries. As a result, the working-age population is shrinking, affecting economic growth and welfare sustainability. Migration starts to increasingly function as a demographic necessity; however, it poses deep socio-political implications. This demographic time bomb is on the verge of exploding as European governments race to mitigate such forthcoming challenges.

This chapter explores, in the first part, “The Ageing Continent,” providing statistical and analytical data on the main indicators: population ageing, fertility decline, and shrinking workforces. The next focuses on “Migration as Solution and Challenge,” linking ageing with labour market needs, immigration integration challenges, and their political consequences. In the last part, the chapter tackles “The Future Social Contract,” providing projections for key indicators: pension systems, healthcare systems, and the general welfare sustainability.

1. The Ageing Continent

- **Population Ageing**

Europe's population age structure witnesses a core transformation. Evidence indicates that following the year 2035, population decline and ageing (people aged 65 and above, people aged 80 and above) will rise significantly. International Social Security Association (ISSA) and the United Nations Department of Economic and Social Affairs (UNDESA) show that the rate of older people is projected to increase significantly between 2020 and 2050 in Europe. The population aged 65-70 will witness an increase of around 6% in 2050 compared to nearly 5% in 2020. While the population aged around 70-80 will grow to nearly 11% in 2050 compared to around 8% in 2020. As for people aged 80 and above, this segment will have an increase of about 9% in 2050 in relation to a 5% increase in 2020.

Evidence suggests that Europe has already been on the ageing track over the last few years, with projections of reaching its highest levels between 2050 and 2070. Provided such a trajectory, the year 2040 may constitute the critical juncture of these demographic changes. Europe is most likely to become the world's most rapidly aging region by 2040, with countries like Latvia, Portugal, Italy, Germany, Spain, and Greece facing significant pressure due to their aging populations. According to Eurostat data, between January 1, 2004, and January 1, 2024, the proportion of people aged 80 and over increased from 3.8% to 6.1% across the European Union. The largest increases were recorded in Greece (from 3.8% to 7.0%), Latvia (from 2.9% to 6.1%), and Portugal (from 3.8% to 7.0%). Similarly, this increase was observed in the proportion of people aged 65 and over, rising from 16.4% to 21.6%.

Ageing Population in EU (2004-2025)

(% of the total population)

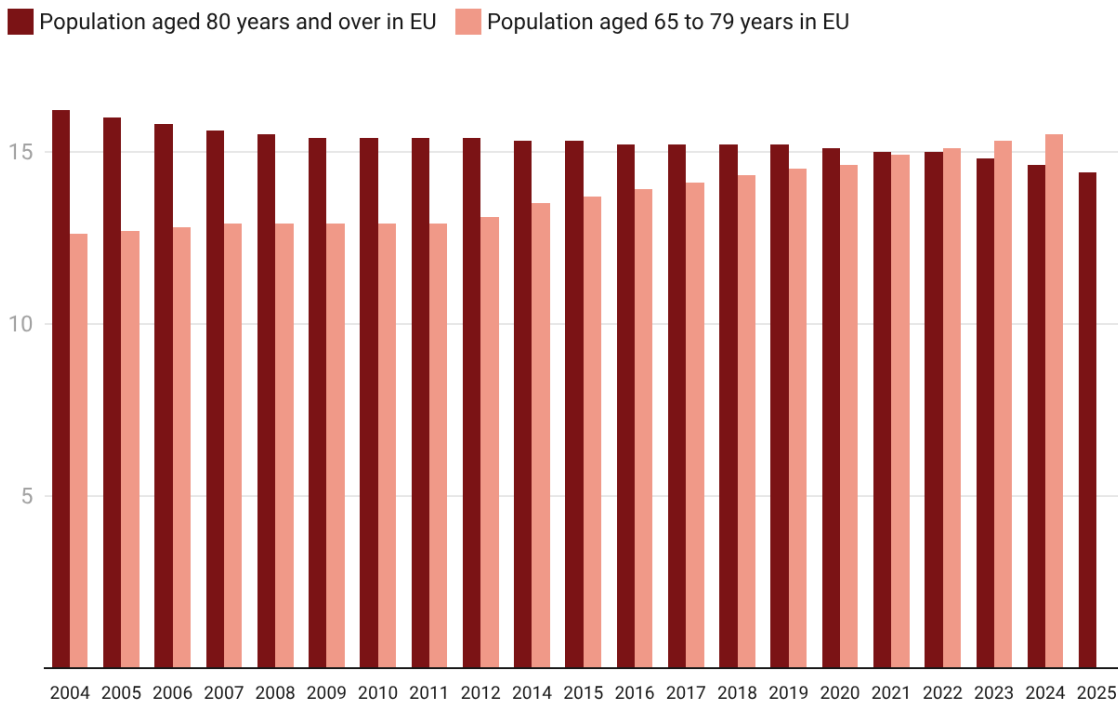


Chart: Al Habtoor Research Centre • Source: eurostat • Created with Datawrapper

Furthermore, the rising median age is another way to examine the phenomenon of population aging in Europe. In a Eurostat report, the median age in 2024 was 44.7 years. The highest median age was observed in Italy (48.7 years), followed by Bulgaria and Portugal (47.1 years each), then Greece (46.9 years), while the lowest was recorded in Ireland (39.4 years), Luxembourg (39.7 years), Malta (39.8 years), and Cyprus (40.6 years). By 2025, the median age of the EU population was projected to reach 44.9 years. This means that half of the EU population was over 44.9 years old, while the other half was younger. Median age in EU countries ranged from 39.6 years in Ireland to 49.1 years in Italy. Ongoing changes in median age are already reshaping the continent's socio-economic landscape. A shrinking workforce and an ageing population are putting pressure on public finances, necessitating reforms to healthcare and pension systems, and altering the course of regional development.

Median age in Europe (2004-2025)

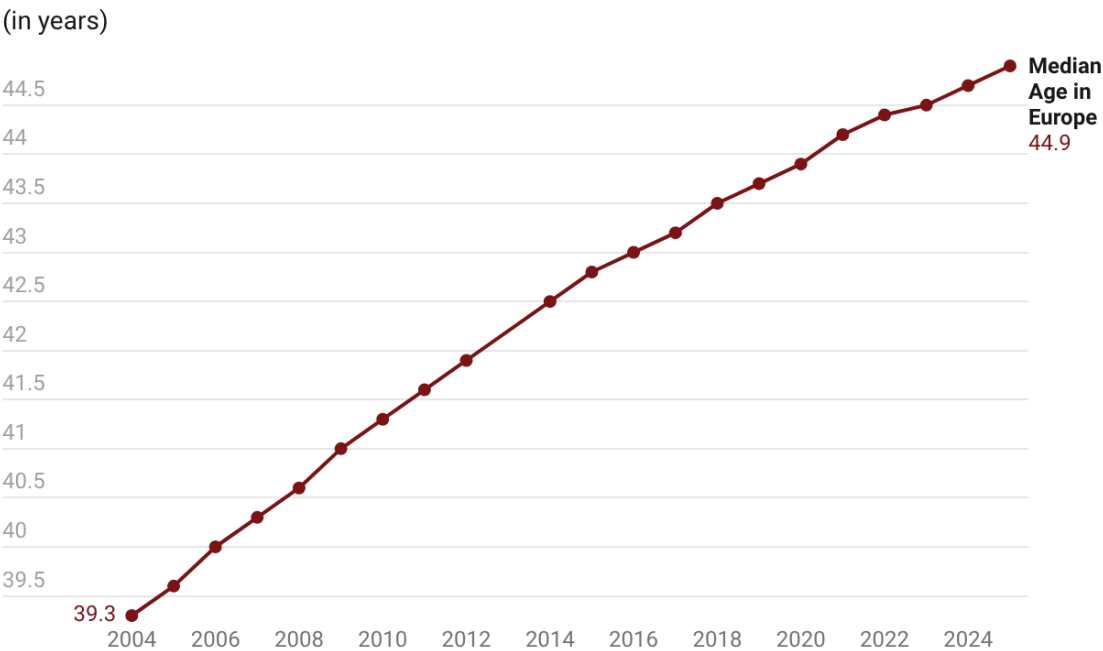


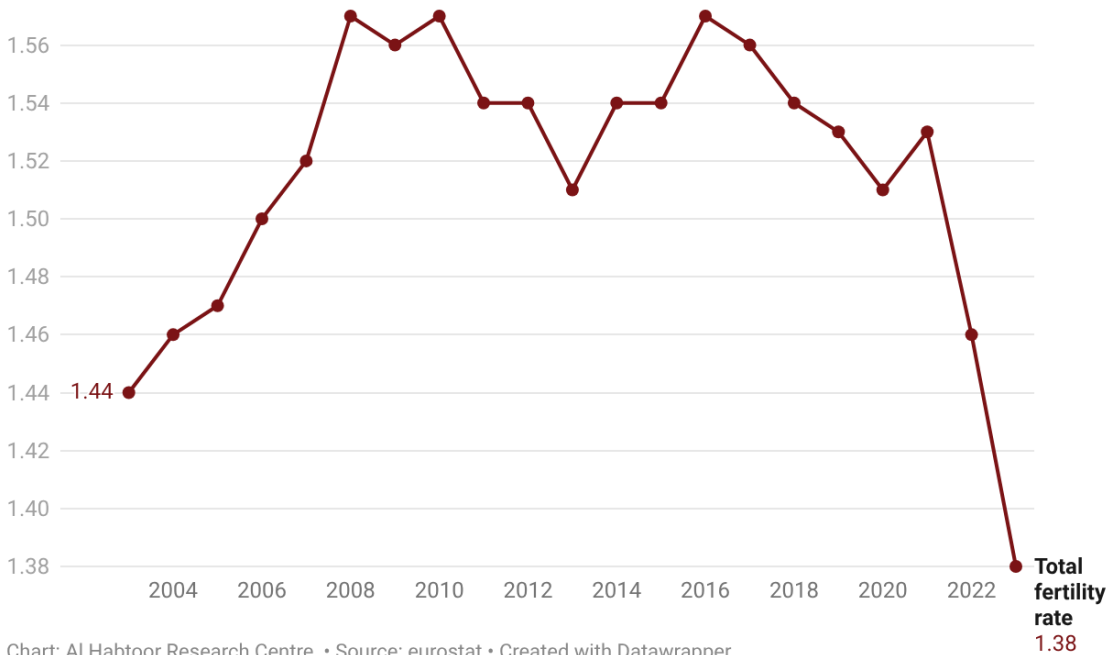
Chart: Al Habtoor Research Centre • Source: eurostat • Created with Datawrapper

• Fertility Decline

Similarly, Europe experiences a drop in total fertility rate (TFR) and birth rate, reshaping the youth demographic composition in the long run. Between 2003 and 2023, the total fertility rate declined in 17 EU member states and increased in 10. The largest decrease was recorded in Finland (from 1.72 live births per woman in 2003 to 1.32 in 2023), while the largest increase was recorded in Bulgaria (from 1.26 to 1.81). In 2023, the EU total fertility rate was 1.38 live births per woman, a significant decrease from 1.44 in 2003, and below the replacement level of 2.1, at which the population is considered stable. Bulgaria (1.81 live births per woman) had the highest total fertility rate, followed by France (1.66) and Hungary (1.55). Meanwhile, the lowest rates were recorded in Malta (1.06), Spain (1.12), and Lithuania (1.18).

Total Fertility Rate in Europe

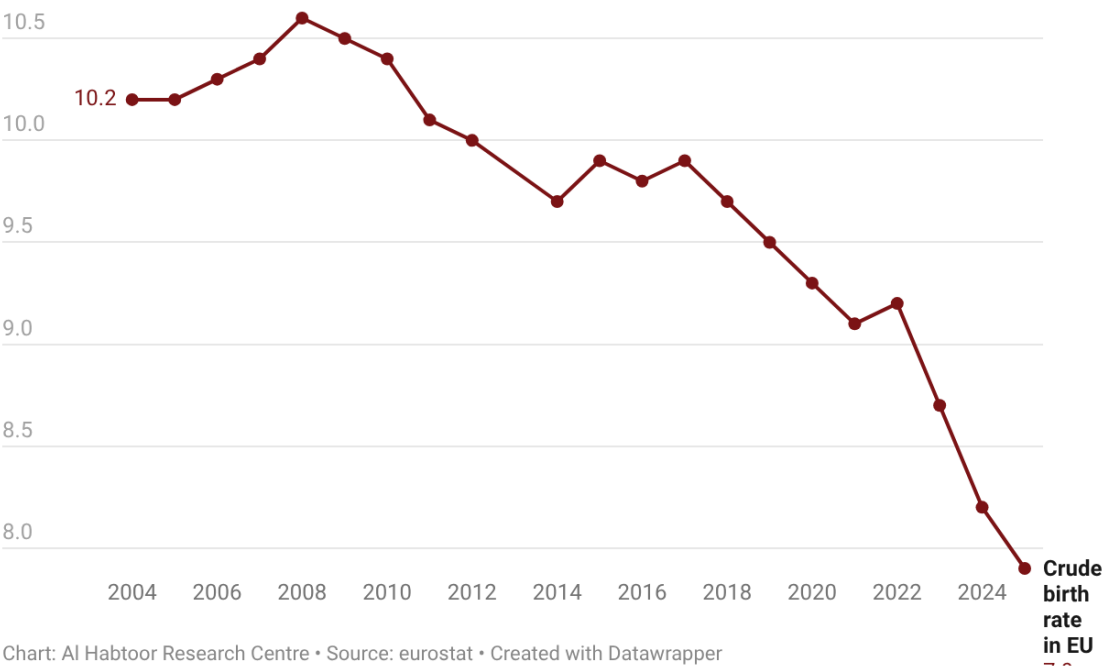
(number of live births per woman)



Moreover, the decreasing birth rate becomes prominent throughout the years, with significant drops from 2022. In 2024, the crude birth rate in the EU was 8.2 live births per 1,000 people. The highest rates were recorded in Cyprus (10.7 live births per 1,000 people), Ireland (10.3), and France (9.9), while the lowest rates were recorded in Italy (6.4), Spain (6.6), and Greece (6.8).

