



A European Industrial Policy for Strategic Autonomy

by **Working Group on Industrial Policy**

This policy paper is the product of a working group composed of professionals with extensive experience in the design, management and comparative study of Italian and European industrial policies. The group has been meeting at Luiss and the Istituto Affari Internazionali (IAI) since autumn 2025. Its aim is twofold: to consolidate a shared body of knowledge across the different dimensions of industrial policy and to generate policy and operational proposals at both national and European levels. This policy paper is only the first contribution on which to build both an analytical agenda and a policy agenda.

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Industrial policy has returned to the centre of the global economic and political agenda

INTRODUCTION

In recent years, *industrial policy* has returned to the centre of the global economic and political agenda. Geopolitical tensions, exacerbated by the war in the Middle East, vulnerabilities in supply chains, technological competition and the twin green and digital transitions have marked the end of the long era of hyper-globalisation and near-exclusive reliance on market forces.

The United States and China have adopted strategies explicitly geared towards *technological leadership and strategic self-sufficiency*, through massive public investment, targeted subsidies, aggressive trade policies and the integration of national security and industrial development. The European Union, despite having embarked on a path towards strategic autonomy, has maintained a more limited and fragmented approach, leaving most industrial policies at national level.

Meanwhile, *global competition* is increasingly concentrated in a handful of high-growth sectors that are set to reshape the global economic balance of power by 2040: AI & Big Data, robotics, semiconductors, advanced mobility, life sciences, energy, defence and e-commerce. Projections point to particularly high compound annual growth rates (CAGR) for AI & Big Data and robotics, with market sizes expected to reach several trillion dollars.

The *macro-trends* driving these dynamics are structural: raw material scarcity, geopolitical tensions, climate change, digitalisation and demographic shifts. Global demand for semiconductors is expected to reach 1 trillion dollars by 2030, driven by artificial intelligence (AI) and data centres; over the next ten years, data centres' electricity requirements are expected to increase by 150 per cent; and military demand for AI is projected to exceed 30 billion dollars within three years. The *United States* holds the leading position in five of the eight high-growth sectors, while the *EU* leads only in energy and mobility – and not in their most innovative segments, such as electric and autonomous vehicles. *Italy*, for its part, holds global market shares below the average of its main European competitors and lags significantly behind in AI- and robotics-related sectors.

What is emerging, therefore, is a *competition for technological leadership* with economic, geopolitical and military implications. For Europe and Italy, what is at stake is not merely growth, but the ability to preserve economic sovereignty, job quality, social cohesion and strategic autonomy. Industrial policy is no longer optional: it is the instrument through which investment can be directed, industrial capacity rebuilt, climate and industrial policies integrated and long-standing gaps closed.

This is precisely why the *European dimension* appears the only level at which Europe can realistically face global competition.



Industrial policy must become a permanent component of Europe's capacity to act

The central question is whether Europe intends to be a player or a bystander in the new international transition. Industrial policy can no longer be regarded as an optional extra or a one-off response to successive crises; it must become a *permanent component* of Europe's capacity to act. Global competition is being reshaped around high-value-added technologies, advanced industrial capabilities, digital infrastructure, energy, critical materials and dual-use systems. In the absence of a coherent industrial strategy, the risk for Europe is not merely slower growth, but a progressive loss of autonomy over essential infrastructure: cloud computing, payment systems, satellite communications, computing capacity, defence and digital security. Strategic autonomy should therefore be understood as the *capacity to choose and decide* without being excessively exposed to external constraints, while at the same time preserving economic openness, manufacturing capacity and the Union's international role.

European industrial policy, however, should not be justified solely in the name of strategic autonomy or defence. It represents a *permanent public policy* for an advanced economy seeking to maintain a strong, innovative and competitive manufacturing base. *Manufacturing* remains where research and development, exports, technical expertise, productivity and the capacity to absorb innovation are concentrated. For Europe, starting from manufacturing means leveraging the principal asset it already possesses, rather than pursuing general-purpose technological models developed elsewhere. The objective is not to mechanically replicate the US or Chinese model, but to build a *European trajectory* in which AI, digital technologies, energy and critical materials strengthen existing industrial capacity and push its technological frontier forward.

This paper is structured around *three chapters*, which identify a number of *priorities* that, in our view, are essential to building an industrial policy with ambition and a long-term horizon.

The *first chapter* addresses the *cross-cutting enablers*: the inputs without which any industrial policy choice may well remain incomplete or unable to scale. First among these are *raw materials* and *energy*, the material foundations of industrial transformation. The working group has chosen to place *artificial intelligence* alongside them, treating it not as one sector among many, but as a genuinely cross-cutting technology. In this sense, artificial intelligence should be treated in the same way as the *general-purpose technologies* (GPTs) of previous industrial revolutions: an enabling force set to reshape the entire European industrial system.

The *second chapter* focuses on two *sectors* critical to Europe's competitiveness and strategic autonomy. The first is *space and defence*, which together form strategic infrastructure for security, telecommunications and transport. The second is *green technologies* – a heterogeneous but crucial set of technologies, ranging from



Raw materials, energy, AI and digital infrastructure should be regarded as components of a single industrial architecture

chemicals to biotech, that forms the industrial backbone of the energy transition.

The *third chapter*, finally, addresses the issue most often sidestepped in the European debate: *governance* and *instruments*. Industrial policy should be judged not only by its objectives, but by its capacity to deliver them. For this reason, the paper focuses explicitly on the “how”: the institutional architecture, financial instruments and operational mechanisms required to translate strategic priorities into practical and scalable measures.

1. CROSS-CUTTING ENABLERS

1.1 Strategic inputs

Raw materials, energy, AI and digital infrastructure should not be regarded as separate domains, but as components of a single industrial architecture. The availability of *critical materials* and *semi-finished products* shapes the production of green technologies, digital systems and defence components; *energy* determines the competitiveness of production processes and the sustainability of computing capacity; *AI* affects the organisation of manufacturing, logistics, design and security; *cloud*, *data storage*, *telecommunications* and *satellite infrastructure* form the material foundation of digital sovereignty. This requires an integrated industrial policy capable of combining energy policy, digital policy, economic security, defence, research and manufacturing, while overcoming fragmentation across sectoral policy areas and administrative responsibilities.

a) Critical raw materials

Critical raw materials – including so-called rare earths – form the material foundation of the green and digital transitions. Their criticality stems from a specific combination: high economic importance and substantial supply risk.

The first challenge is structural. Energy and digital technologies require far greater quantities of critical materials than the technologies that underpinned the twentieth-century economy. This requires not only greater industrial investment in Europe and Italy, but also a fundamental restructuring of *supply chains*.

A second challenge is the *geographical concentration* of these supply chains. Extraction and refining are concentrated in a small number of countries. *China* holds a dominant position across several stages of the value chain, controlling a large share of rare-earth extraction and refining as well as considerable shares of other strategic raw materials. Other crucial hubs include *Latin America* – which holds a major share of global reserves and is home to the “lithium triangle”



CRMs' criticality stems from a specific combination: high economic importance and significant supply risk

spanning Argentina, Bolivia and Chile – and *Africa*, where, for example, the Democratic Republic of the Congo dominates cobalt production, while South Africa is a leading producer of platinum and palladium. This geography of resources exposes Europe and Italy to economic and geopolitical vulnerabilities: price volatility, supply disruptions and the potential use of exports as a means of political pressure.

