

Sustainable Transitions and Competitiveness: Policy Directions for the European Union and Italy

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Europe's sustainable transitions have entered a new phase in which environmental ambition, industrial competitiveness and economic security can no longer be treated as separate policy agendas. This policy paper argues that the success of the digital, energy and industrial transitions will depend on Europe's capacity to combine innovation, regulatory predictability, effective implementation and investment mobilisation, and multi-level governance. Drawing on EU strategic documents, interviews and a comparative analysis of the cases of Italy, Greece, Romania and Sweden, it examines three sectors in transition: automotive, energy and tobacco. The automotive sector shows the tension between decarbonisation targets, supply-chain resilience and affordability. The energy sector shows how the transition has moved from a climate-policy issue to a security and competitiveness issue. The tobacco sector is analysed as a case of endogenous industrial transition driven by technological innovation, differentiated regulation and supply-chain upgrading. The policy paper concludes that Europe needs a pragmatic transition paradigm able to align sustainability, competitiveness and industrial capacity.

This study analyses the relationship between sustainable transitions and competitiveness in the European Union 2024-2029 institutional cycle. Its starting point is the convergence between the EU Strategic Agenda 2024-2029,¹ the Commission's political guidelines,² the Letta report on the future of the Single Market,³ the Draghi report on European competitiveness⁴ and the Competitiveness Compass presented by the Commission in January 2025.⁵ Taken together, these documents point to a common policy concern: the EU can preserve its social, environmental and regulatory model only if it strengthens its industrial base, its capacity to innovate and its ability to mobilise investment at scale.

The paper therefore treats transition as political-economic processes, not merely as technical adjustments. The green and digital transitions remain central to the European agenda, but they are no longer sufficient as a policy grammar. The current cycle requires a broader paradigm that includes industrial restructuring, energy security, capital-market integration, technological advancements and regulatory adaptation. Sustainability and competitiveness should be regarded as mutually dependent conditions. Without competitiveness, transition become socially and politically fragile, while, without sustainability, competitiveness is exposed to energy shocks, resource constraints and future regulatory costs.

¹ European Council website: *Strategic Agenda 2024-2029*, last reviewed on 24 June 2026, <https://www.consilium.europa.eu/en/european-council/strategic-agenda-2024-2029>.

² von der Leyen, Ursula, *Europe's Choice. Political Guidelines for the Next European Commission 2024-2029*, Strasbourg, 18 July 2024, https://commission.europa.eu/media/58570_en.

³ 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>.

⁴ Draghi, Mario, *The Future of European Competitiveness*, September 2024, https://commission.europa.eu/node/32880_en.

⁵ 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>.

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The research focuses on three sectors that make these tensions visible. The automotive industry illustrates the difficulty of reconciling decarbonisation, employment, production scale and the security of battery and raw-materials supply chains. Energy shows how the transition has moved from a climate-policy issue to a security and competitiveness issue, especially after Russia's war against Ukraine and the volatility generated by the conflicts in the wider Middle East. Tobacco is examined as a case of firm-led industrial transformation driven by private investment, technological innovation, differentiated regulation and supply-chain transformation.

Countries such as Italy, Greece, Sweden and Romania provide relevant case studies for understanding the heterogeneity of production models and transition policies. A comparative analysis of these experiences makes it possible to identify transferable policy lessons, common obstacles and specific opportunities to strengthen competitiveness in the new European landscape. Methodologically, the paper has been realised thanks to a desk research conducted between the end of 2024 and the beginning of 2025, and to more than twenty interviews with representatives from public and private sectors over the 2025.

The challenge for the EU and its member states is to implement national strategies consistent with European priorities, enhancing productive assets and accelerating the adoption of high-tech solutions, taking into account potential economic shocks or geoeconomic shifts (such as new transatlantic disputes and related tensions). In a rapidly evolving geopolitical context – marked by intensifying global tensions, the redefinition of transatlantic relations and the growing prominence of the security economy – this study aims to identify concrete strategies and proposals capable of guiding European institutions and national governments in the design of integrated, inclusive and growth-oriented industrial policies.