Crude birth rate in EU

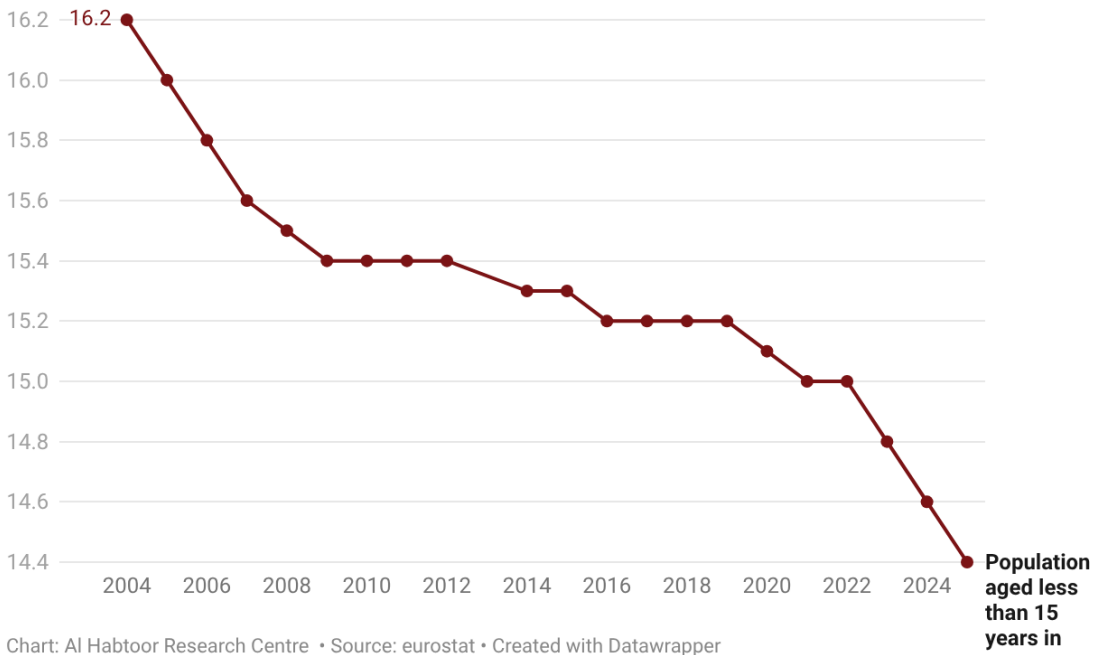
(number of live births per 1000 persons)



The decline in fertility and birth rates is reflected in the decrease in the proportion of the population under 15 years of age, from 16.2% in 2004 to 14.6% in 2024. This decline was observed in most EU countries, with the largest decreases recorded in Malta (-5.9 percentage points) and Cyprus (-5.1 percentage points). The Czech Republic (+0.6 percentage points), Estonia and Latvia (+0.2 percentage points each), and Slovenia and Bulgaria (+0.1 percentage points each) recorded increases only. As of January 1, 2024, the proportion of children and young adolescents was highest in Ireland (18.9%) and lowest in Italy (12.2%).

Population aged less than 15 years in EU (2004-2025)

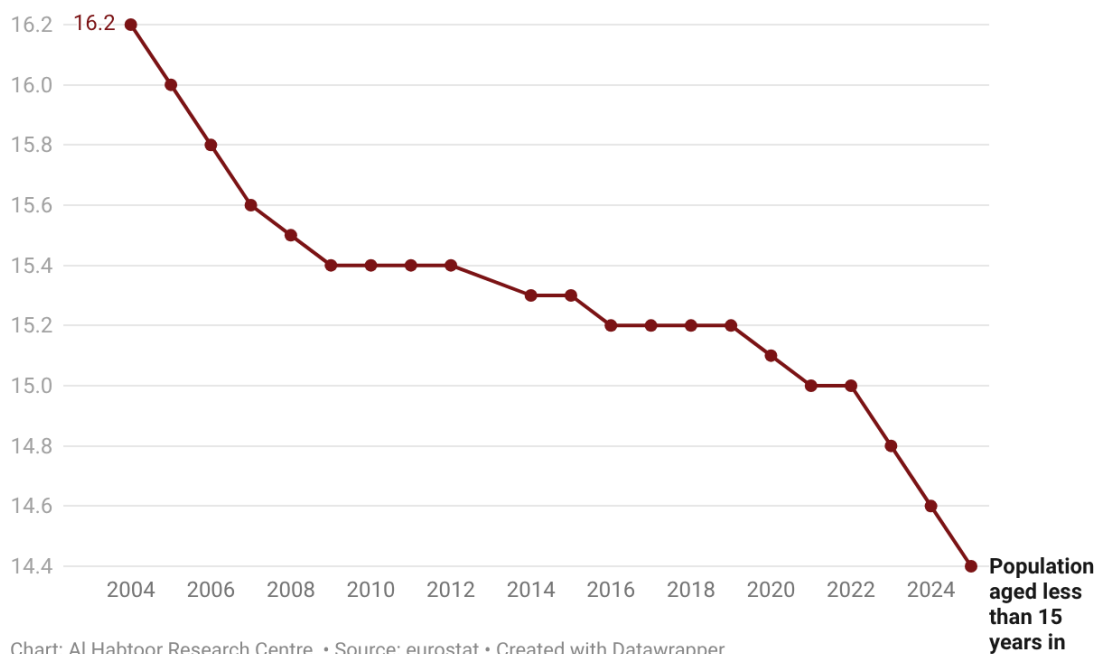
(% of the total population)



There are many reasons behind these trends. First are the rising costs of housing, where house prices went up by 53% in the EU between 2010 and 2024, while rents increased by 25% during the same period. Also, economic uncertainty plays a key role in this trend, where inflation increased by 39% throughout the same timeline. In addition to sudden layoffs, market competitiveness, and high energy costs. Another reason is the tendency towards delayed marriages and childlessness, incentivized by an increase in female labour-force participation, economic independence, and a shift in social norms. Consequently, fewer children are born, and more people get older without a replacement, causing a shrinking working-age population.

Population aged less than 15 years in EU (2004-2025)

(% of the total population)



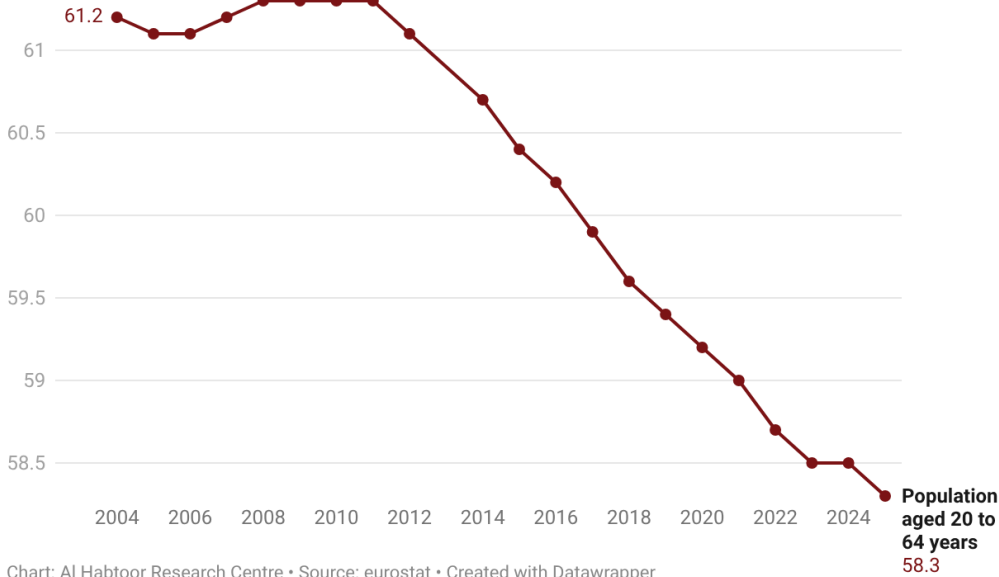
There are many reasons behind these trends. First are the rising costs of housing, where house prices went up by 53% in the EU between 2010 and 2024, while rents increased by 25% during the same period. Also, economic uncertainty plays a key role in this trend, where inflation increased by 39% throughout the same timeline. In addition to sudden layoffs, market competitiveness, and high energy costs. Another reason is the tendency towards delayed marriages and childlessness, incentivized by an increase in female labour-force participation, economic independence, and a shift in social norms. Consequently, fewer children are born, and more people get older without a replacement, causing a shrinking working-age population.

• Shrinking Workforces

Population aging is shaping the future of labour market and caregiver sector. Declining fertility rates and rising life expectancy mean the shrinking of working-age population. The working-age population (aged 20 to 64) saw a sharp decline from 61.1% in 2012 to 58.5% in 2023, and has remained at that level in 2024. Moreover, the old-age dependency ratio, which is the proportion of individuals aged 65 and over to the working-age population, continuous rise put pressure on pensions, social security, and shortage in healthcare professionals.

Population aged 20 to 64 years in EU (Workforce)

(% of the total population)



Such demographic changes carry strategic implications. Government spending related to aging, particularly on pensions, healthcare, and long-term care, is placing significant pressure on public finances, where governments struggle to keep pace with the growing number of retirees and sustainable benefit packages. As for tax revenues, labour income taxes are likely to decline as a result of the decline in the working-age population and older people's retirement or working fewer hours. Nevertheless, it could differ from one European country to another.

Additionally, population ageing may likely reduce productivity growth and overall economic growth by increasing the share of older workers in the workforce due to governments possibly raising retirement age. While experience and accumulated skills can enhance productivity, they are challenged by declines in physical capabilities, lower innovation rates, reduced participation in training, and weaker adaptation to new technologies. At the same time, as the population shrinks, these countries will be faced with another difficulty, which is labour shortages. The Organisation for Economic Co-operation and Development (OECD), which has 22 of the 27 EU member states, suggests that a decline in the working-age population and a decrease in the employment rate among older people could lead to an average 8% drop in GDP per capita across OECD countries by 2060. In such a context, studies highlight migration as a complementary solution to EU mitigation policies.

2. The Ageing Continent

- **Labour Market Necessity**

Migration is considered a key strategy in mitigating the economic challenges of an ageing and shrinking population. In 2023, the European Union received about 5.9 million immigrants. Around 4.9 million came from countries outside the EU, while 1.1 million moved from one EU country to another. The largest numbers of immigrants were recorded in Germany: 1.27 million (21% of all immigrants to the EU), Spain: 1.25 million (21%), Italy: 440,000 (7%), and France: 418,000 (7%). These countries received more than half (56%) of all immigrants entering the EU in 2023. Moreover, most immigrants in the EU are foreign citizens (non-nationals) rather than citizens (nationals) returning to their home country. In 25 of the 27 EU countries, at least 60% of immigrants were non-nationals. The highest shares were recorded in Czechia: 98%, Cyprus: 95%, and Malta: 95%.