The problem, therefore, is not so much resource scarcity as *security of supply*. To address these vulnerabilities, the European Union adopted the Critical Raw Materials Act (CRMA) in 2024,¹ setting binding targets for 2030: at least 10 per cent of annual consumption from domestic extraction, 40 per cent from domestic processing and 25 per cent from recycling. The regulation also introduces a concentration threshold: for each strategic raw material, no more than 65 per cent of consumption may come from a single third country. The framework is designed to rebuild European industrial capacity across the entire value chain through strategic projects, diversified partnerships and supply-chain monitoring and stockpiling mechanisms. It is an ambitious framework that nevertheless is likely to reproduce *asymmetric relationships* with producer countries if such partnerships are not built around models of co-production and shared value.

Complementary initiatives include the proposal for a “Critical Raw Materials Club” among OECD and G7 countries and the launch, in July 2025, of the EU Energy and Raw Materials Platform, designed to aggregate European demand and strengthen the EU’s bargaining power in global markets.

In Italy, regulatory alignment began with Decree-law No. 84/2024,² which implements the European framework and introduces new national governance instruments. The approach, however, remains heavily focused on extraction, while policies for recycling, urban mining – the recovery of raw materials from waste – and the development of complete industrial value chains remain less developed.

This imbalance leaves the processing stages of the value chain exposed. European industry also depends heavily on *imports of semi-finished products*: partially processed materials that incorporate high-value-added production stages located abroad. The main categories of imported semi-finished products include steel products and base metals, such as crude or semi-finished steel and aluminium; semi-

¹ European Parliament and Council of the EU, *Regulation (EU) 2024/1252 of 11 April 2024 Establishing a Framework for Ensuring a Secure and Sustainable Supply of Critical Raw Materials*, <https://eur-lex.europa.eu/eli/reg/2024/1252/oj/eng>.

² Decree-law No. 84 of 25 June 2024: *Disposizioni urgenti sulle materie prime critiche di interesse strategico*, <https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legge:2024-06-25;84>.



Europe's vulnerability concerns its ability to maintain control over the processing, refining, manufacturing and distribution stages of the value chain

finished copper products; chemical and pharmaceutical products and plastics; as well as mechanical and automotive components. These are essential inputs for key sectors of European manufacturing – from automotive and engineering to construction – and their availability directly affects the continuity and competitiveness of industrial production.

The focus on critical raw materials must therefore be extended to strategic semi-finished products and intermediate industrial inputs, which are often less visible in the public debate but are crucial to maintaining continuity of production. Special steels, advanced alloys, metal components, processed materials and high-value-added intermediate products are essential to sectors such as defence, aerospace, automotive, advanced engineering, energy and digital infrastructure. Europe's vulnerability therefore concerns not only access to raw materials in their unprocessed form, but also its ability to maintain control over the *processing, refining, manufacturing and distribution* stages of the value chain. A European strategy should avoid inefficient duplication across member states and instead foster intra-European industrial interdependencies, building integrated and resilient value chains.

Securing access to critical raw materials therefore requires an explicit and coherent *European industrial policy* capable of overcoming the fragmentation produced by an excessive reliance on market forces.

Public action should focus on three strategic priorities:

- *Strengthen and diversify supplies* by rebuilding European capacity across the entire value chain – from extraction to recycling – and developing international partnerships based on security of supply, technology transfer and shared environmental standards. These efforts should be supported by public and private financial instruments capable of mobilising investment at scale.
- *Promote research, skills and circularity* by reducing dependence on critical inputs through technological innovation, stronger industrial capabilities and the development of European recycling and urban-mining value chains, particularly for batteries, waste electrical and electronic equipment (WEEE) and permanent magnets.
- *Integrate industrial and climate policy* by coordinating industrial, trade and climate instruments – from Important Projects of Common European Interest (IPCEIs) to the EU Emissions Trading System (EU ETS) and the Carbon Border Adjustment Mechanism (CBAM) – to develop European value chains in clean technologies and strengthen the Union's strategic autonomy.



Energy is set to become both a key enabler of and a potential constraint on Europe's technological transformation

b) Energy

The issue of strategic supplies is closely linked to *energy security*, which has returned to the centre of the European agenda following the shock triggered by Russia's war in Ukraine. Energy security refers to the ability to ensure a continuous supply of energy at affordable prices through sufficiently diversified sources capable of absorbing external shocks. The main dimensions of energy security include security of supply, infrastructure resilience, the degree of integration of the internal market and the geopolitical risks associated with the potential weaponisation of energy interdependencies.

The Union therefore faces the challenge of reconciling *competing objectives*: ensuring security of supply while accelerating the transition towards a low-carbon energy system.

Energy is set to become both a key enabler of and a *potential constraint* on Europe's technological transformation. The growth of artificial intelligence, data centres, high-performance computing and advanced manufacturing will increase demand for energy that is readily available, reliable and competitively priced. The *cost of energy* is therefore not merely a macroeconomic variable, but a direct determinant of European industry's ability to remain competitive. In this context, the increasing integration of major technology companies with energy infrastructure could further strengthen the position of global Big Tech, making a European strategy for renewables, energy storage, interconnections, smart grids and the electrification of consumption all the more urgent. *Nuclear energy* and next-generation technologies, including fusion, must remain a strategic and scientific priority. In the short and medium term, however, the priority must be to reduce energy costs, strengthen security of supply and scale up the integration of energy, industry and digital technologies.

Since 2022, the main policy framework has been the REPowerEU plan, which aims to *reduce energy dependence* on Russia through three measures: diversifying supply, increasing production from renewable sources and improving energy efficiency. Diversification has meant, above all, LNG from the United States and new pipeline agreements with Norway, Algeria and Azerbaijan. One of the most notable measures adopted during the crisis was the Gas Storage Regulation,³ which required member states to fill gas storage facilities to at least 90 per cent of capacity ahead of the winter season.

In 2023, the Commission also launched AggregateEU within the EU Energy Platform, with the aim of *aggregating European gas demand*

³ European Parliament and Council of the EU, *Regulation (EU) 2022/1032 of 29 June 2022 regard to Gas Storage*, <https://eur-lex.europa.eu/eli/reg/2022/1032/oj/eng>.



Fragmentation constitutes a structural weakness: Europe struggles to define a coherent and integrated energy model, risking continued dependence on technologies and infrastructure developed elsewhere

and facilitating engagement with international suppliers.⁴ The platform pooled around 43 billion cubic metres (bcm) of demand, but only 1 bcm was ultimately contracted – approximately 2 per cent – highlighting its *limited operational capacity*.

In parallel, the EU launched a *reform of the electricity market* to reduce the exposure of electricity prices to gas-price volatility and encourage greater use of long-term contracts for renewable power generation. The reform represents a compromise between countries that sought to decouple electricity prices from gas prices – particularly France, Spain and Greece – and those that wanted to preserve the marginal pricing system, including Germany, the Netherlands, the Nordic countries and Luxembourg. The result is a common legal framework that nevertheless leaves member states considerable room for implementation.

More broadly, despite the shared objective of reducing dependence on Russia, European countries have pursued different strategies, with widely varying timelines, instruments and levels of investment. The result is an energy system still characterised by *national asymmetries* and *incomplete integration*. This fragmentation constitutes a *structural weakness*: Europe struggles to define a coherent and integrated energy model, risking continued dependence on technologies and infrastructure developed elsewhere.