The objective of the paper is to identify the most effective strategies to strengthen the role of Italy – and other European countries – in promoting competitive, sustainable and inclusive growth. Particular attention is devoted to the role of the private sector – and especially of rapidly transforming industries – as a crucial partner in achieving a competitive, sustainable and technologically advanced transition. The study also draws from analyses carried out by scholars from other European think tanks specialised in transition processes and their economic, diplomatic, social and labour impacts. In the concluding part policy recommendations are provided; they are addressed, in particular, to the national governments of the countries analysed (with a particular focus on Italy) and to European institutions.

1. Systemic transitions: Definitions and case studies

The ongoing transitions in Europe require technical and regulatory adjustment to new global challenges together with a profound rethinking of the European economic model. They unfold within a deeply transformed regulatory and political context marked by persistent international crises – notably the wars in Ukraine and, more recently, the turmoil in the Middle East – and by global dynamics of economic fragmentation, as demonstrated by the return of aggressive tariff policies and deepening trade tensions between key actors such as the United States and China.

To approach the topic, it is first necessary to agree on a definition of the concept of transitions by adopting an interdisciplinary approach which includes all relevant dimensions (social, cultural, institutional or political, economic, ecological and technological). The study also considers all the major sectors involved and the public and private actors that influence and shape system dynamics.⁶

The processes of change that characterise the transitions at both regional and global levels are non-linear and have heterogeneous objectives as they involve complex interactions between the micro-level (local and national dimension), the macro-level (international), and the meso-level, within which social norms, interests and rules underpin the strategies and policies of companies, organisations and institutions.⁷

⁶ Kugler, Jacek and A.F.K. Organski, "The Power Transition: A Retrospective and Prospective Evaluation", in Manus I. Midlarsky (ed.), *Handbook of War Studies*, Boston, Unwin Hyman, 1989, p. 171-194.

⁷ Geels, Frank W., "Technological Transitions as Evolutionary Reconfiguration Processes: A Multi-Level Perspective and a Case-Study", in *Research Policy*, Vol. 31, No. 8-9 (December 2002), p. 1257-1274, [https://doi.org/10.1016/S0048-7333\(02\)00062-8](https://doi.org/10.1016/S0048-7333(02)00062-8).



The European Union is called upon to rethink its strategic priorities and to strengthen its internal resilience and external projection. Transitions today take on a dual nature: they are exogenously driven, as they are pushed by external variables – such as energy shocks, disruptions in value chains, geoeconomic tensions – that impose urgent and profound adjustments, but also endogenous, as they are promoted by European institutions and industrial actors through political strategies and targeted investments.

This dual engine – reactive and proactive – guides the evolution of European policies towards a paradigm of permanent transition, in which constant adaptation to the global context is combined with a long-term strategy aimed at strengthening strategic autonomy, industrial innovation and the Union's global competitiveness. However, as also emerged from discussions and interviews with experts and stakeholders from both the public and private sectors within this research, the concept of transition remains vague and poorly anchored to clearly defined time horizons. It is often interpreted in technical terms, as technological and regulatory evolution, but its social, environmental and productive impact is less clear. Transitions do not occur uniformly, and their outcomes remain uncertain: while some sectors benefit from them, others are adversely affected.

Academic and political science literature has devoted significant attention to the debate about green and digital transitions.⁸ Both remain fundamental pillars of the European strategic discourse. However, a systemic and three-dimensional vision is needed: one that complements the green and digital transitions with a full recognition of the crucial role played by the industrial and technological transition. This calls for a rethinking of value chains, production models and the overall economic structure.