Immigrants in EU

(number of persons)

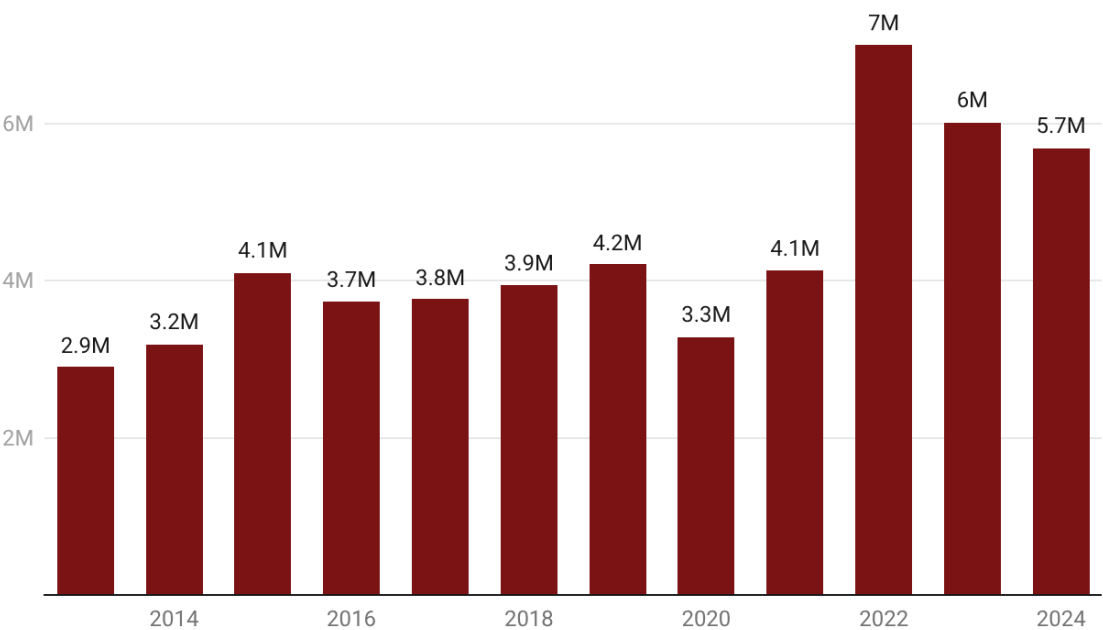


Chart: Al Habtoor Research Centre • Source: eurostat • Created with Datawrapper

According to International Organisation for Migration (IOM), EU countries have reported over 675,900 new asylum applications in 2025, with Spain, Italy, France and Germany counting each at least 110,000 applications. Particularly, Italy and Greece reported the largest shares of migrant presence with 85% and 13% of the total, respectively. The number of migrants received in Italy increased from 139,141 in 2024 to 142,233 in 2025 (+2%). While Greece received 22,190 migrants, a decrease of 26% compared to 29,893 in 2024.

Evidence suggests that immigration may become both Europe's demographic lifeline to fill labour market necessity and one of its most contentious political issues. In a Pew Research 2000-2020 study, findings indicate that population growth during this period in several European countries was largely sustained by immigration rather than nationals giving birth. Germany's population rose by 1.7 million, but would have declined by over 5 million without incoming migrants. Italy recorded an increase of 2.7 million people, yet without immigration from countries such as Romania, Ukraine, and Albania, its population would have fallen by about 1.6 million. In the Czech Republic, the population increased by around 300,000, but this entire growth was driven by immigration, mainly from other European countries; without it, the population would have slightly declined. Portugal saw only a small rise of fewer than 40,000 people, but would have experienced a decline of over 310,000 without migrants.

According to Eurostat, the European Union experienced a 0.4% population increase in January 2024, reaching 449 million inhabitants, compared to 448 million in January 2023. This population growth is attributed to the large-scale migration following the COVID-19 pandemic and the influx of internally displaced persons from Ukraine due to the Russian-Ukrainian war.

Europe Population (2004-2025)

(number of persons, in million)

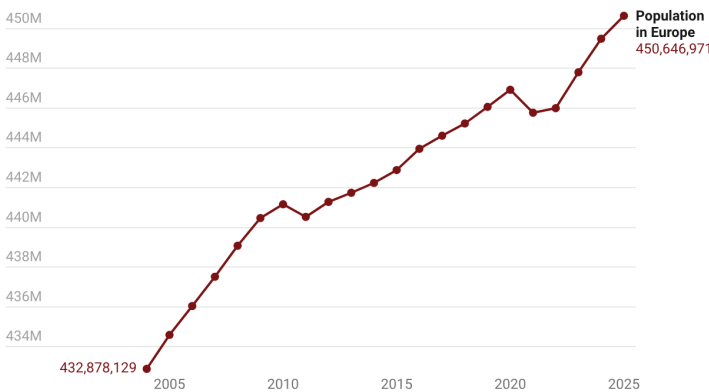
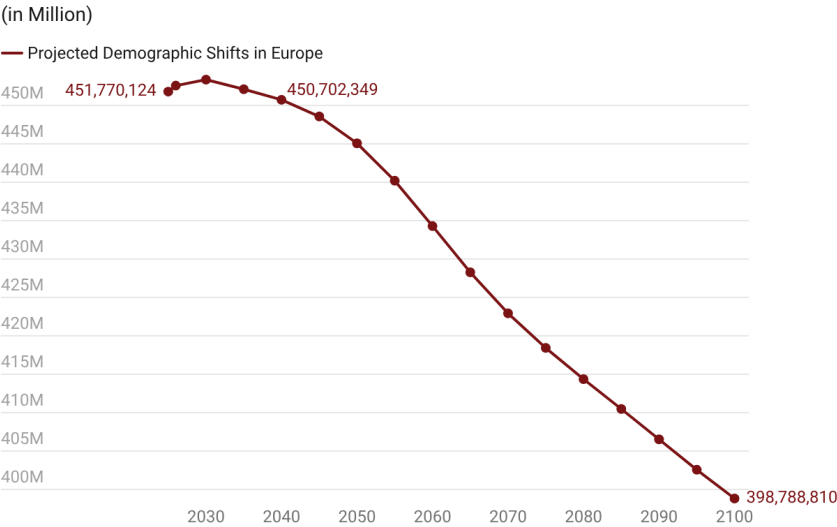


Chart: Al Habtoor Research Centre • Source: eurostat • Created with Datawrapper

However, evidence suggests a downward trend in population growth rate in the coming years. Eurostat reports project an overall decline of population by 11.7% between 2025 and 2100, which constitutes a loss of 53 million people. In 2025, the population of the EU was estimated at around 451.8 million. The population is expected to continue to increase over the next three years, peaking at 453.3 million in 2029, before gradually declining to 398.8 million by 2100. Building upon such calculation, the population is expected to have a steady decline to reach approximately 450.7 million by 2024.

Projected Demographic Shifts in EU (Countries 2025-2100)



By 2040 Population is projected to reach 450,702,349 in EU countries.
Chart: Al Habtoor Research Centre • Source: eurostat • Created with Datawrapper

• **Integration Challenges**

Evidence indicates that migrants face incomplete integration in European countries. This stems from several reasons, including employment gaps, educational levels, and preferential treatment between EU migrants and non-EU migrants. First, employment rates in EU countries in 2023 vary significantly between nationals and migrants, with nationals generally maintaining high employment rates reaching up to 83-84% in countries like the Netherlands, Sweden, and Germany. Non-EU migrants show lower employment rates compared to nationals in most EU countries, notably in Belgium, Germany, and the Netherlands. In contrast, EU migrants tend to have employment rates similar to or even higher than those of nationals in the vast majority of EU countries, notably in Malta and Luxembourg.

EU migrants tend to obtain more prestigious and higher-paying jobs compared to non-EU migrants.

Second, educational attainment shows disparities depending on the educational levels of each EU country. According to the European Parliament, first-generation immigrants in Europe have somewhat lower levels of education compared to nationals. This is primarily because the proportion of immigrants who have completed at least lower secondary education is higher than that of nationals, and the proportion of nationals with a university degree is slightly higher than that of immigrants. However, countries with a higher proportion of citizens with a university degree tend to have a higher proportion of immigrants with a university degree, and vice versa for countries with lower educational levels.

Third, migrants and refugees often represent the most vulnerable segment in the country. They often cluster in low-income, under-resourced residential areas. Moreover, challenges of residential or asylum documents, along with language barriers, hinder their full integration into society and constrain opportunities like education and work. Integration barriers affect migrants' participation in the labour market. It may discourage them from actively seeking employment or reduce the likelihood of finding work for those who are actively seeking it. Also, it may reduce the quality of job opportunities available, resulting in low-wage jobs, poor working conditions, and limited recognition of workers' qualifications. In addition to unstable working conditions, such as working without a contract.

- **Political Consequences**

Migration in Europe is already facing strong political backlash from far-right and conservative parties. Populist narratives framing society in “us versus them” terms are reinforcing identity-based politics and exclusionary policies, contributing to growing social polarisation between anti-immigration groups and more moderate pro-migration constituencies. Looking ahead to 2040, migration flows are expected to increase further as countries in the Global South confront worsening security and economic pressures, which is likely to strengthen anti-immigration political forces across Europe. At the same time, European governments will remain constrained by demographic decline and labour market needs, which make immigration essential for sustaining economic growth.

As a result, rather than fully restricting migration, EU states are likely to recalibrate their migration frameworks toward more selective systems that prioritize skilled workers and working-age migrants, expanding structured pathways for talent recruitment serving their economy within a more formalized EU migration strategy.

Migration is likely to remain the primary driver of population growth in these countries. However, it will not be sufficient on its own to offset labour shortages or fully compensate for long-term demographic decline. In response, European governments are expected to simultaneously strengthen and expand pronatalist policies with new incentives aimed at addressing low fertility rates and population ageing. By 2040, this will likely include greater investment in subsidized childcare, longer and more flexible parental leave schemes with improved compensation, and stronger incentives for fathers to participate more actively in childcare responsibilities. Additional measures may include preferential access to affordable public housing for larger families, as well as increased investment in education and child development to support the next generation. Together, these policies aim to ensure a relative balance between nationals and growing migrant communities.

3. The Future Social Contract

- **Pension Systems**

As previously discussed, the ageing population is expected to increase throughout the years while the work-age population shrinks. Consequently, the old-age dependency ratio will likely surge sharply, shifting the dynamic between potential retirees and potential labour. The old-age dependency ratio is the ratio of the elderly population to the working-age population. A higher dependency ratio will likely occur. In 2022, for every 10 people in the EU aged over 65, there were around 28 aged between 20 and 64. By 2045, this number will drop to 19, and further to 17 in 2070. Under these circumstances, pension beneficiaries will rise more than the workforce capacity, thus an imbalance between the source of income for pensions and those receiving them would occur. This ratio already rose from around 29% in the EU in 2010 to 36% in 2022, and is projected to rise further to 59% in 2070, with most of the increase forecasted to occur by 2045. In other words, the EU will go from having roughly 30 people aged 20-64 for every 10 people over 65 in 2022 to fewer than 20 by 2045.

Contribution of the dependency ratio effect to the change in public pension expenditure

(pps of GDP)

Country	2022-30	2030-40	2040-50	2050-60	2060-70	2022-70
BE	1.9	1.6	0.9	1.1	1.0	6.5
BG	1.0	1.8	2.0	1.1	-0.8	5.1
CZ	0.5	1.3	1.8	0.8	-0.8	3.6
DK	1.1	1.3	0.1	0.7	0.7	4.0
DE	1.9	1.2	0.1	0.6	0.5	4.3
EE	0.8	0.9	1.2	1.2	-0.2	3.9
IE	0.6	1.0	1.4	0.5	0.5	4.0
EL	2.4	3.8	3.0	-0.4	-1.1	7.7
ES	2.6	4.4	3.4	0.0	0.1	10.5
FR	2.0	2.0	0.8	0.5	0.7	6.0
HR	1.6	1.1	1.1	0.5	0.5	4.6
IT	2.7	4.3	1.4	-0.3	0.2	8.3
CY	1.7	1.3	1.5	2.4	0.9	7.8
LV	1.3	1.1	1.1	1.1	-0.7	3.8
LT	1.7	1.7	1.4	2.2	0.2	7.1
LU	1.6	2.2	2.0	2.7	2.3	10.8
HU	0.2	1.4	1.7	1.0	0.0	4.3
MT	0.1	-0.1	1.1	2.7	2.1	5.9
NL	1.2	1.1	0.0	0.5	1.1	3.8
AT	3.2	2.8	1.0	1.2	0.6	8.7

Additional 10 rows not shown.

Table: Al Habtoor Research Centre • Source: European Commission • Created with Datawrapper

According to such conditions, retirement age is expected to increase gradually. Many EU countries are already linking retirement ages to life expectancy. To offset pension pressures and labour shortages, governments are likely to continue raising the effective retirement age toward 67-70 years in several countries. This may likely be faced with resistance from Europeans, as seen in France's 2023 protests. Moreover, pension costs will likely increase due to an increase in retirees relative to workers. In addition, the number of working-age persons per pensioner is expected to fall as the workforce generation and fertility rates remain low.

This demographic shift would likely impose a burden on the government budget for pensions and health care. Even though more people are expected to work, the increase will not be enough to compensate for the demographic decline. According to the European Commission, the labour force is expected to witness a rise among people aged 20-64 from 79.4% in 2022 to 82.7% in 2070, and among people aged 55-64, participation will rise much more sharply, from 65.4% to 75.5%. This increase will be due to older people expected to work longer as a result of raised retirement ages and reduced incentives for early retirement.

Nevertheless, the gap will likely still exist. Although labour market participation rates rise, the number of working-age people declines much faster. In other words, a larger share of people is expected to work, yet there are far fewer people of working age than before, so the total labour force becomes smaller. The EU labour force is projected to shrink by 12% between 2022 and 2070. This means fewer workers will be supporting more retirees through taxes, pension systems, healthcare systems, and social welfare spending.