Initiatives have also been launched to develop low-carbon energy technologies, particularly in the fields of *renewable hydrogen* and *nuclear energy*. Through instruments such as the European Clean Hydrogen Alliance, the EU has promoted an extensive pipeline of projects across the entire value chain. However, the production costs of green hydrogen remain higher than those of fossil-based alternatives, while dedicated infrastructure and industrial demand remain limited. Nuclear energy can also contribute to system stability by providing low-carbon baseload electricity, but it remains a costly, complex and politically controversial technology in Europe. Attention is increasingly focused on small modular reactors (SMRs) and on extending the operational life of existing plants.

Reducing Europe's energy vulnerabilities also requires strengthening *energy infrastructure*. The revision of the TEN-E (Trans-European Networks for Energy) policy⁵ has realigned European priorities towards the development of electricity interconnections, offshore grids and hydrogen infrastructure. Some strategic corridors have already contributed to supply diversification, including

⁴ Council of the EU, *Regulation (EU) 2022/2576 of 19 December 2022 Enhancing Solidarity through Better Coordination of Gas Purchases, Reliable Price Benchmarks and Exchanges of Gas across Borders*, <https://eur-lex.europa.eu/eli/reg/2022/2576/oj/eng>.

⁵ European Parliament and Council of the EU, *Regulation (EU) 2022/869 of 30 May 2022 on Guidelines for Trans-European Energy Infrastructure*, <https://eur-lex.europa.eu/eli/reg/2022/869/oj/eng>.



Gas prices in Europe have almost doubled amid fears of greater competition between European and Asian buyers for global gas supplies

the Baltic Pipe between Norway and Poland and the Southern Gas Corridor (TAP-TANAP), while several member states have accelerated the construction of LNG terminals. Despite this progress, *substantial delays* remain: many cross-border interconnections are still incomplete, projects face permitting obstacles and the system's *storage and flexibility* capacity remains *insufficient*.

The result is that *European energy autonomy* remains limited. The effects of the escalation of the conflict in the *Middle East* illustrate this clearly: although the region accounts for only around 4 per cent of Europe's gas supply, gas prices in Europe have almost doubled amid fears of greater competition between European and Asian buyers for global gas supplies. The European economy therefore remains highly exposed to *energy shocks*. Gas accounts for around 39 per cent of final energy consumption in European industry, while road transport absorbs approximately 73 per cent of the oil used in the EU. Moreover, gas still frequently sets the marginal price of electricity, transmitting energy-price volatility throughout the economy.

Economic and technological competition increasingly hinges on the ability to transform energy into *computing capacity* and *industrial value*. In other words, energy, digital and industrial infrastructure are increasingly converging, and countries capable of integrating them effectively will enjoy a structural competitive advantage.

It follows that *energy security* and the *climate transition* are not alternatives, but dimensions of the same industrial strategy. Avoiding any backsliding on the objectives of the Green Deal is therefore essential. Accelerating the development of renewable energy sources and the electrification of consumption is now the main instrument for reducing external dependencies, containing energy costs over the medium term and strengthening European strategic autonomy.

To strengthen *energy resilience*, Europe must move beyond a purely emergency-driven approach and address the structural weaknesses of its energy system. This requires a targeted energy and industrial policy focused on four areas:

- *Reform energy taxation* to encourage greater reliance on clean energy sources and, in doing so, reduce dependence on fossil fuels.
- Expand European mechanisms to *support the electrification of consumption*.
- Accelerate *grid connections* and promote *greater digitalisation* of the grid through innovative approaches to infrastructure planning, financing and deployment.
- Increase investment in *energy storage systems* (ESS) and *gigafactories* to enable renewable energy production to scale, stabilise the electricity system and avoid creating new strategic dependencies.



AI is the “revolution of revolutions”, capable of replicating fundamental cognitive functions and transforming the organisation of industrial systems

1.2 Artificial intelligence

Artificial intelligence (AI) is not merely the latest stage in the evolution of digital technologies. It is the “revolution of revolutions”, capable of replicating fundamental cognitive functions and transforming the organisation of industrial systems. Data, and the ability to use it, will be among the key resources of the coming decades. Unlike previous technological waves, AI does not affect logistics or process automation alone: it is increasingly embedded in design, engineering, planning, pharmacology, defence and public administration. Its impact is therefore systemic and cuts across all sectors.

The global landscape, however, appears *highly asymmetric*. In 2024 alone, 40 new AI models were developed in the *United States*, fifteen in *China* and just three in *Europe*. This gap is not merely symbolic; it reflects a strong concentration of capital, infrastructure and risk appetite. The United States dominates five of the eight high-growth technology sectors, including AI & Big Data, while China is rapidly closing the qualitative gap through a strategy that combines industrial policy, industrial scale and strong state coordination between digital and manufacturing value chains. Beijing, in particular, is pursuing the *widespread adoption* of AI across its industrial base, with the aim of achieving integration levels of close to 70 per cent by 2030. The contrast with Europe is clear: while around 70 per cent of large European companies already use AI systems, adoption among small and medium-sized enterprises (SMEs) – which form the backbone of Europe’s industrial system – remains below 20 per cent.

In this competition, Europe’s economic strength lies in *manufacturing* and *export-oriented services*, not in the dominance of digital platforms. It is therefore unrealistic to assume that the Union could replicate a “Silicon Valley” model in the short term. It is not even clear that it should want to, given the contrast between European values and the degree of centralisation and politicisation that now characterises the Bay Area. Moreover, neither the United States nor China now competes exclusively in radical innovation: an increasing share of their technological effort is directed towards the widespread application of AI across industrial systems. It is precisely for this reason that Europe must develop its own trajectory – a ‘European way’ that draws on the major sources of innovation while leveraging the distinctive features of its industrial system.

As already emphasised, the central strategic choice is therefore not – as is often argued – whether Europe can replicate the American Silicon Valley model. It cannot, and probably should not even try, given the profound historical, institutional and industrial differences between the two contexts. The real challenge lies instead in Europe’s ability to develop a model of “*AI integrated into industry*”, in which artificial intelligence strengthens manufacturing, improves



productivity, enhances quality control, supports supply-chain resilience and reinforces the competitiveness of SMEs.

Therefore, avoiding passive technology adoption is essential. Many SMEs risk purchasing *costly, general-purpose AI solutions* that do not address their actual production needs, transferring value abroad without achieving major productivity gains and reproducing dynamics already observed in the platform economy. Europe should instead promote AI adoption built on targeted sectoral applications: manufacturing process optimisation, predictive maintenance, advanced materials modelling, logistics coordination and healthcare. These are the areas where *combining industrial expertise with computing capability* can generate real competitive advantage.

From this perspective, the *AI Factories model* promoted in Europe provides an important strategic reference: large-scale computing infrastructure anchored in regional ecosystems connecting research centres, startups and industrial clusters. This approach draws on Europe's historical strength in industrial clusters and can prevent innovation from becoming excessively concentrated in a small number of technology hubs, instead fostering the diffusion of AI across Europe's industrial regions.

The availability of computing infrastructure is not sufficient to ensure the adoption of artificial intelligence across the industrial system. One of Europe's key weaknesses lies in the relationship between public infrastructure, research and industrial demand. Supercomputers and AI Factories risk remaining predominantly research tools unless they are accompanied by mechanisms that facilitate their use by *businesses*, particularly SMEs and medium-sized manufacturing firms. Europe must therefore strengthen *industrial demand* for computing capacity, review the constraints that limit access to publicly funded infrastructure and build *intermediary services* capable of translating computing power into industrial applications. These challenges are compounded by a broader vulnerability: the absence of fully competitive *European operators* in cloud computing, data storage and telecommunications exposes businesses and public administrations to structural dependencies on non-European providers.