This approach contrasts with a growing regulatory and communicative tendency to treat the “twin transition” (green and digital) as the exclusive and self-sufficient horizon of European change.⁹ Such simplification risks obscuring the tensions, asymmetries and industrial challenges affecting the European economy. Productive reconversion, supply chain resilience, strategic autonomy in key sectors and the integration of sustainability into business models can no longer be considered mere by-products of the other two transitions: they are autonomous transitions, with their own specificities, needs and dynamics.

Including the industrial dimension within the transition agenda therefore means recognising that European competitiveness is also determined by the ability to reconfigure the production system, upgrade skills, redirect investments and innovate in a sustainable way. It also means moving beyond the idea that innovation is exclusively technological and digital, and acknowledging its organisational, institutional and territorial value. In this perspective, multi-level governance and proactive industrial policies become essential components of an effective, equitable and resilient transformative strategy.

Over the past twenty years, the European Union has established itself as the most ambitious diplomatic and regulatory actor, particularly in the field of decarbonisation. Since the “20-20-20” climate and energy strategy,¹⁰ the EU has sought to position itself as a global pioneer and has projected itself as a regulatory and diplomatic actor in decarbonisation. Moreover, in the current geopolitical context, and in light of evolving transatlantic relations with the United States under the second Donald Trump administration, EU institutions have repeatedly stressed that strengthening the single market is more than ever an urgent strategic imperative, alongside the objective of reducing excessive national barriers. At the same time, the European Commission has emphasised other urgent reforms: simplifying rules, diversifying trade, relaunching technological research and promoting the international role of the euro. At the national level, European countries continue to display their own specific interests and idiosyncrasies, while remaining committed to strengthening the European economy.

Considering all these complexities, three key sectors are analysed in this paper: the automotive sector characterised by a high decarbonisation potential and strong regulatory pressure; energy, which has a

⁸ See also Arnold, Erik et al., “Navigating Green and Digital Transitions: Five Imperatives for Effective STI Policy”, in *OECD Science, Technology and Industry Policy Papers*, No. 162 (November 2023), <https://doi.org/10.1787/dffb0747-en>.

⁹ On twin green and digital transitions see among others Muench, Stefan et al., “Towards a Green & Digital Future: Key Requirements for Successful Twin Transitions in the European Union”, in *JRC Science for Policy Reports*, 2022, <https://doi.org/10.2760/977331>.

¹⁰ European Parliament and Council of the EU, *Directive 2009/28/EC of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources*, <https://eur-lex.europa.eu/eli/dir/2009/28/oj/eng>.



markedly systemic and geopolitical impact; and tobacco as an example of endogenous transition driven by technological innovation. All these sectors are analysed by considering the following indicators: a) the role of the different regulations in shaping transitions; b) the composition of the energy mix with particular attention to the share of low-emission sources; c) the key role played by technological innovation, through investments in research and development, in addressing the socio-economic impact and prompting the creation of skilled employment.

Furthermore, the research adopted a methodological framework structured in three phases.

Phase 1: Desk research – An extensive and systematic review was conducted of the main European strategic documents, including the Strategic Agenda 2024-2029,¹¹ the European ‘Plan for Prosperity’,¹² the Letta and the Draghi reports, as well as regulatory, scientific and technical documents regarding transition processes. This has made it possible to build a solid analytical framework to highlight the links between transitions, competitiveness and strategic autonomy from a multi-level perspective.

Phase 2: Semi structured qualitative interviews – The second phase has involved a series of interviews with industrial policy experts, institutional representatives, economic stakeholders and academics. The main findings that emerged are the following:

The need to set binding yet realistic targets, refraining from unattainable ambitions. For example, the Kyoto Protocol, and the subsequent agreements, despite their limitations, have demonstrated that clear and shared objectives can be effective. Today, however, the risk is that the costs of transitions are not coupled with visible benefits, which generates increasing resistance.

The marked disparity between transitions. While the digital transition is advancing also thanks to business-driven momentum and the availability of sizable public funding, the energy and industrial transitions depend on complex political decision-making, often slowed down by strategic uncertainties or national resistance.