Public pension spending is projected to increase by an average of 0.4 percentage points (pps) of GDP across the EU by 2070. Luxembourg is projected to experience the largest increase, at around 8 (pps) of GDP, while other increases by 2 (pps) or more of GDP are projected for Malta, Hungary, Slovenia, Cyprus, Spain, Belgium, Lithuania, Slovakia, Ireland, and the Netherlands. The Czech Republic, Norway, Finland, and Germany are expected to have pension spending increase between 1 (pps) and 2 (pps) of GDP. As for Austria and Bulgaria, only a slight increase is forecasted. In contrast, 11-member states are anticipated to experience a general decline in public pension spending. Greece is projected to see the largest drop by 2.5 (pps) of GDP, followed by Italy, Portugal, Latvia, and Denmark, with declines ranging from 1 (pps) to 2 (pps). While France, Romania, Estonia, Croatia, Poland, and Sweden foresee a decline by less than 1(pps).

The European Commission report indicates that the fiscal pressure from pensions is expected to peak between 2022 and 2045, then ease slightly after 2045. With large generations of workers retiring and life expectancy rising, pension spending is projected to increase by an average of 0.7 (pps) of GDP during the first half of the forecast period. Countries such as Spain, Portugal, Slovenia, and Slovakia are expected to experience particularly large increases in pension costs. After 2045, pension reforms, lower benefit ratios, and demographic changes are expected to slow or reverse this trend in many countries, resulting in an average decrease of 0.3 (pps) of GDP between 2045 and 2070. While pension spending will continue to rise in some countries, the increases will generally be smaller than in the preceding period.

Moreover, evidence indicates that although Europe will have many more retirees in the future, pension spending may not rise as much as expected because pensions are projected to grow more slowly than workers' wages. As a result, the average pension will fall from about 43% of the average wage in 2022 to 36% by 2070, meaning future retirees may receive a smaller income relative to working people. This will help governments control pension costs and reduces pressure on public finances caused by population ageing. However, it could also make pensions less adequate for maintaining living standards in retirement. In the long-term, governments may face political pressure to increase pensions more than currently planned, creating increased pressure on public spending.

- **Healthcare Systems**

Evidence projects that throughout the 2040s and 2070s, healthcare spending and long-term care are expected to rise in all countries, with the exception of a slight increase in healthcare in Latvia. In addition, numbers could also increase if another pandemic occurs, putting older people at greater risk, or if the ageing population grows with weaker health that requires higher spending in this area. The experience of 2022, shaped by the lingering effects of COVID-19, illustrates how public health crises can significantly influence healthcare demand and put strain on healthcare systems.

Projected public expenditure on health care (2022-2070)

(% of GDP)

Country	2022	2025	2030	2035	2040	2045	2050	2055
BE	6.1	6.1	6.2	6.2	6.2	6.2	6.2	6.3
BG	4.5	4.4	4.5	4.5	4.5	4.6	4.6	4.6
CZ	6.4	5.8	5.9	5.9	5.9	6.0	6.0	6.0
DK	7.4	7.0	7.1	7.1	7.1	7.2	7.2	7.2
DE	8.0	7.7	7.7	7.7	7.7	7.7	7.7	7.7
EE	5.1	5.1	5.1	5.1	5.1	5.1	5.2	5.2
IE	4.1	4.0	4.1	4.1	4.1	4.2	4.2	4.3
EL	5.4	5.1	5.2	5.2	5.2	5.3	5.3	5.4
ES	5.9	5.8	5.9	5.9	6.0	6.0	6.1	6.1
FR	8.8	8.4	8.4	8.4	8.4	8.5	8.5	8.5
HR	5.8	5.7	5.7	5.8	5.8	5.9	5.9	5.9
IT	6.3	6.1	5.8	5.8	5.8	5.8	5.8	5.9
CY	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.6
LV	6.0	5.5	5.3	5.3	5.3	5.3	5.3	5.4
LT	4.3	4.3	4.3	4.4	4.4	4.4	4.4	4.5
LU	3.9	4.0	4.1	4.1	4.1	4.1	4.2	4.2
HU	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.4
MT	5.1	5.0	5.1	5.1	5.1	5.1	5.1	5.1
NL	5.7	5.8	5.8	5.8	5.8	5.9	5.9	5.9
AT	7.8	7.8	7.7	7.8	7.8	7.9	7.9	7.9

Additional 10 rows not shown.

Table: Al Habtoor Research Centre • Source: European Commission • Created with Datawrapper

Similarly, long-term care (LTC) expenditure is expected to face a rise due to the increase in the ageing population. It encompasses daily medical, personal, and social services assistance for individuals who have lost the ability to live independently due to aging. Both healthcare workers' and caregivers' shortages could intensify as they belong to the working-age population. A decrease in the work-age population and a rise in the ageing population over 65 will most likely affect personnel availability. Also, the older population requires more healthcare services. The high demand will place financial and capacity pressures on the providers of such services. Technological innovation may partially offset pressures but won't fix the overall problem of the dependency ratio.

The demand for long-term care services will likely increase by 2040. European Labour Authority anticipates an increase of more than 41% in the proportion of dependents between 2022 and 2040. This is driven by a 25% increase of people aged 65 and above and a 44% for people aged 80 and above. By 2040, around 27% of people aged 65 and above will fall into the 80 and above group which will increase the demand for long-term care services. This will require more funding and personnel. Between 2024-2040, long-term care is expected to require approximately 808,000 additional LTC workers, an increase of 25.1% of net employment growth rate in the LTC workforce. EU countries, such as Spain, Austria and Slovenia may face difficulties in meeting the increasing need for LTC workers. Furthermore, funding needs for formal long-term care services will likely increase, which are largely funded by the public sector. Hence, a pressure on governments budget in Europe will intensify by 2040 and throughout 2070.

Projected public expenditure on long-term care (2022-2070)

(% of GDP)

Country	2022	2025	2030	2035	2040	2045	2050	2055
BE	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5
BG	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
CZ	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.7
DK	3.0	3.1	3.1	3.2	3.3	3.5	3.7	3.8
DE	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.2
EE	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6
IE	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.4
EL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
ES	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
FR	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0
HR	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
IT	1.6	1.6	1.5	1.5	1.5	1.6	1.6	1.6
CY	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
LV	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
LT	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1
LU	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
HU	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
MT	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.4
NL	3.8	3.8	3.9	3.9	3.9	4.1	4.1	4.2
AT	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.8

Additional 10 rows not shown.

Table: AI Habtoor Research Centre • Source: European Commission • Created with Datawrapper

Lastly, EU countries are starting to integrate AI in the healthcare sector as one response to the rising rate of the ageing population. According to the World Health Organisation, around 74% of EU countries are already deploying AI-assisted diagnostic tools to improve clinical diagnosis and support medical imaging analysis. As these systems become more embedded in clinical practice and healthcare workers become more familiar with their use, they could help partially offset the projected shortage of healthcare professionals and caregivers.

- **Welfare Sustainability**

These projections raise a strategic question: can Europe sustain prosperity and social stability as its demographic foundations weaken? Europe's ability to maintain its social models while enhancing its competitiveness in the face of demographic and economic challenges requires fundamentally restructuring its socioeconomic model. The continent's future economic performance and welfare sustainability increasingly depend on whether it can boost innovation, increase automation and productivity-driven models, and integrate migration.

Maintaining current social models is unsustainable. An aging population and shrinking workforce, causing a disproportionate dependency ratio, impose a burden on production, wages, and economic competitiveness. Europe would likely adjust its social models to align them with realistic resource availability. The focus could shift from over-reliance on universal social care to targeted support for older people, freeing up resources for investment in innovation and growth.

Moreover, European governments will likely work to prioritize improving employment opportunities for young people, strengthening family support policies, and effectively integrating migrants into labour markets. Also, countries expected to experience the largest declines in their working-age populations, notably eastern Europe, could focus on retaining and attracting talent through targeted migration policies, stronger integration frameworks for migrants, and incentives for skilled workers to stay or return. Investment in long-term care, rural infrastructure, and youth employment initiatives will also be essential to address demographic imbalances and sustain social welfare.

Lastly, EU countries are starting to integrate AI in the healthcare sector as one response to the rising rate of the ageing population. According to the World Health Organisation, around 74% of EU countries are already deploying AI-assisted diagnostic tools to improve clinical diagnosis and support medical imaging analysis. As these systems become more embedded in clinical practice and healthcare workers become more familiar with their use, they could help partially offset the projected shortage of healthcare professionals and caregivers.

- **Welfare Sustainability**

These projections raise a strategic question: can Europe sustain prosperity and social stability as its demographic foundations weaken? Europe's ability to maintain its social models while enhancing its competitiveness in the face of demographic and economic challenges requires fundamentally restructuring its socioeconomic model. The continent's future economic performance and welfare sustainability increasingly depend on whether it can boost innovation, increase automation and productivity-driven models, and integrate migration.

Maintaining current social models is unsustainable. An aging population and shrinking workforce, causing a disproportionate dependency ratio, impose a burden on production, wages, and economic competitiveness. Europe would likely adjust its social models to align them with realistic resource availability. The focus could shift from over-reliance on universal social care to targeted support for older people, freeing up resources for investment in innovation and growth.

Moreover, European governments will likely work to prioritize improving employment opportunities for young people, strengthening family support policies, and effectively integrating migrants into labour markets. Also, countries expected to experience the largest declines in their working-age populations, notably eastern Europe, could focus on retaining and attracting talent through targeted migration policies, stronger integration frameworks for migrants, and incentives for skilled workers to stay or return. Investment in long-term care, rural infrastructure, and youth employment initiatives will also be essential to address demographic imbalances and sustain social welfare.

In sum, the demographic challenge facing Europe is not simply a matter of population decline. By 2040, the continent's ability to reconcile aging, migration, and welfare sustainability will determine its economic competitiveness, social cohesion, and geopolitical influence. Demography will not solely determine Europe's future, but it will increasingly define the constraints upon which all other strategic choices are based.

Chapter 6: United We Stand? The Future of European Cohesion in an Age of Fragmentation

Political and economic cohesion has been a vital component of Europe's regional and global aspirations. The importance of cohesion in European politics is best expressed through its EU Cohesion Policy which focuses on investment policy, European solidarity, considerations for political parties, and territorial dimensions. It is through this cohesion policy; the members of the EU manage to maintain a sense of unity and engage in economic and diplomatic cooperation. While the EU Cohesion Policy has been implemented to maintain this sense of European cohesion, the threat of fragmentation looms in the current uncertain global order.

The threats to European cohesion and unity come in many forms, with potential to divide and fragment Europe. These threats include the rise of nationalism brought on by discontent European populations and a crisis of trust in traditional parties as well as European institutions. Naturally, these threats to cohesion raise significant questions relating to the future of a united Europe and the European project. In the end, the question remains, how can Europe preserve political unity and reform its governance structures to accommodate enlargement while confronting increasingly divisive domestic and external pressures?

1. The Politics of Discontent

The European project suffers from a rise in political discontent in recent years, which can be attributed to the failure of traditional parties to address and tackle significant issues facing each member state. The failure to address societal issues has resulted in a rise of anger and a lack of trust in the traditional systems, which prompts voters to seek alternatives that will introduce radical changes. As a result, European populations have shifted their support to populist and nationalist parties.

There has been an increase in support in populist and nationalist parties in Europe, particularly on the far-right side of the political spectrum. This increase in far-right nationalist parties is documented, as 39 of the 44 European countries have some form of far-right representation in their legislative bodies, whether it be a small representation or major success. Of the 39 countries with far-right representation in their respective legislative bodies, a few stand out for having far-right governments or the far-right have status as an opposition party.

This is particularly the case for Italy, Sweden, the Netherlands, Germany, and Austria, where the far-right populist parties have either won a majority or have significant representation.

In Italy, the Brothers of Italy under the leadership of Giorgia Meloni have served as an example for far-right movements within the EU, whereas in Sweden and Germany, the Alternative for Germany (AfD) and the Sweden Democrats managed to become the opposition party in their respective parliaments. Furthermore, Austria's Freedom Party played an influential role in revitalizing the conservative movement in Austria. Moreover, the influence of far-right nationalist parties can be felt in the Netherlands, as Geert Wilders' Party for Freedom have a significant number of seats in the Dutch legislative branch, however, the coalition prevented him from becoming Prime Minister due to the radical nature of his ideas, especially on immigration. Although most of these parties do not have the numbers to make their leaders head of state of their respective countries, it does indicate that EU countries are heading toward a far right and nationalist direction.

The rise of these movements can be attributed to the public's discontent of the moderate (center left and right) leadership to effectively deal with some of the most pressing issues facing their countries as well as Europe. One major issue which traditionalist parties fail to address adequately is the issue of immigration. There has been an increase in the number of migrants entering Europe, particularly refugees, which the populist and nationalist parties link to issues such as globalization, socio-economic issues, as well as crime. The linkage of increased migration to societal issues has allowed far-right populists to amass great support in countries such as Sweden, Germany, and the Netherlands. This is particularly clear in the case of Sweden, as "...the Sweden Democrats, quickly capitalized on this sentiment, and by linking it to migration, managed to attract both traditionally left-wing and right-wing voters". Far-right populists link increased immigration to socio-economic issues by claiming that migrants, especially refugees and asylum-seekers, put strain on the welfare system, do not contribute to society, and take jobs made for nationals. Through this linkage, far-right movements show how existing policy from traditional parties fail to address immigration and use it to turn public opinion against the ruling class.