The ultimate objective is to turn artificial intelligence into a vehicle for modernising the European economic and social model. One of the main challenges is overcoming *intra-European infrastructure gaps*. Data centres, for example, remain highly concentrated: in 2024, Italy had 513 MW of installed capacity, compared with 1,995 MW in Germany and 714 MW in France. The relationship between AI deployment and energy requirements is equally critical. Global demand for computing capacity is set to accelerate further: generative AI could push the semiconductor market towards 1 trillion dollars by 2030, while data-centre energy consumption is projected to increase by more than 150

The ultimate objective is to turn artificial intelligence into a vehicle for modernising the European economic and social model



Europe possesses considerable assets, partly as a result of its industrial specialisation

per cent over the next decade. According to the International Energy Agency, by 2030 data centres and AI could consume an amount of electricity comparable to that of a large, industrialised country. The expansion of AI therefore entails substantial energy costs, which risk further exacerbating Europe's energy vulnerabilities.

At the same time, Europe possesses considerable assets, partly as a result of its *industrial specialisation*. The continent retains strong capabilities in industrial automation, high-performance computing and advanced manufacturing ecosystems. Companies such as ABB, Schneider Electric and Siemens have recorded more than 150 billion dollars in additional market capitalisation linked to demand for AI infrastructure. Italy hosts major *supercomputing* infrastructure and an AI Factory in Bologna. By connecting large-scale computing infrastructure with regional *ecosystems* of research centres, startups and industrial clusters, the AI Factories model itself draws on Europe's historical strength in industrial clusters.

Yet artificial intelligence cannot and should not remain concentrated in a small number of technology hubs; it must become an integral part of Europe's productive regions. This must take place while avoiding the passive adoption of technology.

Beyond the revitalisation of the manufacturing system, another important dimension concerns the potential contribution of artificial intelligence to the sustainability of the *welfare state*, which have long been under growing structural pressure. Population ageing and the rising prevalence of chronic diseases are increasing demand for healthcare, while public budgets are struggling to sustain continuously rising healthcare expenditure.

In this respect, AI can become a decisive tool for strengthening the resilience of healthcare systems. The Regulation on the European Health Data Space (EHDS), which entered into force in March 2025,⁶ represents a first step in this direction. Its objective is to make national electronic health records interoperable and facilitate the reuse of health data for research and innovation. According to European Commission estimates, more integrated data management could generate savings of up to 11 billion euros over a decade.

The applications of AI in *healthcare*, however, extend much further. In clinical settings, AI-based imaging systems can already detect abnormalities in X-rays, CT scans and MRI scans with levels of accuracy comparable – and sometimes superior – to those achieved by human experts. *Decision-support* tools integrate clinical and genetic data to inform diagnosis and treatment, with important applications in the early diagnosis of cancer, sepsis and rare diseases.

⁶ European Parliament and Council of the EU, *Regulation (EU) 2025/327 of 11 February 2025 on the European Health Data Space*, <https://eur-lex.europa.eu/eli/reg/2025/327/oj/eng>.



The adoption of AI in the governance of healthcare systems requires robust safeguards for transparency, accountability and public oversight

At the level of healthcare-system organisation, predictive algorithms can estimate patient flows, bed occupancy and staffing requirements, improving hospital planning. At the same time, the analysis of large genomic datasets is accelerating personalised medicine and drug discovery, while telemedicine and wearable devices enable continuous monitoring of patients with chronic conditions, shifting the focus of healthcare systems from treatment to prevention.

All these developments, however, raise substantial issues. The adoption of AI in the governance of healthcare systems requires robust safeguards for *transparency, accountability and public oversight*. The main challenge will be to prevent the digital transition from generating new inequalities: the risk of a “digital health divide” is real and could widen rather than reduce disparities in access to care.

Alongside ethical risks, *structural obstacles* also persist. Data fragmentation remains one of the main barriers: many hospitals use non-interoperable information systems and outdated digital infrastructure. This is compounded by a shortage of specialised skills – including data scientists, clinical engineers and healthcare technologists – within public institutions.

A further dimension concerns the direct implications of AI for *defence and security*. Military demand for AI could exceed 30 billion dollars within three years. In contemporary conflicts, technological innovation increasingly flows from the civilian sector into defence systems: without strong civilian technology ecosystems, European strategic autonomy will inevitably be weakened.

Underlying the potential applications of AI is the crucial question of *governance*. Less than 10 per cent of post-Covid State aid was managed directly by Brussels, while around 90 per cent was managed nationally. From the perspective of European industrial policy, such fragmentation risks weakening the EU’s capacity for coordination and limiting the scale and effectiveness of the measures themselves. The Competitiveness Compass (January 2025)⁷ identifies advanced computing, cloud infrastructure, data infrastructure and the application of AI to manufacturing as strategic priorities for the Union. Without common funding instruments, however, the resources available to pursue these ambitions may well prove insufficient against the scale of global competition.

The *Draghi report* (September 2024)⁸ estimates that Europe requires around 500 billion euros per year in additional investment to support the twin green and digital transitions. The European budget should be strengthened to at least 2 per cent of EU GDP, with greater resources

⁷ European Commission, *A Competitiveness Compass for the EU* (COM/2025/30), 29 January 2025, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52025DC0030>.

⁸ Draghi, Mario, *The Future of European Competitiveness*, September 2024, https://commission.europa.eu/node/32880_en.



for Horizon Europe and AI research. Additional instruments should include common debt for strategic competitiveness and the mobilisation of revenues from the ETS, CBAM and Innovation Fund. In conclusion, Europe's AI strategy should rest on five pillars:

- A major *expansion* of computing and energy infrastructure.
- The sectoral *integration of AI* into manufacturing and its widespread adoption by SMEs.
- *Common European instruments* for funding and governance.
- Technological *spillovers* between the civilian and military domains.
- The development of *human capital* combining industrial and digital skills.

2. STRATEGIC SECTORS

2.1 Space and defence

Defence and space can no longer be regarded as separate domains of public policy; on the contrary, they are increasingly strategic areas where industrial policy, technological sovereignty and geopolitical stability converge. Against this backdrop, the international context is unequivocal: between 2022 and 2025, global *military expenditure* grew by an average of 5.5 per cent per year, with increases of 10 per cent and 19 per cent recorded in two consecutive years. As a result, in 2024 global defence expenditure reached 1.96 per cent of world GDP, signalling a structural expansion of the military dimension within the global economy.

The *United States* has now surpassed 1 trillion dollars in defence expenditure, allocating around 40 per cent of this amount to research and development (R&D). In Europe, by contrast, R&D accounts for an average of around 20 per cent of defence budgets, resulting in a *structural gap* in innovation capacity. Within Europe, national trajectories differ: *Germany* will reach 108 billion euros in defence expenditure in 2026, equivalent to 2.83 per cent of GDP, with a further increase to 3.56 per cent expected in 2027; *France*, with 57 billion euros, maintains greater industrial coherence thanks to the role of national champions such as Dassault and Thales.

Nevertheless, Europe continues to be characterised by *significant fragmentation*. Defence systems across Europe still lack full interoperability, while ammunition and weapons are in many cases not fully compatible across national armed forces. The NH90 helicopter programme, developed in four distinct configurations, provides a striking illustration of the costs generated by excessive customisation along national lines: higher unit costs, reduced economies of scale and weaker overall competitiveness and strategic effectiveness.

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**Space must also
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At the same time, the very nature of conflict is undergoing a profound transformation. *Multi-domain operations* – integrating the land, maritime, air, space and cyber domains – require continuous information superiority and fully integrated electronic systems. Three key areas in particular require the development of new European platforms: air defence, satellites and the electronic integration of defence systems.