The role played by several global actors including big powers such as the United States, which have reneged on their commitments to decarbonisation and other multilateral endeavours. Such events as withdrawal from multilateral frameworks or suspension of WHO funding during the Covid-19 pandemic, trigger a domino effect giving rise to international free riding that undermines international cooperation.

The urgency of strengthening competent public private partnerships with a strategic vision and capable of addressing transitions in a pragmatic rather than ideological manner.

The automotive and tobacco sectors are emblematic, as well. In the automotive sector China has secured strategic positions in photovoltaics and electric mobility through close integration between industry and the state thanks to long-term investments. Europe, by contrast, has undertaken fragmented efforts, ending up in a position of dependence. In the case of tobacco, industrial reconversion and innovation that have focused on heated tobacco products, represent an example of endogenous transition driven by private investment, applied research and a transformation of consumption models. However, without an adequate regulatory and policy approach that supports sustainable industrial transition pathways for the tobacco sector these efforts risk remaining marginalised. A coordinated action across value chains and industries is therefore necessary to enhance responsible innovation, integrate new supply chains and ensure that the technological solutions developed can effectively contribute to sustainability objectives.

The lack of effective conditionality in European support programmes. In the absence of clear objectives, many companies tend to use transition-related funds and investments only according to profit driven logics. Some interviews conducted for this research show that the green transition, for instance, is often interpreted more as a funding opportunity than as a transformative challenge.

Phase 3: Comparative analysis of case studies – The comparison focuses on four European countries which were selected based on criteria of productive, political and geographical differentiation: Italy, an industrial power with strong energy intensive sectors and manufacturing; Greece as a case of post-crisis reconversion that is emerging as an energy hub; Romania as a transition economy integrated into European value

¹¹ European Council website: *Strategic Agenda 2024-2029*, cit.

¹² von der Leyen, Ursula, *Europe's Choice*, cit.



chains; and Sweden as an example of an economy that has made rapid progress in the fields of innovation, digitalisation and sustainability.

The analysis also revolved around three conceptual vectors.

1. *Innovation as a key enabling condition for every form of transition.* However, the mere presence of technological innovation does not guarantee a positive impact. Clear rules, stable support policies and the capacity for rapid and large-scale deployment are required. The green transition, for example, may prove precarious if it remains dependent on external supply chains.
2. *Competitiveness* is no longer understood solely as a major factor of economic performance, but also as entailing the capacity to anticipate, guide and sustain innovation. Successful cases show that integration between business, finance and industrial policy can generate structural advantages, while lack of coordination can result in delays or dependencies.
3. *Multi-level governance.* The effectiveness of transitions depends on the capacity for coordination across several institutional levels. Weak and inefficient governance undermines the entire process. The research has also highlighted the paramount importance of public administration accountability – an often-neglected requirement – which is key to holding public officials responsible for the management of funds allocated for transformative policies.

The adopted methodological framework makes it possible to interpret transitions as political and systemic challenges, whose success depends on an interdependent set of factors, including clarity of objectives, institutional capacity, multi-level coordination, strength of public private partnerships, and the capacity to give innovation a strategic direction.

2. The transition in the new European cycle

Regarding the active debate on competitiveness, a first assumption that we can mention is that in a global order increasingly shaped by the economic and technological dimensions of power, what is at stake is the Union's ability to sustain growth, strengthen its industrial base and consolidate its strategic role.

The most recent European documents offering strategic orientations, including the Draghi and Letta reports commissioned by the European Commission,¹³ emphasise that the central issue is the construction of an effective European economic sovereignty. This implies the ability to compete on a global scale through an integrated strategy based on technological innovation, skills development, strengthening of the industrial base and completion of the single market, particularly in services, energy and capital. Reducing regulatory fragmentation and deepening the Capital Markets Union emerge as essential conditions to enable European firms to grow, invest and scale.