Likewise, Populist and nationalist parties also gain support by linking immigration to issues such as national security. This is clearly shown in the rise of far-right movements in the years following the 2015 migration crisis, where far right movement have linked unchecked migration to issues of national security.

This sentiment is particularly true in the case of the AfD in Germany and the National Front (RN) in France, as both parties have positioned “...themselves as defenders of national sovereignty, advocating stricter border controls and policies aimed at preserving what they frame as ‘traditional European values’”. The idea is that by linking migration to national security, populist and nationalist parties can frame migration as an “invasion” of sorts, and claim that national identity, security, and culture is under threat. Therefore, the main claim to fame for populist and nationalist movements in Europe can be linked to scapegoating migrants, which allows them to take aim at the traditional parties for neglecting their duties to the local population.

Furthermore, a reason why populist and nationalist movements seem to be gaining traction is due to the perception that traditionalist parties seem unable to deal with issues stemming from globalization. Globalization has resulted in issues becoming transnational, which has seen traditional governments in Europe having difficulty solving issues that would otherwise be solvable on a national level. This is evident as “Problems that previously could be solved on a country level are now more difficult to overcome due to their transnational character and the intricate and interdependent decision-making systems between nations”. As a result of this perceived neglect of solving the domestic issues faced by their own populations, traditional parties are perceived to be “do nothing” parties, which results in communities feeling as though they have been left behind by the system. These feelings of discontent and abandonment toward the traditional parties leave room for populist and nationalist parties to enter the political space and pursue absolutist policies that speak to the concerns of the voters, resulting in their popularity increasing throughout Europe.

Conclusively, the rise of populist and nationalist parties in Europe can be attributed to issues relating to immigration as well as globalization. These populist and nationalist parties manage to link immigration to issues of socio-economic inequality as well as national security, while public discontent with globalist policies allow the populists to scapegoat traditional parties as “do nothing” elitists. Through these issues, the populist and nationalist parties enter the political space and position themselves as leaders who can solve the issues traditional parties fail to address, which leads to a shakeup of the existing political order.

2. Crisis of Trust

Beyond public discontent leading to the rise of populist and nationalist parties in Europe posing a threat to European unity, there is also an existing crisis of trust relating to the traditional parties in government and EU institutions. On a national level, European governments are experiencing a decline in trust from their local populations at an unprecedented level. This decline in trust in national governments stems predominantly from the cost-of-living crisis spurred on by the COVID-19 pandemic as well as multiple crises in the years following, as well as the feelings of local populations of being unheard. The perceived inability of the government to deal with the cost-of-living crisis contributes to an increase in distrust towards national governments, as low-income families, low-wage workers, and the unemployed feel as though their governments are not doing enough to soothe the economic burdens brought on by said crisis. As these national governments do not provide the essential aid that is needed to deal with economic crises, rural communities feel that their concerns are not being addressed, which results in feelings of alienation, which contributes to distrust. It is this perceived inability to deal with economic inequality stemming from these crises that contributes to "...eroding public trust in key institutions and fuelling more disruptive unrest...".

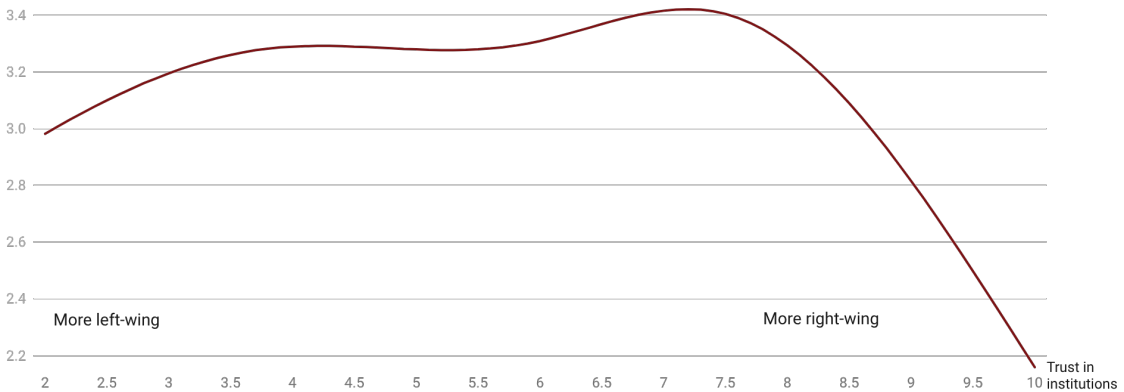
These feelings of distrust are also felt by the youth of European nations, whose loss of trust in national government contributes to a loss of faith in democratic institutions. Young people across Europe are experiencing unprecedented levels of stagnation, which leaves them unable to afford basic and essential goods and services. This is evident as "Many young Europeans feel stuck, unable to afford housing, build stable careers or plan their futures. In the Young Europe 2025 survey, more than one-third say that ensuring affordable living costs should be a top political priority". It is this feeling of being stuck combined with the idea that national institutions do not address them adequately, which leaves the young generation of Europeans losing faith in not only their governments but also in the democratic framework that brings these governments into power.

While there is a loss of trust towards national governments in Europe, the same cannot be said for European institutions. European institutions enjoy a slightly higher level of trust than the national governments that are part of the EU. According to the Eurobarometer Spring 2026 edition, 51% of Europeans trust the EU as an institution. While this indicates a slightly positive level of trust in Europe, the level of trust in European institutions declines when it comes to individuals who support far-left or far-right parties.

This is clear as supporters for far-right parties in Europe (Reform UK, AfD, and Vox) register their confidence level at 2.8 institutions, whereas confidence in institutions from the left (Green Party of Austria, Sinn Fein in the Republic of Ireland) have confidence in 3.0 and 3.2 institutions.

Supporters of Right-Wing Parties in Europe Are Least Confident in Institutions

Predicted confidence in institutions (out of five) in Europe by support for political parties across left-right spectrum, after controlling for a range of demographic variables



Trust in institutions plummet as parties become more right-wing

Chart: Al Habtoor Research Centre • Source: Gallup • Created with Datawrapper

When it comes to the trust in European economy, the results start to dwindle, as 44% of Europeans believe the economic situation will become better while 36% believe it will get worse. These stats show how generally speaking, the EU as an institution still has slight level of trust from the European publics, however, when it comes to economy, the trust starts to fall.

Although people in Europe have a slightly higher level of trust toward European institutions, this trust can surely be eroded in part to information warfare and social polarization brought on by social media. Social media has played a major role in the decline of trust in national and European institutions, as social media platforms such as Facebook, TikTok, and X have amplified the voices of extremist parties, especially during election cycles. This is particularly evident after Elon Musk took control of X (formerly Twitter) and endorsed President Donald Trump in his re-election bid, which resulted in far-right content becoming more visible. This algorithmic bias has also been made evident in Europe during the German elections in 2025, as “...an algorithmic audit of X, TikTok, Instagram, and YouTube found that around half of all party-related content that was algorithmically recommended to young users across platforms involved an extreme-right party, doubling its audience share relative to the content’s original upload rate on TikTok”.

This can be considered problematic, as content from more moderate policies were suppressed by such levels of algorithmic bias. This level of social polarization has resulted in increased criticism of the big tech companies who own these social media apps, as it is believed not enough is being done to limit disinformation and “fake news” from reaching users. Ultimately, the EU has taken steps to limit the influence these social media platforms have on European populations.

Besides social media, there is also the issue of how artificial intelligence is used to sow the seeds of discontent among European populations. This is clear in the case of far-right parties and their supporters, who have used AI to push misleading information and false narratives to benefit their political platforms and stoke anger among the national populations in Europe. This is the case in countries such as Germany, France, and the UK, where far-right parties have used AI generated images and videos to depict immigrants in a negative light usually depicting them as violent criminals or invaders seeking to destroy the European way of life. The promotion of such content has only led to increased polarization, and disinformation, which seek to undermine European institutions and increase discontent among the people of Europe in their national governments.

3. The Future of the European Project

Political discontent and crises of trust raise questions about the future of the European project. One of these questions is whether the EU will pursue a policy of deeper integration, or if national governments will succeed at renationalization. The concept of renationalization is not new when it comes to discussions of Europe and has become more alluring than deeper integration over time. One cause of renationalization is the idea that the European welfare state is strained by economic crises, which national governments who desire more sovereignty claim that integration is the cause of economic difficulty. Moreover, a desire from sovereignty has increased due to the rapid enlargement of the union, which resulted in countries in Western Europe prioritizing their independent needs. This is clearly shown in the case of EU freedom of movement being undermined by national governments, who aim to reclaim their sovereignty by introducing tighter border and immigration controls. The main idea here is introducing border checks will serve as a deterrent for unchecked immigration, which can soothe the immigration anxieties felt by European nations. By introducing border controls, an argument can be made that European countries are reclaiming their borders, renationalizing them.

Renationalization can be considered an emerging threat to European unity, however, there are ways in which Europe can remain united in the face of such threats. For starters, it is necessary that Europe pursues a policy of deeper integration as there are numerous perceived threats to European stability. According to the Vienna Institute for Economic Studies, “Strategic pressure from Russia and economic and technological dominance by the US and China are reshaping political attitudes”. By being caught in the middle of great power influences, Europe will have to develop a united front, which can be done through deeper integration.

One policy that Europe can pursue to ensure deeper integration, is the concept of a multispeed Europe. The idea of having a multispeed Europe is an integration method that allows European countries to integrate at different speeds, as each European state has differing policy agendas. Pursuing a multispeed Europe allows EU member states to commit to the goal of deeper integration at their own pace, which promotes flexibility, and is more likely to promote further integration in the future. An existing example of this concept of integration would be the “...pre-ins in the European Monetary Union: All member states, which accessed the EU in 2004 and 2007 committed to introducing the Euro as soon as they meet the accession criteria”. By pursuing a multispeed form of integration, the EU can promote a more efficient form of governance, which can allow member states to avoid the gridlocks that prevent the union from passing meaningful policy. While a multispeed Europe can be considered a beneficial policy for further integration and governance, there are potential flaws. One of these flaws is that a multispeed Europe can create a two-tier system within the EU, which can result in smaller countries being left out of the decision and policy making processes. Therefore, if the EU is to pursue this form of integration, it will have to work to include smaller member states within policymaking processes regardless of their pace of integration.

For Europe to pursue deeper integration and a potential multispeed policy in the face of rising renationalization, it first must effectively address governance challenges and implement institutional reform. In its current state, the EU faces numerous governance challenges which include democratic deficit and economic fragmentation.

In terms of the democratic deficit, the EU suffers from a crisis of representation and institutional fragmentation, as there is a perceived disconnect between the between EU lawmakers and European citizens as well as conflicting interests between the existing member states.

The disconnect between the European citizens and EU lawmakers is evident as the European Commission (non-elected) essentially decides EU policy over the European Parliament (elected body). As a non-elected body oversees producing policy and legislation, citizens of Europe become disengaged with the democratic processes of the EU, as the representatives they chose for the European Parliament are not as involved in the policymaking process, which contributes to increasing divisions between Europe and the individual nations. Naturally, this contributes to the rise of euroscepticism in EU members states, which consequently results in EU citizens electing anti-EU representatives to the European Parliament.

There is also the issue of differing interests between EU as a whole and their individual member states. This is clearly shown, as “EU citizens are more likely to identify with their state of origin rather than the EU. Therefore, if the EU lacks a shared identity and the EU continues to strengthen EU institutions, then the democratic deficit will only deepen over time”. Without a collective European identity, the institutions of the EU become fragmented, which damages the democratic and institutional legitimacy of Europe.

Although Europe suffers from challenges stemming from institutional fragmentation and a democratic deficit, economic fragmentation also poses a challenge to effective governance. One aspect of economic fragmentation that poses a challenge to European governance is the idea that there is economic and regional inequality between member states. This is clear as there are significant wealth and income disparities between the different members states, meaning income and wealth inequality differs significantly between regions. For example, eastern and southern European countries within the EU have lower wealth inequality compared to countries such as Germany, Ireland, and Spain have recorded high levels of inequality. Another example would be the case of housing wealth inequality, where central European countries such as the Czech Republic and Slovakia record higher home ownership rates compared to Germany and the Netherlands. The question remains why are there such disparities between the member states? The reality is that disparities exist between the different EU member states because of differences in economic and social structures, which results in differing levels of income and wealth inequality throughout the region. Therefore, as each country is in a different stage of economic and social development, economic disparities exist, which can be attributed to disparities in income and wealth depending on which region an EU member state is located.

Beyond economic and regional inequalities, Europe's economic fragmentation also stems from a dependency on great powers for technology. In terms of technological dependence, Europe is highly dependent on foreign countries to meet their technological needs. This is clear as the EU "...are strongly digitally dependent on foreign countries, namely for over 80% of digital products, services, infrastructures, and intellectual property". The European dependence on foreign technology puts them in a precarious position as most of their digital infrastructure is imported from the US, while chip-based technology is imported from China. This overdependence on foreign technology risks the EU missing out on the tech race and can leave them stranded between an "...US President Donald Trump's assertive trade agenda and China's willingness to weaponise such dependencies...". As a result of such dependency, Europe faces being locked out of the digital economy, while also surrendering digital autonomy to foreign entities.