Space must also be recognised as a strategic domain in its own right. Programmes such as Galileo and Copernicus provide essential services for *high-precision geolocation* and Earth observation. Copernicus satellites in particular – including radar systems capable of operating at night and through cloud cover – have proved critical for both *emergency management* and strategic monitoring. Nevertheless, weaknesses remain: Europe still lacks a fully secure and autonomous communications constellation, while delays in launch programmes (Ariane, Avio) expose the continent to operational and industrial vulnerabilities.

Industrial capacity is inherently strategic and, in a sector where the loss of capabilities is often irreversible, Europe must pursue a long-term path towards industrial consolidation. A strong European single market is possible only through mergers, joint ventures and industrial agreements.

In this respect, *new alliances* are emerging across the European landscape.

One of the most important examples is industrial cooperation between Italy and France in the space sector involving Leonardo, Airbus and Thales, aimed at creating a new jointly controlled European satellite-systems company (“Project Bromo”). Another example is the Global Combat Air Programme (GCAP), a joint venture between BAE Systems (United Kingdom), Leonardo (Italy) and Japan Aircraft Development Corporation (Japan), with equal 33 per cent stakes, aimed at developing a sixth-generation air combat system by 2035. The programme seeks to avoid duplication by creating a single industrial project from the outset.

Other initiatives are underway. The Franco-German KNDS group (Nexter-KMW) develops joint projects covering tanks, artillery, ammunition and armoured vehicles. MBDA, Europe’s leading missile and defence-technology consortium, operates across the air, naval and land domains; Italy holds 25 per cent, the United Kingdom and France 37.5 per cent each. These different forms of cooperation show that integration is not only necessary, but also achievable in practice.

The European Council has also emphasised the need to strengthen *common standards and joint procurement* in the defence sector, calling on member states to make use of instruments such as Security Action for Europe (SAFE) for the joint procurement of weapons and military equipment. The programme provides for up to 150 billion euros in



Defence industrial policy must be conceived as part of a European security model, rather than as the sum of national policies

common debt to finance procurement according to a “*buy European*” principle. Without effective coordination and shared strategic priorities, however, the risk of spreading resources too thinly remains high. Defence industrial policy therefore cannot be limited to increasing budgets: it requires coordinated investment, common standards and the development of shared European capabilities.

In the defence sector, the decisive issue is not simply increasing resources, but how those resources are used. The *fragmentation* of programmes, the duplication of platforms and the persistence of national approaches risk turning higher spending into lower strategic efficiency. Europe must therefore move rapidly towards greater *industrial integration* and enhanced cooperation, prioritising common programmes, interoperable standards, shared platforms and complementary specialisations across member states. The coexistence of competing projects targeting similar capabilities, as in the case of next-generation air combat systems, illustrates the risk of dispersing resources and expertise at a time when European scale is a necessary condition for competing effectively. Defence industrial policy must therefore be conceived as part of a *European security model*, rather than as the sum of national policies.

Strategically, Europe must pursue four objectives:

- *Reduce fragmentation* through common standards and interoperability requirements. Integration cannot remain voluntary.
- *Align civilian and military technological ecosystems*. AI, semiconductors, cybersecurity and electronics must be treated as dual-use sectors.
- *Strengthen European space infrastructure* – launch capabilities, secure communications constellations and Earth observation – within a unified industrial strategy.
- *Integrate defence into the broader framework of European industrial financing*. This requires funding measures and mechanisms as well as financial resources commensurate with the challenges outlined above.

Defence industrial policy is not militarisation; it is *resilience*. Without scale, interoperability and integrated governance, larger budgets will not translate into *strategic autonomy*. Europe stands at a structural turning point. AI and the space-defence sector are not parallel agendas: they are converging pillars of sovereignty. The political challenge, therefore, is to ensure that Europe’s response is integrated, financed at scale and governed multilaterally, rather than fragmented along national lines. Only then can industrial policy become geopolitical strategy.



2.2 Green technologies

The term “*green technologies*” refers to the range of technological and organisational solutions that enable the decarbonisation of energy and industrial systems. Green technologies, however, can no longer be treated as a separate “environmental” component of public policy; they increasingly constitute a strategic domain in which economic growth, industrial competitiveness, value-chain security and geopolitical positioning converge. As the need to reduce reliance on fossil fuels grows, the balance of economic and strategic power is shifting towards control over critical technologies. Leadership in green technologies is therefore becoming a direct source of economic and geopolitical influence in a market expected to exceed 7 trillion dollars by 2030.

Among the enabling technologies of the energy transition, *energy storage* and *smart grids* are particularly important, as they are essential to ensuring the stability and flexibility of electricity systems with high shares of renewable energy. The intermittency of renewable sources requires storage capacity and smart grid infrastructure capable of managing increasingly decentralised and variable energy flows. In this context, control over storage technologies and advanced solutions for electricity-grid management represent not only technical requirements for decarbonisation but also strategic factors in industrial competitiveness and energy security.

Against this backdrop, the *European Union* has long held a leading position in several clean-technology segments, supported by a strong industrial base and intensive patenting activity. European companies remain major players in sectors such as wind energy, electrolyzers, grid technologies, heat pumps, biogas and sustainable fuels for aviation and maritime transport. The EU also continues to set *global standards* in the circular economy and retains a notable position in advanced manufacturing, supplying a substantial share of the machinery used in production lines worldwide. However, the international landscape is changing rapidly, and the EU cannot afford missteps.

Europe’s room for manoeuvre is now heavily shaped by developments in *China* and the *United States*, its two principal competitors in green technologies. China has made substantial advances in green technologies, consolidating a dominant position in both industrial capacity and innovation. This leadership is the result of a long-term industrial strategy characterised by massive investment in clean-energy supply chains, exceeding 650 billion dollars in 2024 alone. China now accounts for more than 71 per cent of all global green patent families, compared with substantially lower shares for the United States and the European Union.

In the United States, by contrast, the scaling back of green industrial policies under the second Trump administration has

Europe’s room for manoeuvre is now heavily shaped by developments in China and the United States, its two principal competitors in green technologies



The European Union has established a series of strategic frameworks to support the green transition

slowed investment in the clean-tech sector, reducing demand for European exports. As Chinese manufacturing overcapacity continues to expand, US trade barriers have contributed to diverting a growing share of Chinese exports towards the European market, intensifying competition within the region and increasing downward pressure on prices.

In response, the European Union has established a series of strategic frameworks to support the green transition. Through the Net-Zero Industry Act,⁹ the EU aims to strengthen clean-tech manufacturing, with domestic production of renewable-energy technologies expected to meet 40 per cent of EU deployment needs by 2030. Yet *net-zero manufacturing* in Europe remains structurally more expensive than in competing economies: China produces solar panels at around half the European cost, batteries at roughly one-third lower cost and wind turbines at costs around 20 per cent lower.

In parallel, the Clean Industrial Deal (CID)¹⁰ rightly identifies the main weaknesses of Europe's industrial base: high energy costs, subsidised competition and regulatory delays. In operational terms, though, it remains weak particularly on the creation of lead markets, the targeted use of subsidies and the deployment of trade-defence instruments. The CID is accompanied by a new *State aid* framework supporting industrial decarbonisation and clean technologies – the Clean Industrial Deal State Aid Framework (CISAF).¹¹ While the CISAF has potential, it does not yet introduce performance-based support mechanisms for production, nor does it attach conditions linked to European manufacturing or control over value chains.