Recent reflections on the future of Europe also highlight the need to confront a reality in which industrial policy, economic security and access to critical technologies have returned to the core of power strategies.¹⁴ The EU is therefore called upon to complement its traditional regulatory strength with more effective tools for investment mobilisation, industrial coordination and market integration. In this perspective, competitiveness represents a key enabling condition for the green, digital and industrial transitions and for the overall resilience of the European model in a highly competitive global environment. The Commission is therefore required to accompany the transitions' ambitious goals with a systematic effort to strengthen the industrial competitiveness.

¹³ Draghi, Mario, *The Future of European Competitiveness*, cit.; Letta, Enrico, *Much More than a Market*, cit.

¹⁴ Dullien, Sebastian, "European Industrial Policy in the 2020s: Rationale, Challenges and Limitations", in *Intereconomics*, Vol. 59, No. 5 (September/October 2024), p. 249-253, <https://doi.org/10.2478/ie-2024-0051>; Veugelers, Reinhilde, "An Innovation-Based Industrial Policy for the EU", in *Intereconomics*, Vol. 59, No. 5 (September/October 2024), p. 254-261, <https://doi.org/10.2478/ie-2024-0052>; Naumann, Fabrice and Monika Schnitzer, "Rationales for Industrial Policy in the Semiconductor Industry", in *Intereconomics*, Vol. 59, No. 5 (September/October 2024), p. 262-266, <https://doi.org/10.2478/ie-2024-0053>; Wolf, André, "Framework Conditions for Net-Zero Industry Clusters in Europe", in *Intereconomics*, Vol. 59, No. 5 (September/October 2024), p. 267-272, <https://doi.org/10.2478/ie-2024-0054>.



Within this framework, the Open Strategic Autonomy, a key concept in the European lexicon, provides the overarching framework to address the challenges of economic security, technological sovereignty and autonomous productive capacity.¹⁵ The Savings and Investments Union¹⁶ assumes a central role as a crucial tool for transition: as a political lever to connect retail investors with diverse opportunities, to provide small and medium-sized enterprises (SMEs) and innovative companies with expanded, non-bank alternatives for equity and debt financing, and to support strategic EU objectives like the European Green Deal,¹⁷ digital transformation, and defence. The Commission relaunched the plan to integrate capital markets with the Capital Markets Union 2020 Action Plan,¹⁸ initiating a phase of progressive regulatory strengthening that culminated between 2022 and 2023 in a series of targeted legislative packages. These include several objectives such as support a green, digital, inclusive and resilient economic recovery by making financing more accessible to European companies; make the EU an even safer place for individuals to save and invest long-term; integrate national capital markets into a genuine single market. The paramount aim is to make European capital markets deeper, more liquid and more integrated, thereby mobilising private savings in support of industrial, technological and green transitions.

The Competitiveness Compass presented in January 2025 by the Commission,¹⁹ which builds on the recommendations put forward by Mario Draghi in his report on the future of European competitiveness, outlined the fundamental pillars to unlock EU full potential and drive faster, more sustainable growth. These include closing the innovation gap, by for example helping younger companies to start and expand and supporting the development of new technologies; decarbonising the European economy, putting forward the Clean Industrial Deal,²⁰ to help reduce carbon emissions; and reducing dependencies through a new range of clean trade and investment partnerships to help secure supply of raw materials, clean energy, sustainable transport fuels, and clean tech from across the world. These imperatives are considered as essential for defining a European competitiveness compass capable of ensuring a fully realised sustainable and digital transition, a knowledge-based economy grounded in research and frontier technologies, a deep and resilient single market, and a workforce equipped with the skills needed to address the ongoing dual transformation.

In this framework, innovation is an enabling condition for every form of transition, whether ecological, digital, productive or financial, and for the relaunch of European industrial competitiveness. Only through strong investment in innovation, supported by more decisive public action, integrated industrial policies and strategic use of public procurement, will it be possible to prevent Europe from slipping into a marginal position vis a vis major global power.