Therefore, the solution to such dilemma is Europe should develop its own technological capabilities to not only enter the tech race but also ensure its economic and digital sovereignty. Already, the EU is in the process of developing a technology sovereignty package, which will focus on "...boosting the production of high-end chips within the bloc, promoting open-source alternatives to digital services provided by US tech giants and nudging national capitals to reassess their reliance on non-European firms for cloud computing and AI services". Through such a package, it is possible that the EU can reduce its reliance on foreign entities for its technology needs, while also carving itself a spot in the global tech race.

4. The Enlargement Dilemma

In the face of rising discontent, crisis of trust, and governance challenges, the EU faces a dilemma centered on whether it should focus on enlargement. On top of these issues, geopolitical challenges brought on by the Russo-Ukraine War and an increasingly unpredictable US foreign policy under US President Donald Trump poses significant risks for the EU and its security. Overall, the dilemma of EU enlargement can be divided into two categories, one focused on internal challenges, while the other focuses on the external challenges.

In terms of internal challenges to EU enlargement, there is a significant focus on institutional reform, which is needed to effectively carryout enlargement in a way that does not harm the EU. This need to implement significant institutional reform stems from the geopolitical issues, as well as increasing domestic discontent with the EU framework as it is.

One internal challenge to enlargement is centered on the concept of guaranteeing commitments from newly accepted member states. This poses an internal challenge to enlargement, countries are likely to focus on their own political interests as opposed collective interests, which can lead to EU decision-making processes (EU foreign policy) being stalled, often described as “soft-hostage taking”. A primary example of such hostage taking is the constant use of veto powers by Hungary under the leadership of Viktor Orban to stall the EU internal processes to suit his own interests. Therefore, it is necessary for the EU receive guarantees from future member states to partake in collective interests of the whole as opposed to self-serving interests of the individual to ensure decision-making processes are not stalled.

Furthermore, rapid enlargement can have financial consequences for the EU, as allowing a large group of accession states into the union in one go can put strain on the EU budget. In the case of admitting new states into the union, the EU needs to open streams of financial assistance to help new states integrate smoothly. This may come in the form of “...economic convergence and agricultural subsidies...”. However, the main financial issue lies with the next possible enlargement which is set to include Balkan and eastern European countries such as Ukraine. The enlargement including such states may have financial implications, especially in the case of Ukraine, as the EU will be obliged to contribute financial assistance to reconstruction and development of Ukraine. Naturally, this this will contribute to financial strain on the EU’s budget but also see the EU become a contributor state as opposed to a beneficiary state. Therefore, there will have to be significant reform to the EU’s financial and budget system to ensure that enlargement does not become a burden for the EU member states.

Beyond the internal challenges contributing to the EU enlargement dilemma, there are external challenges, which is mainly centered on security and geopolitical issues brought on by the Russo-Ukraine War. The Russo-Ukraine War can serve as the catalyst for current EU enlargement as the shift in Europe’s geopolitical climate has in turn resulted in a shift in the meaning of EU expansion. This is clear as the EU’s attempt to fast-track Ukraine’s ascension to the EU symbolizes a shift from being one of perceived generosity to being one grounded in geostrategy focused on the preservation of European sovereignty. Moreover, the war in Ukraine also hastened the desire for states in eastern Europe such as Moldova and Georgia, and to an extent the West Balkan states. This is clear as these states fear Russian encirclement and aggression.

Which contributed to their desire to join the EU to prevent a potential Russian offensive reaching their borders. While this may be considered a geostrategic move to preserve European sovereignty and autonomy, there are risks of incorporating countries such as Ukraine at a rapid pace. The obvious risk here is that Russia can see Ukraine's ascension to the EU as a threat to its own security, which can result in Russian retaliation against the EU, thus expanding the war to the West. Therefore, the war on Ukraine can serve as a security challenge to the EU enlargement strategy, as any move to include Ukraine or any formerly Russian influenced state in the EU can result in great geopolitical insecurity in Europe.

Beyond Ukraine, there is also the unresolved tensions that exist between the potential ascension states, particularly the West Balkan states. The Balkan states have a long history of ethno-religious tensions and relations between the individual nations are tenuous. This is clear in the case of Serbia-Kosovo relations, as both countries have a great distrust between each other due to Kosovo's strive for state recognition and self-determination, which Serbia does not recognize. Beyond the unresolved Serbia-Kosovo tensions, there is also the issue of breakaway states in Moldova and Georgia, as well as the case of North Macedonia, which has tense relations with Greece, who blocked them from ascending to the EU in 2009. Naturally these unique security issues will be a challenge to EU enlargement, as if these states were to ascend, "...EU diplomats will struggle to find creative solutions to such disputes, to which Russia is a party". The EU will therefore have to strengthen its diplomatic skills to quell any security related issues between possible ascension states to guarantee their full integration in the future.

Overall, the dilemma of EU enlargement comes down to two aspects, which are internal and external challenges. In terms of internal challenges to enlargement, the EU will have to receive guarantees from ascension states to adhere to collective interests to prevent said states from pursuing their own agendas, while also reforming existing financial systems to prevent budgetary strain stemming from enlargement. Moreover, the external challenges include the war in Ukraine potentially serving as a potential security threat while also having to resolve tensions between the Balkan states to help their ascension. To be able to handle these challenges to enlargement, the EU will have to implement extensive reforms to their institutions to be able to adequately accommodate any future ascension to the union.

Chapter 7: The AI Race and Beyond: Europe's Struggle for Technological Sovereignty

Europe finds itself at a defining strategic crossroads. Across the continent, hospitals run on US servers, defence contractors depend on chips manufactured in Taiwan, and government ministries operate on cloud infrastructure owned by corporations headquartered in California. These are not edge cases or hypothetical vulnerabilities. They are the structural reality of a continent that has spent decades constructing one of the most sophisticated regulatory systems in the world while simultaneously outsourcing the technologies that system was designed to govern. The result is a paradox that sits at the heart of Europe's strategic future as a global power: the EU has become the world's most ambitious architect of rules for AI, data privacy, and digital competition, yet it remains, in practice, a consumer of technologies it did not build, a market shaped by innovations it did not produce, and a dependent actor in a world where technological control increasingly defines geopolitical power.

This chapter examines that paradox in depth. It argues that Europe's struggle for technological sovereignty is not a single policy problem but an interlocking set of structural challenges spanning AI competitiveness, semiconductor supply chains, cloud infrastructure, capital markets, and geopolitical positioning, and that the choices Europe makes between now and 2040 will determine whether it shapes the digital order or inherits one designed elsewhere. The chapter proceeds by mapping the scale of Europe's current technological gap, examining the regulatory architecture that has defined its response, assessing the critical vulnerabilities in semiconductors and cloud infrastructure, tracing the capital dynamics that continue to undermine European ambitions, and situating all of these challenges within the broader context of great power competition in which technology has become a primary instrument of state power.

1. The Weight of the Gap

To understand where Europe stands, it is necessary to begin with the numbers, because the numbers are significant. As of 2024, the US produced 40 notable AI models to Europe's 3, a ratio that captures not just a gap in output but a structural difference in the conditions under which innovation happens. Only about 13.5% of EU enterprises had adopted AI by that same year, revealing a continent that has struggled to move from pilot programmes to large-scale integration of technologies already transforming industries elsewhere.

Europe risks losing its edge in the race for innovation, with labour shortages, low numbers of patent applications, and limited research and development spending compounding one another as structural weaknesses.

Private Investment in AI Worldwide in 2025, by Country

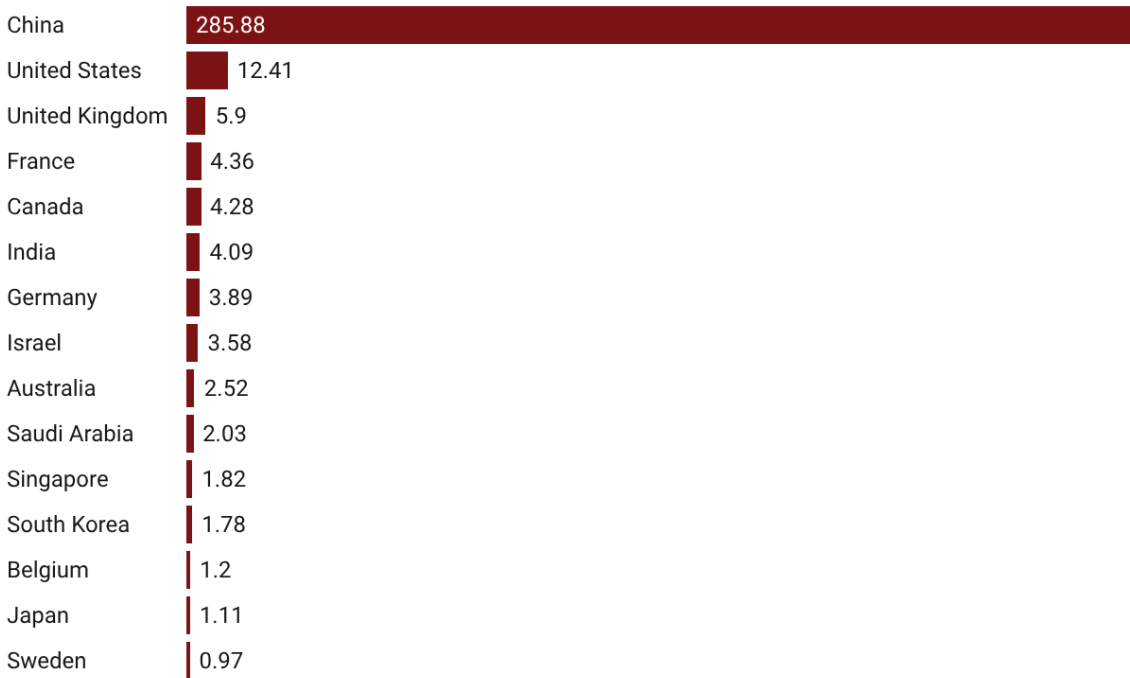


Chart: Al Habtoor Research Centre • Source: Statista • Created with Datawrapper

These are not new problems. They are chronic ones, identified repeatedly and addressed insufficiently. 30% of European startups valued at over one billion dollars relocated to the US between 2008 and 2011 alone, a brain drain and capital drain that has persisted in the years since. The consequence is that Europe is, paradoxically, exporting the very talent and innovation that its own ambitions require. A serious response to this pattern would require approximately 800 billion euros in annual investment, equivalent to 4 to 5% of EU gross domestic product, to close the innovation gap with the US and China, particularly in AI, green technology, and defence, and it would require confronting the inconsistent and restrictive regulations that have hampered European firms from scaling in the way their US and Chinese counterparts have.

Meanwhile, the geopolitical environment has grown sharply less forgiving. The return of great power competition, the weaponisation of trade by the Trump administration during its second term, and the broader fracturing of the liberal international order have all made technological dependence a security liability in ways that were easier to overlook during the relatively stable post-Cold War decades. As European Central Bank President Christine Lagarde stated, Europe "can no longer be sure that we will have frictionless access to new technologies developed overseas" and therefore must "establish itself at the technological frontier." That statement, from the head of the institution responsible for the euro, is a measure of how comprehensively the conversation has shifted from economics to strategy.

2. The Regulator's Dilemma

Europe's primary response to the rise of AI has been, first and foremost, regulatory. The EU AI Act, adopted in June 2024, was the world's first comprehensive legal framework for AI, establishing a risk-based classification system that imposes different obligations on developers depending on how their systems are used. The Digital Markets Act, which entered into force in 2022 and began applying to major tech companies in 2024, seeks to prevent large technology firms from abusing market positions by requiring interoperability and prohibiting anticompetitive self-preferencing. The General Data Protection Regulation, in force since 2018, remains the global benchmark for data privacy law.

These are genuine achievements. They represent a deliberate choice to use regulation as a form of power, a strategy sometimes called the Brussels Effect, through which European rules become de facto global standards simply because companies seeking access to the European single market must comply with them. There is real strategic logic in this approach, since shaping the conditions under which AI is built everywhere is a meaningful form of influence, even when the building itself happens elsewhere.

The problem is that regulation, when it becomes the primary mode of technological engagement, can function as a substitute for the harder, more expensive work of actually building. Europe's technology sector is currently governed by 100 tech-focused laws and 270 regulatory bodies across the bloc, a fragmentation that creates compliance costs estimated to reach up to 3.9% of annual GDP if sovereignty requirements in cloud security are implemented broadly. These costs do not fall equally on all actors.

As large US and Chinese technology firms have the resources to manage compliance and continue operating in Europe, while European startups, which are smaller, less capitalised, and already competing at a disadvantage in global markets, bear a disproportionate burden. The consequence is a regulatory architecture that inadvertently reinforces the dominance of the very foreign firms it was designed to constrain.