A clear gap between ambition and implementation therefore remains. Instruments continue to be fragmented and predominantly *horizontal*, with public support concentrated either on the initial stages of R&D or on final deployment, leaving the intermediate manufacturing stage largely unsupported, despite its crucial role in achieving scale and global competitiveness.

IPCEIs play a distinct role: they are one of the main instruments for supporting large-scale innovation and infrastructure projects, particularly in hydrogen, renewables and batteries. Despite substantial funding – 37.2 billion euros over 2021-2027 – the impact of *IPCEIs* remains constrained by structural weaknesses. These include lengthy approval procedures, complex governance arrangements and

⁹ European Parliament and Council of the EU, *Regulation (EU) 2024/1735 of 13 June 2024 on Establishing a Framework of Measures for Strengthening Europe's Net-Zero Technology Manufacturing Ecosystem*, <https://eur-lex.europa.eu/eli/reg/2024/1735/oj/eng>.

¹⁰ European Commission, *The Clean Industrial Deal: A Joint Roadmap for Competitiveness and Decarbonisation* (COM/2025/85), 26 February 2025, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52025DC0085>.

¹¹ European Commission, *Framework for State Aid Measures to Support the Clean Industrial Deal* (C/2025/3602), 4 July 2025, <https://eur-lex.europa.eu/eli/C/2025/3602/oj/eng>.



Europe lacks a clear hierarchy of green industrial priorities shared at EU level and consistently reflected in national policies

the concentration of funding among large, established companies, often to the detriment of SMEs.

Europe therefore lacks a clear *hierarchy of green industrial priorities* shared at EU level and consistently reflected in national policies. Addressing this gap requires a common green industrial strategy backed by resources commensurate with the scale of the challenge. In this respect, although the 2028-2034 Multiannual Financial Framework (MFF) envisages allocating at least 35 per cent of the EU budget to climate objectives, the overall level of *funding* remains insufficient relative to the investment needed to achieve climate neutrality and compete internationally. In the absence of an adequate common fund, competition among member states in the provision of State aid is likely to favour countries with greater fiscal capacity, potentially distorting the single market and further reinforcing industrial asymmetries.

Targeted measures are therefore needed to strengthen the effectiveness of public action:

- Steer European demand towards *domestic clean-tech production*.
- *Simplify regulatory frameworks* and strengthen support for the manufacturing stage.
- Close the venture-capital funding gap and *improve coordination* across EU and national levels.
- Increase investment in *research and development*, with particular attention to the strategic sectors of energy storage and smart grids.

Without such measures, the green transition is in danger of remaining an ambitious regulatory project but an industrially fragile one – exposed to external shocks and unable to translate into genuine strategic autonomy.

3. GOVERNANCE AND FINANCIAL INSTRUMENTS

3.1 Multi-level governance

Building an effective European industrial policy depends not only on the availability of financial resources, but also on the ability to organise, coordinate and direct them through coherent *multi-level governance*. The transformations currently underway – the green transition, the digital revolution, energy security, the strengthening of defence and the rebuilding of strategic value chains – extend beyond the boundaries of national action and the instruments available nationally. At the same time, the actual implementation of industrial policies continues to depend significantly on member states, regional and local government, public administrations and local industry. The European challenge, therefore, is not to choose



The European challenge is to build an institutional architecture capable of effectively integrating the European, national and regional levels

between supranational and national levels, but to build an institutional architecture capable of effectively integrating *European, national and regional levels*, assigning clear and complementary functions to each.

Integration across levels of government should not be understood simply as a top-down strengthening of the European level. Effective industrial policy instead requires a *networked architecture*, in which the Commission, member states, regions, public banks, universities, research centres and local industrial systems participate in defining and implementing industrial missions. Vertical policies are necessary to concentrate resources on priority technologies and value chains, but they must be accompanied by mechanisms that allow policies to be adapted to local conditions, assess their effectiveness, ensure democratic accountability and engage industrial ecosystems. From this perspective, governance is not merely administrative coordination, but the capacity to build mission-based agreements across institutional levels, *avoiding both national fragmentation and a centralised approach* that is blind to the industrial specificities of individual regions.

In recent years, one of the main weaknesses of European action has been precisely the gap between strategic ambition and implementation capacity. The Union has defined increasingly ambitious common objectives – from climate neutrality and technological sovereignty to economic security – without sufficiently equipping itself with centralised instruments for funding, coordination and implementation. The result has often been a combination of *common European policy priorities and highly differentiated national implementation*, shaped by differences in fiscal capacity, industrial priorities, administrative quality and available expertise. Without more robust multi-level governance, European industrial policy is in danger of becoming an unequal sum of national initiatives, resulting in fragmentation of the internal market, duplication of efforts and widening asymmetries among member states.

Governance is particularly problematic in Italy. *Italy* is one of Europe's leading manufacturing countries, but it is structurally weak at coordinating industrial, energy, technology and local policies. The splitting of responsibilities across ministries, central administrations, regions and implementing bodies makes it more difficult to establish stable priorities, assess outcomes and support complex industrial projects. In particular, the *separation of responsibilities* across industrial, energy, environmental, digital and research policies risks weakening the country's ability to participate effectively in European strategies. A coherent national industrial policy would therefore require a single, authoritative institution able to coordinate the various policy levers and to engage continuously with the European Commission, the European Investment Bank (EIB), national promotional banks, businesses and the regions they operate in.



The European level must ensure coherence between industrial policy, trade policy, competition policy and climate objectives

Effective multi-level governance should instead rest on a clearer functional division. *At European level*, the task is to define common strategic priorities, identify the technologies and value chains in which Europe must maintain a strategic presence and mobilise resources at scale to develop common research and innovation infrastructure in strategic sectors. The European level must also ensure coherence between industrial policy, trade policy, competition policy and climate objectives, as well as a level playing field within the single market. *At the national, regional and local levels*, the task is to adapt these priorities to different industrial contexts, promote project implementation, strengthen industrial value chains, support investment and develop the necessary skills. From this perspective, governance is not merely an administrative dimension, but the mechanism through which strategy, investment and implementation capacity are connected.

This approach is also critical from a financial perspective. Mobilising European and *national public resources* requires governance structures capable of setting priorities, avoiding thinly spread funding and concentrating resources on genuinely strategic areas. Similarly, mobilising *private resources* requires a stable, predictable and coordinated regulatory framework capable of reducing uncertainty and directing capital towards long-term investment. Without credible governance, even potentially effective financial instruments – from a strengthened European budget and common debt to the EIB and capital markets – risk failing to generate sufficient critical mass or being dispersed across fragmented, short-term initiatives.

The issue of *capabilities and skills* also falls squarely within a multi-level governance framework. Contemporary industrial policy requires public administrations capable of planning, evaluating and supporting complex investments, but also firms and local economies equipped with the human capital needed to absorb innovation, integrate new technologies and participate in knowledge-intensive European value chains. For this reason, governance must encompass not only the coordination of resources, but also the development of widespread institutional, technical and professional capabilities through closer integration among the Commission, member states, universities, research centres, public banks, investors and local industrial systems.

Ultimately, multi-level governance is the enabling condition for transforming European industrial policy from a collection of sectoral programmes and objectives into a genuine strategy for strategic autonomy. Without coordination across levels of government, adequate financial instruments and capabilities spread across the system, Europe risks continuing to produce regulatory ambition without sufficient industrial capacity. By contrast, more integrated governance can connect public and private resources, administrative



Alongside a stronger ordinary budget, one-off common financing instruments are needed

capabilities and strategic priorities. That is how Europe builds the *critical mass* it now needs to compete with the United States and China in the sectors that will shape the next economic cycle.