In his report to the European Commission, Mario Draghi stressed all these elements and warned that Europe risks a structural competitive decline unless it simultaneously addresses the productivity gap with the United States and China, market fragmentation and insufficient investment in strategic technologies.²¹ Draghi has underlined that the European problem is not a lack of savings, but the inability to channel them into productive investments at a sufficient scale. He has also highlighted that the green and digital transitions will require a volume of annual investment significantly higher than current levels, stressing

¹⁵ Baroncelli, Eugenia and Sinan Ülgen, "EU Open Strategic Autonomy and the Future of the Global Economic Order", in Rosa Balfour and Sinan Ülgen (eds), *Geopolitics and Economic Statecraft in the European Union*, Washington, Carnegie Endowment for International Peace, 2024, p. 29-50, <https://carnegieendowment.org/research/2024/11/geopolitics-and-economic-statecraft-in-the-european-union>.

¹⁶ On the Savings and Investments Union as an EU framework to connect household savings with productive investment, deepen capital markets and support financing needs linked to climate, technological and geopolitical challenges, see European Commission DG Finance website: *Savings and Investments Union*, last updated on 17 July 2026, https://finance.ec.europa.eu/node/1642_en.

¹⁷ European Commission, *The European Green Deal* (COM/2019/640), 11 December 2019, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52019DC0640>.

¹⁸ European Commission, *A New Circular Economy Action Plan. For a Cleaner and More Competitive Europe* (COM/2020/98), 11 March 2020, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52020DC0098>.

¹⁹ European Commission, *A Competitiveness Compass for the EU*, cit.

²⁰ 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>.

²¹ Draghi, Mario, *The Future of European Competitiveness*, cit.



the need for common European instruments and a truly integrated capital market.

The issue of scale is at the core of Draghi's interventions. In a context dominated by large technological and industrial conglomerates supported by assertive public policies, member states appear structurally undersized. According to Draghi, the response cannot be a return to misaligned national policies, but rather a qualitative leap in single market integration, the creation of European champions and the coordination of industrial policies. Without sufficient critical mass, the Union risks remaining an aspirant global regulator without the needed industrial capacities.

In the same vein, Enrico Letta has stressed that the incompleteness of the single market constitutes today a structural constraint on European competitiveness, preventing the creation of pan-European firms of sufficient scale and the efficient mobilisation of capital, talent and ideas.²² Innovation becomes a bridge between resilience and growth, capable of making the transitions required by the new global context both sustainable and feasible. As in the case of technological transformations in manufacturing, productive reconversion in traditional sectors, or modernisation of public administration, the relaunch of European competitiveness depends on the ability to govern change, promote innovation ecosystems and turn transitions into an opportunity for advancement rather than decline.

However, the shift from the European Green Deal to the Competitiveness Deal, although marked by greater attention to the productive dimension, has not yet resolved some structural weaknesses of European transition policies. Based on the interviews conducted for this study, the most relevant concern is the absence of precise and binding conditionalities in public funding mechanisms, capable of ensuring the use of resources in a coherent and measurable way. Many European programmes remain too generic so that funds formally allocated to decarbonisation or the green transition are often diverted towards profit-oriented objectives, without verification of expected outcomes. This lack of accountability contributes to widening the gap between political ambition and the actual effectiveness of adopted measures in key industrial sectors. A different dynamic can be observed in the case of the digital transition or in strategic sectors such as tobacco, where, unlike the green transition, change is often driven directly by firms, even in the absence of strong public conditionalities. The tobacco sector, despite being subject to strict and stringent regulation, has in recent years been able to drive a value-based transformation toward a more sustainable model of production, while safeguarding the supply chain and employment levels and undertaking significant innovation in research and skills.