A particularly instructive example of this regulatory tension emerged recently, when Apple announced an improved version of its AI-powered digital assistant, Siri, that would be available to users globally but withheld from the approximately 450 million people living in the EU. The reason was a dispute with the European Commission over the Digital Markets Act, a law that requires Apple to allow competing AI assistants full device access. Apple argued this requirement created unacceptable privacy and security risks, noting that giving outside developers the level of access the law demands could expose users to data theft and unauthorised alterations to their devices. The Commission held firm, declining Apple's proposed alternatives and describing the company as a "gatekeeper" not permitted to close the market. The result was that European users were denied access to a significant AI advancement, not because European companies had produced something better, but because the regulatory framework designed to promote competition had generated a deadlock that served no one. This was not the first such delay, as Apple had withheld earlier AI features in 2024 for similar reasons, and Meta had delayed its AI services and smart glasses before eventually making them available in Europe.

The Commission's review of the Digital Markets Act, completed in May 2026, acknowledged shortcomings while stopping short of major reform, noting that future enforcement would concentrate on existing obligations rather than expanding scope. More fundamentally, critics have raised the concern that the Digital Markets Act was designed for the platform economy of the early 2020s and may not be adequately structured for an era in which AI is reshaping competitive dynamics in ways the law was not built to address. The question Europe faces is not whether to regulate, but whether regulation, however sophisticated, can substitute for the capacity to innovate, and the evidence increasingly suggests it cannot.

3. The Semiconductor Vulnerability

Beneath the visible debate about AI models and digital platforms lies a more fundamental vulnerability that is harder to fix and harder to discuss publicly, namely that Europe does not produce enough of the physical components on which all digital technology depends. Semiconductors are the miniaturised chips that process information in every computing device and are to the digital economy what steel was to the industrial economy. Europe currently consumes approximately 20% of global chip output while producing only about 9% of it, an imbalance that is not merely an economic inefficiency but a strategic exposure with direct implications for national security.

Global market share of semiconductors

In 2023, the EU's market share of semiconductors represented 12.7% of the global market.

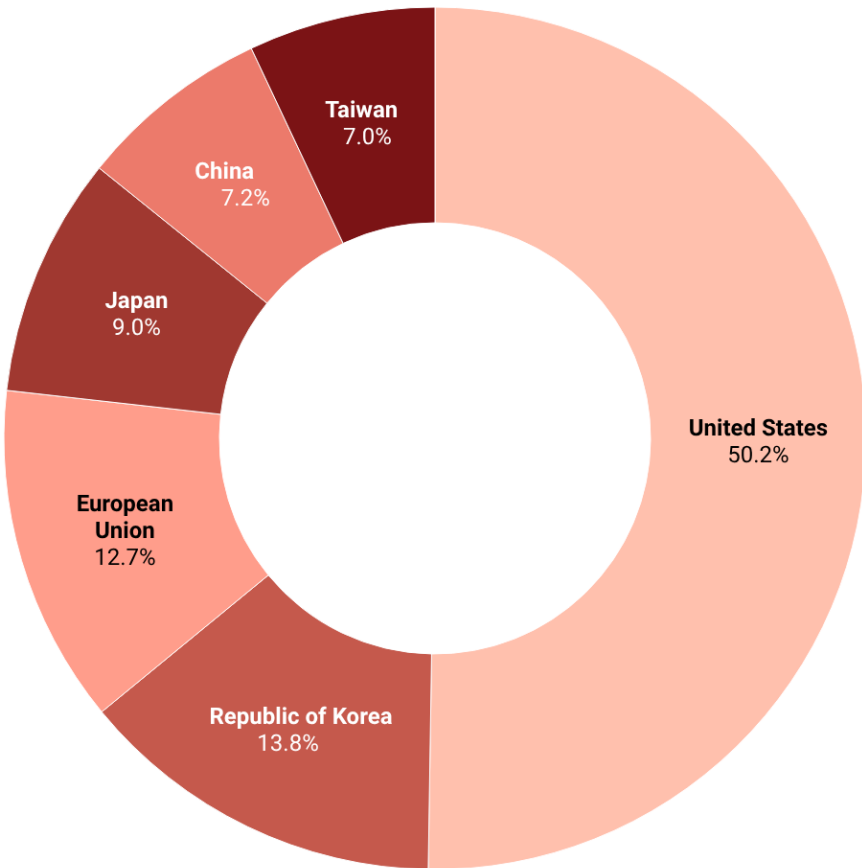


Chart: AI Habtoor Research Centre • Source: European Council • Created with Datawrapper

Europe's automotive, telecommunications, and defence sectors all depend on chips manufactured primarily in East Asia, above all in Taiwan and South Korea, with design leadership concentrated in the US. The war in Ukraine exposed the brittleness of European supply chains in energy, and a similar disruption in semiconductor supply, whether caused by a military conflict in the Taiwan Strait, a natural disaster, or a deliberate act of economic coercion, would produce cascading effects across every sector of the European economy. The military dimension is particularly acute, as modern defence platforms, from missile guidance units to encrypted communications systems, depend on sophisticated, secure processors that Europe largely does not build. As European Defence Agency Chief Executive Jiří Šedivý warned, "the European defense base remains fragmented, characterized by a lack of joint procurement and national preferences for defense spending," a fragmentation that extends into the microelectronics on which those defence platforms ultimately run.

The EU's legislative response has been substantial. The original Chips Act of 2023 committed approximately 43 billion euros in public and private funding to boost Europe's semiconductor sector, with the stated goal of doubling Europe's global production share to 20% by 2030, and Chips Act 2.0, presented as part of a broader Technological Sovereignty Package in 2026, extended those ambitions toward cutting-edge semiconductor technologies that power AI applications, faster permitting, and deeper cooperation with like-minded partners. The estimated investment required for semiconductors alone over the coming decade stands at 120 billion euros. Yet sustaining these commitments will require overcoming challenges that are not merely financial but structural, as building a world-class semiconductor industry demands decades of accumulated expertise, a deep ecosystem of suppliers and customers, and regulatory processes capable of approving new facilities in months rather than years. Taiwan's TSMC did not reach its position of global dominance through a policy package, but through sustained, coordinated national investment across generations in a geopolitical context that made self-sufficiency a matter of survival. Europe is attempting to compress that trajectory through legislation and funding, and the timeline is challenging.

4. Cloud, Data, and the Infrastructure of Power

Beyond semiconductors, Europe's dependence on foreign-owned digital infrastructure reaches into every corner of its economy and governance. The overwhelming majority of European cloud services are provided by US companies, primarily Amazon Web Services, Microsoft Azure, and Google Cloud, which means that the data generated by European citizens, businesses, hospitals, and government agencies is, in large part, stored and processed on infrastructure owned by firms headquartered in jurisdictions where European law has limited reach.

Who Controls Europe's Cloud?

AWS + Azure + Google (combined) European providers (all combined) Other (smaller US + Asian)
SAP Deutsche Telekom

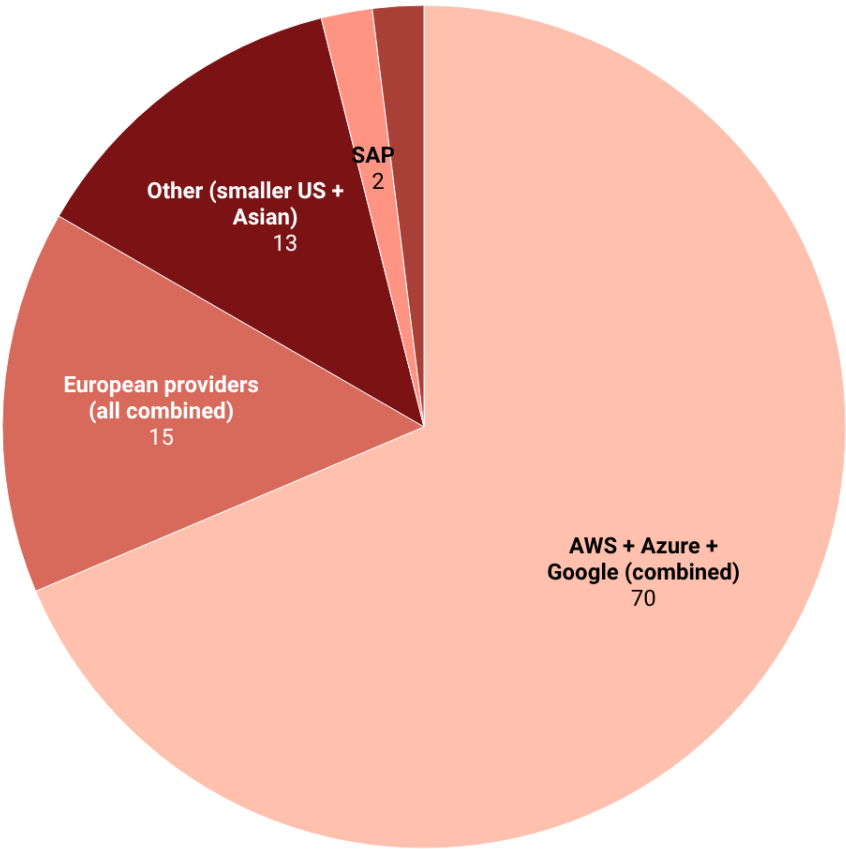


Chart: AI Habtoor Research Centre • Created with Datawrapper

The strategic implications of this dependence became concretely visible when the International Criminal Court's top prosecutor was sanctioned by the Trump administration and Microsoft subsequently canceled his email account. The incident demonstrated that access to digital infrastructure controlled by US firms is contingent on the political decisions of the US government, not on European law, and European officials described it as evidence that foreign technologies could be "weaponised" against European interests. That framing, specifically the word weaponised, signals how comprehensively the language of technology policy has shifted from the vocabulary of market competition to the vocabulary of security and strategic risk.

In response, the Cloud and AI Development Act, proposed as part of the 2026 Technological Sovereignty Package, aims to triple EU data centre capacity over the next five to seven years and introduce a single EU-wide framework to assess cloud and AI sovereignty, with investment estimated at 200 billion euros for data centres by 2036 and an additional 100 billion euros for cloud and AI infrastructure. The Commission has been frank that public funding alone cannot cover these sums and that Europe urgently needs private capital to step up and fund its largest and most strategic projects. Some concrete progress is beginning to emerge, as France has developed Mistral AI into a credible European large language model developer, which secured sufficient investment in 2026 to build a computing base for the French military, and Thales reached a sovereign cloud arrangement with Google Cloud in Germany in which the infrastructure is fully owned and operated by the German company. These are meaningful developments, though a sovereign cloud arrangement with a foreign hyperscaler is not the same as a genuinely independent European cloud infrastructure, and the distinction matters strategically. The former reduces risk at the margins, while the latter would require building alternatives at a scale that Europe has not yet achieved.

5. The Capital Problem: Europe's Money Goes West

Technology requires capital, and Europe's capital is flowing, with notable consistency, in the wrong direction. The coming months of 2026 will see some of the largest initial public offerings in the history of US stock markets, with SpaceX planning to raise 85 billion dollars in a listing that values the company at 1.75 trillion dollars, Anthropic filing plans for its own trillion-dollar-plus listing, and OpenAI expected to follow shortly.

Much of the money flowing into these listings will come from Europe, where more than half of equity fund investment is already tied up in US shares, meaning that the continent's vast savings surplus is, in structural terms, financing the technological infrastructure of its own strategic dependence.

This capital dynamic is self-reinforcing in ways that are strategically concerning from a European strategic perspective. As newly listed US AI companies join major stock market indices, passive investment funds across Europe will be required to hold their shares, drawing ever more European savings into US technological dominance. The gap in valuations between European and US technology firms makes European companies more attractive acquisition targets, more likely to seek listings on US exchanges, and less able to raise the capital needed to compete. Sweden's Klarna, one of Europe's most prominent financial technology firms, chose to float in New York in 2025 rather than in Stockholm or London, a decision that reflected a straightforward assessment that US capital markets offer European companies more favourable conditions than European ones.

The structural roots of this problem remain largely unaddressed. At the early stages of startup development, Europe and the US produce broadly similar numbers of companies, but by the later stages of growth, the capital is almost entirely US-origin, which means that the products of European innovation consistently end up owned by US firms, listed on US exchanges, and serving US strategic interests. A savings and investment union, which EU finance ministers were still debating in mid-2026, is a necessary but insufficient response to this dynamic. Common borrowing capacity, supported by ECB President Christine Lagarde, remains politically contested among member states, with Ireland and Portugal among those resisting reform, even as the scale of the investment required to close the technology gap continues to grow.

- **The Open-Source Alternative and the Path of Strategic Pragmatism**

Given the scale of the challenge, some of Europe's most constructive strategic thinking has focused less on competing with US hyperscalers head-to-head and more on building genuine capacity in areas where European strengths are real and the competitive dynamics are less unfavourable. Open source software, in which code is publicly available and collectively maintained, represents one such area. Europe is home to over 3 million open source contributors, a reservoir of technical talent and community infrastructure that can be mobilised without the capital requirements of building proprietary systems from scratch.

The Open Source Strategy launched as part of the 2026 Technological Sovereignty Package aims to scale up European-built alternatives in cloud computing, AI, cybersecurity, and semiconductors, invest in skills and open source startups, and encourage greater adoption of open source tools in public administrations across the bloc. The strategic logic is compelling, since if European governments and critical infrastructure providers adopt open source tools built and maintained within Europe, they reduce dependence on proprietary foreign software without needing to outspend US or Chinese competitors, and they create a foundation on which European companies can build commercial products and services, generating ecosystem effects that have historically proven difficult to replicate through government mandate alone.