3.2 Public funding

Revitalising European industrial policy requires a step change in the *public resources* available. The scale of the transformations underway – the green transition, the digital revolution, the strengthening of common defence and the rebuilding of strategic value chains – entails exceptional investment needs, estimated at hundreds of billions of euros per year.

The current structure of the European budget appears structurally inadequate to meet these objectives. The *Union's budget* must be strengthened to at least 2 per cent of EU GDP, while expenditure should be redirected more decisively towards innovation, research and strategic technologies. Programmes such as Horizon Europe should be expanded, particularly in areas related to artificial intelligence, high-performance computing, semiconductors, energy and defence.

Alongside a stronger ordinary budget, one-off common financing instruments are needed. The issuance of *European debt* for industrial competitiveness is an essential means of mobilising resources at the required scale and avoiding the fragmentation of projects and programmes among member states with different fiscal capacities.

Common debt instruments should not be conceived as an emergency response, but as a *structural lever* of European industrial policy. Without adequate common resources, industrial policy is likely to fragment into 27 different national strategies, shaped by the uneven fiscal capacity of member states. This would exacerbate internal asymmetries, weaken the single market, and encourage disorderly competition over State aid. Common debt geared towards *competitiveness* should instead finance genuinely common European infrastructure, technologies and value chains, based on shared criteria, stable governance and the capacity to select projects of high strategic relevance. Consideration should also be given to establishing a permanent European institutional body capable of turning common debt into a lasting instrument for industrial investment.

Resources generated by European *climate and fiscal instruments* – such as ETS and CBAM – can also play a central role and should be used more systematically to support the development of value chains in strategic sectors of the green economy and the digital transition.

Finally, existing instruments for major European industrial projects, starting with *IPCEIs*, need to be reformed and strengthened. These instruments should provide for structural co-financing by the Commission, broader participation by companies from all



Europe must systematically mobilise its private savings, which remain insufficiently channelled towards strategic investment

member states and the extension of support mechanisms to the industrialisation stage, rather than limiting them to research and development. Only through a combination of a strengthened budget, common debt instruments, and the strategic use of climate-related resources will Europe be able to achieve the critical mass required to compete with the United States and China in high-growth sectors.

A further instrument for strengthening the Union's investment capacity is the *EIB*, which can play a key role in financing European industrial policy. A *targeted recapitalisation* by member states would significantly increase the volume of investment that could be mobilised, given the EIB's leverage – estimated at around three times the capital provided. The EIB could thereby channel resources towards strategic projects in the energy transition, digital technologies, critical infrastructure and defence, helping to close the financing gap with Europe's main global competitors.

3.3 Private funding

Financing a new European industrial policy cannot rely exclusively on public resources. Europe must systematically mobilise its *private savings*, which remain insufficiently channelled towards strategic investment. Around 70 per cent of European household savings – amounting to almost 10 trillion euros – remain held in bank deposits, while a considerable share of European capital is invested in financial markets outside the EU.

The Commission's *Savings and Investments Union*, proposed in March 2025,¹² seeks to address this weakness by connecting European private savings with industrial investment. For now, however, it remains primarily a strategic framework rather than a genuine capital union commensurate with the scale of Europe's industrial challenge.

The creation of a genuine *single market for capital* is therefore a strategic priority. This lies at the heart of the Letta report¹³ and is carried forward in the Draghi agenda: the single market remains incomplete precisely where it is most needed – in energy, defence, finance and innovation. Possible instruments include:

- A *European Individual Savings Plan*, supported by national tax incentives, to encourage investment in EU public and private markets.
- A *pan-European long-term savings product*, building on the existing pan-European personal pension product, capable of pooling long-

¹² European Commission, *Savings and Investments Union. A Strategy to Foster Citizens' Wealth and Economic Competitiveness in the EU* (COM/2025/124), 19 March 2025, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52025DC0124>.

¹³ Letta, Enrico, *Much More than a Market*, April 2024, <https://www.consilium.europa.eu/media/ny3j24sm/much-more-than-a-market-report-by-enrico-letta.pdf>.



Mobilising private capital requires workable instruments and greater institutional intermediation capacity

term capital across member states.

- *Tax incentives* for pension funds investing in the European real economy and strategic value chains.
- Greater consolidation of the European *asset management* sector, which remains excessively fragmented, through increased cross-border mergers and acquisitions and further harmonisation of insolvency and tax rules.

Mobilising private capital requires *workable instruments* and greater institutional intermediation capacity. It is not enough to state that European savings should be directed towards the real economy: Europe must build vehicles, guarantees, funds and incentives capable of reducing investors' perceived risk and directing patient capital towards infrastructure, strategic technologies and the scaling up of European companies. Within this framework, *national promotional banks* can play a decisive role, acting both as credible market participants and as instruments of industrial policy. They can mobilise private resources, support public administrations in structuring projects and help align national and European objectives. Particular attention should also go to helping European companies grow in size, since the fragmentation of Europe's industrial base constrains productivity, access to capital markets and the ability to scale innovation.

The objective is not to replace public intervention, but to complement it through a structural partnership. Without the capacity to mobilise capital at European scale, there can be no strategic autonomy: only a fragmented set of national policies shaped by unequal financial capacities and incapable of competing with economic systems that operate at global scale.

3.4 Public-private capabilities

The new phase of industrial policy requires not only financial resources, but also a substantial strengthening of *capabilities and skills*.

Over recent decades, the scaling back of public intervention has weakened administrative capabilities in industrial planning, project assessment and the management of complex policy instruments. For a European and national industrial strategy to be effective, *public administrations* must once again play an active role: not merely as regulators, but as facilitators, investors and strategic partners for businesses. This requires:

- Advanced technical expertise in *emerging sectors*.
- The capacity for rigorous *economic and industrial assessment* of projects.
- *Knowledge* of global value chains and geopolitical dynamics.
- Greater professionalisation in the management of European funds



Human capital must become one of the central pillars of industrial policy

and public-private partnerships.

At the same time, the *industrial system* must also strengthen its skills, particularly among SMEs, which risk adopting advanced technologies in a passive rather than strategic manner. The diffusion of artificial intelligence, robotics and digital technologies requires human capital with *hybrid skill sets* capable of combining industrial and digital expertise.

Human capital must become one of the central pillars of industrial policy, rather than an afterthought. In recent years, many incentive policies have focused on the acquisition of technologies, machinery and infrastructure, while neglecting the capacity of businesses and public administrations to absorb, adapt and effectively use them. Instead, the digital and industrial transitions require *managerial, technical and organisational skills* capable of redesigning manufacturing processes, integrating AI into manufacturing, managing data and digital infrastructure, participating in complex European projects and developing credible technological alternatives. Without these skills, even the availability of capital and infrastructure could produce only limited effects. Industrial policy should therefore include targeted instruments for *advanced training*, strengthening capabilities within public administrations and developing *hybrid professional profiles* spanning industry, digital technologies, energy and research.

Finally, administrative instruments themselves need to be addressed. Cutting red tape, accelerating decision-making and ensuring transparency in the use of public resources are essential for rebuilding *business confidence*. Innovation in administrative processes, including the use of artificial intelligence to prepare and evaluate calls for proposals, can generate *efficiency gains*.

The governance of industrial policy is therefore not merely a question of institutional architecture or financial resources: it is a matter of *collective capacity*. Without effective integration between public capital, private capital and widespread capabilities and skills, Europe and Italy will be unable to play a leading role in the sectors that will determine economic leadership over the coming decades.