This imbalance among the different pillars of transition raises questions about the overall coherence of the European innovation efforts, in a global context in which other actors, such as the United States, adopt industrial and climate policies that give priority to geopolitical competition.²³ Furthermore, the multilateral framework appears increasingly fragile. Conferences of the Parties continue to produce formal climate commitments, but the international context is marked by growing fragmentation among economic and technological blocs. It is paradoxical that in managing global public goods such as climate, which would require structured cooperation and shared governance, competitive logics are increasingly emerging, with industrial policy instruments used to consolidate national or regional strategic advantages. These dynamic risks narrowing Europe's room for manoeuvre, as it remains strongly anchored to a regulatory and multilateralist approach.

The automotive sector provides another example. As also highlighted in the Italian economic debate, the growing penetration of Chinese electric vehicles into the European market raises issues of industrial scale, production costs and access to battery value chains and critical raw materials. China has consolidated a competitive advantage through a combination of industrial planning, vertical integration and public support, while European industry faces the simultaneous challenge of technological transition, regulatory pressure and international competition. In this context, the risk for Europe is twofold: losing market share

²² Letta, Enrico, *Much More than a Market*, cit.

²³ For example, the 2022 Inflation Reduction Act (US Congress, *H.R. 5376, Public Law 117-169*, 16 August 2022, <https://www.congress.gov/bill/117th-congress/house-bill/5376>) has inaugurated a phase of large-scale subsidies and fiscal incentives capable of attracting capital and reshaping the geoeconomics of innovation. The US political debate shows how climate policy can be rapidly subordinated to industrial policy and economic security priorities.



in emerging segments and remaining dependent on external supply chains in strategic nodes of electric mobility.²⁴

In order to respond to the tension between climate ambition, industrial competition and geopolitical fragmentation, the European perspective thus appears to align with the concept of geo-dirigisme, that is, public intervention aimed at protecting and enhancing key value chains, which emphasises the strategic role of European institutions in steering the economic and industrial development of the continent.²⁵ This reflects an integrated logic and is manifested in the adoption of policies aimed at ensuring control over value chains and emerging technologies. There is a clear need for a stronger public role in research and technological development as well as in the strategic procurement of European technological products to strengthen EU competitiveness. This dirigiste approach is widely seen as a necessary response to protectionist policies and large-scale investments by other global powers in strategic sectors.

A more integrated single market and the promotion of pan European industrial champions are essential to ensuring that Europe can compete effectively at the global level, while maintaining its strategic autonomy and promoting sustainable and inclusive economic growth.

This approach is also crucial to addressing, among others, the green and digital transitions, as regulatory fragmentation and cross-border barriers risk undermining productivity and innovation. In particular, the Draghi report highlighted the need to harmonise spectrum allocation and national regulations in the telecommunications sector to create a cohesive European market, thereby facilitating the development of advanced technologies such as artificial intelligence. This points to the importance of a coordinated European strategy to successfully navigate current economic and technological transitions.

Box 1 Europe's strategic autonomy has to build upon industrial strength – not slogans

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Still struggling with the aftereffects of the 2010s' polycrisis, Europe in the 2020s is now facing geopolitical volatility with existential threats and circumstances changing. One answer by the European Union was the concept of strategic autonomy – to (re)gain a more active global role rather than just observing from the sidelines a rapidly evolving multipolar (dis)order.

There are different understandings and expectations regarding the extent of strategic autonomy and how to achieve this objective. However, most agree that a strong, competitive industrial basis is key – rooted in digital innovation, low-carbon technology, and the advantages of a dynamic single market. It is also clear that Europe should not fall prey to those siren calls, which seek salvation in unilateralism and protectionism. The following thoughts aim to elaborate on what a specific European approach can look like by strengthening resilience while maintaining a balanced openness to other partners.