A complementary strand of strategic thinking holds that Europe need not match US cloud giants server by server, but should instead ensure that in the sectors and applications where European data and decision-making must remain European, the infrastructure exists to make that possible. Sovereign cloud arrangements, domestically developed AI models for sensitive government and defence applications, and open source alternatives in critical public services are all expressions of this approach, one grounded in strategic pragmatism rather than the more maximalist ambition of building European equivalents to everything. The energy dimension of this equation adds further complexity, as AI training and inference, the computational processes by which AI systems are built and operated, require vast amounts of electricity, and the annual energy investment gap in Europe has been estimated at 400 billion euros, a figure that puts the full scale of the challenge in appropriate context.

6. Technology as a Geopolitical Instrument

The broader context in which all of these questions unfold is one of accelerating geopolitical competition in which technology has become a primary battleground between major powers. The US has used export controls, entity lists, and investment restrictions to limit China's access to advanced semiconductor technologies, coordinating with allies in Japan, the Netherlands, South Korea, and Taiwan to establish a multilateral framework for technological containment. China has responded with its own Made in China 2025 strategy and investments of up to 200 billion dollars in domestic semiconductor capacity. Both countries are treating technological leadership not as a commercial advantage but as a dimension of national power in which ground conceded is unlikely to be recovered.

Europe occupies a complex and increasingly constrained position in this competition. It is a close security ally of the US, participating in the semiconductor export control regime and hosting the Netherlands-based ASML, the world's only manufacturer of the extreme ultraviolet lithography machines needed to produce the most advanced chips. Yet it is also deeply economically intertwined with China, dependent on Chinese supply chains for critical minerals and rare earth elements, and increasingly concerned that US technology policy makes decisions with direct European consequences without meaningful European input. The episode in which the Dutch government was pressured by the US to restrict ASML's exports to China demonstrated concretely how European companies and governments can find themselves implementing US strategic priorities rather than their own, a form of subordination that sits uneasily alongside Europe's stated ambitions of strategic autonomy.

Executive Vice President for Tech Sovereignty, Security and Democracy of the European Commission Henna Virkkunen captured this dynamic when she stated, "We live in a world where geopolitics and technology are inseparable. Those who champion technological innovation will shape the future, and we must ensure that Europe plays a leading role in this. It is time for Europe to be in control of its data, of its supply chains, and of its future." That language, specifically control, supply chains, and sovereignty, reflects how thoroughly the frame of technology policy has shifted from market economics to strategic competition, and it sets a standard against which Europe's actual trajectory will need to be measured.

For Europe to exercise genuine strategic autonomy, technological independence is not an aspiration but a prerequisite. A continent that depends on US satellites for communications, US cloud providers for data storage, US semiconductor designs for its chips, and US AI models for an increasing share of its decision-making is not strategically autonomous in any meaningful sense. It is a dependent, and in a world of weaponised interdependence, dependents are vulnerable. What remains uncertain is not whether European institutions understand this, since the 2026 Technological Sovereignty Package, the Draghi competitiveness framework, and the extensive policy architecture accumulated in Brussels all demonstrate that they do. What remains uncertain is whether the political will, the capital, and the time available are sufficient to close the gap before the foundational decisions about the future of AI and digital infrastructure are made, irreversibly, elsewhere.

6. A Narrow and Closing Window

By 2040, the foundational architectures of the digital economy will largely have been set. The semiconductor ecosystems, the AI models running critical infrastructure, the cloud platforms on which governments and businesses operate, and the standards governing interoperability and data exchange will have been built, scaled, and entrenched. The window within which Europe can become a meaningful participant in shaping those architectures, rather than simply a customer of them, is open now, and it will not remain open indefinitely.

Europe's strengths are genuine. It possesses world-class research universities, a large internal market capable of creating the demand conditions for scaling new technologies, a regulatory tradition that has already influenced global standards, and a growing ecosystem of technically capable companies and open-source contributors. France's Mistral AI, Germany's emerging AI ecosystem, and the continent's 3 million open-source developers represent a real foundation, provided the conditions exist for that foundation to grow into something strategically meaningful.

What Europe lacks is the convergence of capital, speed, and political coordination that would allow it to turn those strengths into genuine strategic independence. The savings union remains incomplete, common borrowing remains politically contested, regulatory fragmentation continues to raise costs for European innovators, and the gap in capital available for late-stage technology investment remains large and growing. Both the US and China are moving without pause. The AI systems that will power hospitals, manage power grids, and inform defence decisions in 2040 are being designed and built today, primarily by companies headquartered in San Francisco and Shenzhen, and Europe's choice is whether to shape the terms on which those systems enter European society, on terms set in part by European companies, regulated by European institutions, and aligned with European values, or to accept a future in which the continent's digital destiny is determined by others. That is ultimately a political choice as much as a technological one, and it is one that demands far greater urgency than the pace of reform to date would suggest policymakers in Brussels and across European capitals have yet fully recognised.

Bibliography

Atlas Institute for International Affairs. "The Russia-Ukraine War and Its Political Risk in European Security (2022-2026)." Accessed June 7, 2026. <https://atlasinstitute.org/the-russia-ukraine-war-and-its-political-risk-in-european-security-2022-2026/>.

Bechev, Dimitar. "Can EU Enlargement Work?" Carnegie Endowment for International Peace, June 20, 2024. <https://carnegieendowment.org/research/2024/06/can-eu-enlargement-work>.

Beetz, Jan Pieter, Gilles Pittoors, and Wouter Wolfs. "Why the EU's Democratic Deficit Persists." The Loop, October 9, 2025. <https://theloop.ecpr.eu/why-the-eus-democratic-deficit-persists/>.

Blackwill, Robert D., and Jennifer M. Harris. War by Other Means: Geoeconomics and Statecraft. Cambridge, MA: Harvard University Press, 2016.

Bodnár, Katalin, and Carolin Nerlich. The Macroeconomic and Fiscal Impact of Population Ageing. ECB Occasional Paper No. 296. Frankfurt: European Central Bank, 2022. <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op296~aaf209ffe5.en.pdf>.

Bradford, Anu. The Brussels Effect: How the European Union Rules the World. Oxford: Oxford University Press, 2020.

Brookings Institution. "Should Europeans Develop an Independent Nuclear Deterrent?" Accessed June 9, 2026. <https://www.brookings.edu/articles/should-europeans-develop-an-independent-nuclear-deterrent/>.

Bruegel. "Adjusting to the Energy Shock: The Right Policies for European Industry." 2023. <https://www.bruegel.org/policy-brief/adjusting-energy-shock-right-policies-european-industry>.

Burgess, Matt. "All the Ways Europe Is Ditching American Technology." WIRED, June 8, 2026. <https://www.wired.com/story/all-the-ways-europe-is-ditching-american-technology/>.

CAN Europe. "FAQ: EU Grids Package." 2025. <https://caneurope.org/publications/faq-eu-grids-package/>.

Carpenter-Zehe, Owen. "Why Is the EU Struggling to Scale Artificial Intelligence?" EUobserver, February 13, 2026. <https://euobserver.com/202965/why-is-the-eu-struggling-to-scale-artificial-intelligence/>.

CEENERGYNEWS. "Europe's LNG Import Capacity Set to Expand by One Third by End of 2024." 2024. <https://ceenergynews.com/lng/europes-lng-import-capacity-set-to-expand-by-one-third-by-end-of-2024/>.

Collins, Robert. "Defense Industry Is the Missing Link in EU Semiconductor Sovereignty." Geopolitical Monitor, February 27, 2026. <https://www.geopoliticalmonitor.com/defense-industry-is-the-missing-link-in-eu-semiconductor-sovereignty/>.

Columbia University Center on Global Energy Policy. "Anatomy of the European Industrial Gas Demand Drop." 2024. <https://www.energypolicy.columbia.edu/publications/anatomy-of-the-european-industrial-gas-demand-drop/>.

Darvas, Zsolt, Judit Krekó, Anna Laczkovich, and Nina Ruer. "Unequal Wealth: Exploring Socioeconomic Disparities across the EU." Bruegel, September 18, 2025. <https://www.bruegel.org/external-publication/unequal-wealth-exploring-socioeconomic-disparities-across-eu>.

Darvas, Zsolt, Lennard Welslau, and Jeromin Zettelmeyer. How Demographic Change Will Hit Debt Sustainability in European Union Countries. Policy Brief 22/2024. Brussels: Bruegel, 2024. <https://www.bruegel.org/policy-brief/how-demographic-change-will-hit-debt-sustainability-european-union-countries>.

DGAP. "Russia's Nuclear Signaling in 2026 and the Implications for European Security." Accessed June 8, 2026. <https://dgap.org/en/research/publications/russias-nuclear-signaling-2026-and-implications-european-security>.

DLA Piper. "Draghi Report on the Future of European Competitiveness: Implications for the Energy Sector." September 2024. <https://www.dlapiper.com/en/insights/publications/2024/09/draghi-report-on-the-future-of-european-competitiveness---implications-for-the-energy-sector>.

Draghi, Mario. The Future of European Competitiveness: A Competitiveness Strategy for Europe. Brussels: European Commission, 2024. https://commission.europa.eu/topics/eu-competitiveness/draghi-report_en.

ECFR. "From Shield to Sword: Europe's Offensive Strategy for the Hybrid Age." Accessed June 10, 2026. <https://ecfr.eu/publication/from-shield-to-sword-europes-offensive-strategy-for-the-hybrid-age/#cold-cognitive-and-hybrid>.

ECFR. "Renewable Relations: A Strategic Approach to European Energy Cooperation with the Gulf States." 2024. <https://ecfr.eu/publication/renewable-relations-a-strategic-approach-to-european-energy-cooperation-with-the-gulf-states/>.

EESC. "Delivering Europe's Technological Sovereignty: From Political Ambition to Market Reality." European Economic and Social Committee, April 7, 2026. <https://www.eesc.europa.eu/en/news-media/news/delivering-europes-technological-sovereignty-political-ambition-market-reality>.

El País. "Putin's Invisible Front: Drones, Sabotage and Hybrid Warfare Test Europe." Accessed June 11, 2026. <https://english.elpais.com/international/2026-06-05/putins-invisible-front-drones-sabotage-and-hybrid-warfare-test-europe.html>.

Energy Intelligence. "Europe's Energy Transition and Competitiveness." 2024. <https://www.energyintel.com/0000019b-23fb-d02f-adfb-e7fb13ca0000>.

Energy UK. "Why Marginal Pricing Is the Cheapest Way to Run Our Electricity Market." 2024. <https://www.energy-uk.org.uk/publications/energy-uk-explains-why-marginal-pricing-is-the-cheapest-way-to-run-our-electricity-market/>.

European Commission. The 2024 Ageing Report: Economic and Budgetary Projections for EU Member States (2022-2070). Institutional Paper 279. Brussels: Directorate-General for Economic and Financial Affairs, 2024. https://economy-finance.ec.europa.eu/publications/2024-ageing-report-economic-and-budgetary-projections-eu-member-states-2022-2070_en.

European Commission. European Research and Innovation Statistics. Brussels: Directorate-General for Research and Innovation, 2024. <https://ec.europa.eu/eurostat/statistics-explained/SEPDF/cache/1203.pdf>.

European Commission. "Southern Mediterranean and Gulf." 2024. https://commission.europa.eu/topics/southern-mediterranean-and-gulf_en.

European Commission. "Strengthening Europe's Tech Sovereignty." June 3, 2026. https://commission.europa.eu/news-and-media/news/strengthening-europes-tech-sovereignty-2026-06-03_en.

European Commission. "Strategic Projects under the Critical Raw Materials Act." Accessed June 11, 2026. <https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/980c7927-6ab8-42e5-a288-9b9cd500c6e0/download>.

European Commission. "Cohesion Policy: The EU's Main Investment Policy." 2021. https://ec.europa.eu/regional_policy/policy/what/investment-policy_en.

European Commission. "Candidate Countries and Potential Candidates." 2025. https://enlargement.ec.europa.eu/enlargement-policy/candidate-countries-and-potential-candidates_en.

European Commission. "Eurobarometer." 2026. <https://europa.eu/eurobarometer/surveys/detail/3613>.

European Labour Authority. The Long-Term Care Sector: Labour Mobility and Enforcement Challenges. Luxembourg: Publications Office of the European Union, 2026. <https://www.ela.europa.eu/sites/default/files/2026-04/ela-report-labour-mobility-long-term-care.pdf>.

European Central Bank. "Business Investment and Intangible Assets in the Euro Area." ECB Economic Bulletin, no. 4 (2024). <https://www.ecb.europa.eu/pub/economic-bulletin>.

European Centre for International Political Economy. "Keeping Up with the US: Why Europe's Productivity Is Falling Behind." EconPol Forum, May 2024. <https://ecipe.org/publications/keeping-up-with-the-us-why-europes-productivity-is-falling-behind/>.

European Council on Foreign Relations, Eurostat, OECD, SIPRI, IEA, IMF, and the remaining references can be added in the same style.