3.5 Enhanced cooperation: Building European critical mass

The instrument of *enhanced cooperation* (Article 20 TEU; Articles 326-334 TFEU) allows at least nine member states to advance European integration even in the absence of unanimity among all 27. It is a mechanism provided for by the Treaties, but one that has so far been used with considerable caution. Yet in the field of industrial policy, it could represent one of the most effective instruments currently available to the Union. Enhanced cooperation enables a group of countries to launch common initiatives in areas where consensus at



Recent bilateral initiatives point to a growing willingness among member states to pursue deeper industrial coordination in smaller coalitions

EU level is not yet sufficiently mature, preventing decision-making from becoming paralysed while allowing new forms of integration to be tested.

Recent bilateral initiatives point to a growing willingness among member states to pursue deeper industrial coordination in smaller coalitions. Germany and Italy have launched a bilateral working group on *European competitiveness*, with the aim of promoting regulatory simplification for businesses and defining new forms of cooperation in advanced industrial sectors.¹⁴ A similar initiative was launched between France and Germany the previous year as part of their bilateral summit.

These developments suggest that European industrial cooperation should not be conceived solely in *bilateral terms*, but also as the progressive construction of a broader geoeconomic space. Italy and Germany could form the initial core of this process, but the coalition would be considerably more effective if extended, depending on the sector, to other countries with strong industrial and technological specialisations. France would be a natural partner for consolidating a manufacturing and innovation triangle capable of bringing together industry, defence, aerospace, energy and advanced technologies. At the same time, countries such as the Netherlands and Belgium are central to logistics, ports, value chains and capital markets; Spain can play a decisive role in energy, grids and the green transition, while Poland and other Central European countries represent an essential component of the *European industrial base*, particularly in manufacturing integration, components and the economic security of Europe's eastern flank.

These moves matter: they reflect a growing recognition among Europe's leading industrial countries that the national scale is no longer sufficient to address the technological and geopolitical transformations underway. But recognition alone is not enough. If Europe genuinely intends to close the gap with the United States and China, the countries with the greatest industrial weight must take the initiative, building operational coalitions capable of launching industrial and technological projects at European scale. *Italy and Germany* could play a central role in this process. Together, they constitute the Union's two largest manufacturing economies and account for around 40 per cent of European industrial production. Their industrial bases are deeply integrated: bilateral trade exceeded 155 billion euros in 2024, mutual foreign direct investment exceeds 100 billion euros and more than 2,000 Italian companies operate in Germany, generating combined annual revenues of around 90 billion euros.

It is worth emphasising that the objective is not to create an

¹⁴ Italian Government, *First Meeting of the Informal Working Group on European Competitiveness*, 12 February 2026, <https://www.governo.it/en/node/31110>.



The real alternative is not between openness and autonomy, but between autonomy and passive dependence

exclusive inner circle or to fragment the Union further. On the contrary, starting with a smaller group of countries could generate a *catalytic effect*, demonstrating through practical initiatives that the main challenges to European competitiveness are now shared. From this perspective, enhanced cooperation can become an instrument for building European critical mass, launching initiatives capable of gradually attracting other member states and, over time, evolving into common policies for the Union as a whole.

3.6 Strategic partnerships: Beyond free trade

The European debate on industrial policy risks becoming trapped in an unproductive and outdated choice between openness and strategic autonomy, as if the two were incompatible objectives.

The real alternative is not between openness and autonomy, but *between autonomy and passive dependence*. For an economy such as Europe's – exposed to vulnerabilities in the supply of raw materials and global competition over key technologies, yet still too slow to mobilise capital at scale – closing itself off would not be a strategy for security, but a strategic mistake. The challenge is different: to open up more effectively by transforming external economic agreements into *strategic partnerships* capable of addressing Europe's structural weaknesses.

The *EU-Mercosur agreement* provides a telling example of this evolution. Even though it has yet to be ratified, it already includes provisions aimed at ensuring sustainable supplies of critical raw materials, helping to diversify sources of supply and reduce Europe's dependence on dominant suppliers, particularly China. At the same time, the chapter on trade and sustainable development seeks to balance trade liberalisation with environmental safeguards and labour and social rights. Here, Mercosur should be seen not simply as an export market for European companies, but as a strategic partnership for inputs essential to the green and digital transitions – an integral part of the geopolitical infrastructure of European industrial policy rather than a traditional trade agreement. Precisely because of its strategic nature, however, the agreement remains politically controversial and its path towards ratification in Europe remains uncertain. Divisions among member states reflect persistent differences over the role of international trade in Europe's industrial strategy.

The case of *India* is, in this respect, even more significant. It illustrates how the Union's external agreements are progressively moving beyond the traditional logic of free trade. In 2025, the EU-India Trade and Technology Council strengthened cooperation on trusted technologies, economic security and AI.¹⁵ Within the same

¹⁵ European Commission, *EU and India Deepen Strategic Engagement in Second Trade and*



**Contemporary
trade negotiations
increasingly
incorporate strategic
dimensions**

framework, cooperation between the European AI Office and the IndiaAI Mission also deepened. In early 2026, the partnership took a further step forward: the 16th EU-India Summit established a new strategic agenda centred on critical technologies, innovation and talent mobility, while also launching exploratory discussions on India's possible association with Horizon Europe.¹⁶ Particularly significant is the 2026 Mobility Pact, designed to facilitate the mobility of students, researchers and skilled professionals between India and the EU's 27 member states.¹⁷ It is the first agreement of its kind concluded by India at bloc level with an external partner. In practice, the pact could mark a turning point in the management of talent flows from India to Europe, adding a human-capital dimension to the broader EU-India economic partnership.

In relations with *China*, the strategic nature of Europe's new trade policies emerges particularly clearly. The failure to advance the Comprehensive Agreement on Investment (CAI)¹⁸ has left unresolved the fundamental problem of a highly unbalanced economic relationship, characterised by a large Chinese trade surplus and a relatively limited presence of Chinese direct investment in Europe. Revisiting and updating the substance of the CAI could provide a basis for a more sustainable rebalancing, promoting greater reciprocity in market access and creating favourable conditions for Chinese investment that contributes to European manufacturing capacity. Seen this way, the objective would not merely be to reduce trade asymmetries, but to steer the partnership towards greater industrial integration. That would strengthen Europe's position in global value chains and turn an unbalanced relationship into a driver of growth and innovation.

These developments clearly indicate that contemporary trade negotiations are no longer limited to removing tariff barriers. They increasingly incorporate strategic dimensions: access to raw materials, technological cooperation, research and development, clean technologies and skills mobility. In this way, economic openness and strategic autonomy cease to be alternatives and instead become complementary elements of the same strategy.

Europe needs to change the way it thinks about trade: no longer an ideology, but an *instrument of industrial policy*.

Technology Council, 28 February 2025, <https://digital-strategy.ec.europa.eu/en/node/13409>.

¹⁶ European Commission, 16th EU-India Summit: Advancing Our Strategic Partnership across Trade and Defence, 27 January 2026, https://ec.europa.eu/commission/presscorner/detail/en/ip_26_227.

¹⁷ European Commission, Towards 2030: A Joint European Union-India Comprehensive Strategic Agenda, 27 January 2026, https://ec.europa.eu/commission/presscorner/detail/en/statement_26_224.

¹⁸ European Commission, EU and China Reach Agreement in Principle on Investment, 30 December 2020, https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2541.



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