The Single Market: Our untapped superpower

The most obvious sources of wealth are often overlooked because you take them for granted. It is both annoying and deplorable that a project dating back to the Treaties of Rome in 1957 remains unfinished: the creation of a truly Single European Market. The big four freedoms are still hindered by barriers to services, fragmented capital markets, and uneven rules that hold back European and international innovators and investors, preventing business ideas from scaling and growing into an economically feasible size. Currently, innovative European businesses often face the unpleasant choice of leaving for external markets, primarily the United States, at a comparatively early stage of development, or remaining

²⁴ Huang, Françoise et al., *Testing Resilience. Allianz Trade Global Survey 2023*, 1 June 2023, https://www.allianz-trade.com/en_US/insights/allianz-trade-global-survey-2023.html.

²⁵ Seidl, Timo and Luuk Schmitz, "Moving on to Not Fall Behind? Technological Sovereignty and the 'Geo-Dirigiste' Turn in EU Industrial Policy", in *Journal of European Public Policy*, Vol. 31, No. 8 (2024), p. 2147-2174, <https://doi.org/10.1080/13501763.2023.248204>.



economically underperforming. The advantage of our main competitors, the United States and China, is their huge domestic markets, which serve as breeding and testing grounds before going global. So far, Europe cannot be fully exploiting its large single market of 450+ million citizens. The double transformation – green and digital – can only succeed in a unified space of economic exchange, ruled by common standards. In addition to combating internal fragmentation, the fight for maintaining a fair level playing field against external unfair competition and economic and political coercion can only be successfully undertaken within a unified regulatory and political framework.

Decarbonisation: A strategic imperative, not just a green dream

There are increasingly voices calling for a rollback of the ambitious transformation and decarbonisation goals the European Union has set under the hallmark project of the Green Deal in 2019. In times of shifting priorities towards competitiveness, it is difficult to “sell” this policy mainly from an environmental and climate perspective. The Commission would have been better advised to highlight the dimensions of resilience and innovation in the Green Deal from the very beginning – by emphasising that reducing emissions also means decreasing external dependencies on fossil fuels, rare earths, and imported technologies, while triggering innovations. These objectives align with a new perspective on securing our supply chains, which can be achieved through diversifying sources, enhancing recycling, or promoting strategic reserve development. We cannot afford to get into the same awkward situation of dependency in our moves towards a green economy, as we did in the fossil age, and which brutally backfired during Russia’s war in Ukraine.

Europe is still better prepared to lead the global green transition than any other competitor, but only if it treats decarbonisation as a pillar and guiding principle of its industrial strategy. To ramp up investment in clean-tech innovation – including batteries, green hydrogen, carbon capture and usage, smart grids, and circularity – is crucial to ensure that technologies are developed, produced, and scaled in Europe and exported.

The three elements of decarbonisation, digitalisation and further market integration define key elements of a new phase of reindustrialisation. However, as a lesson from the past, more attention has to be given to the diverse conditions and resources of the individual member states. The danger of further widening the gap within the Union remains. Technological progress might exacerbate the situation.

Sovereignty begins with technology

The EU must seize the opportunity to become one of the global leaders in the digital sphere, and this ambition is not yet a lost cause. From artificial intelligence to semiconductors and secure cloud infrastructure, Europe still underperforms in key areas. There is a huge treasure of knowledge on our continent; business models are flourishing, and the tools and capital to catch up are readily available. What then is missing? Probably a different mindset and attitude. One can hardly deny that risk avoidance (not to be confused with awareness) has led to numerous setbacks, slowing down any innovative momentum. Solely by ex-ante regulation, we will neither achieve leadership nor secure digital sovereignty. GDPR, DSA, and DMA may have set the highest global standards, but they don’t necessarily lead to the development of hard and software infrastructure, servers, entrepreneurs, or the manufacturing of chips. Pan-European support for digital startups and scale-ups, along with digital infrastructure that works across borders, is only enforceable within and through the European Union. Too many citizens, workers and SME are not equipped to thrive in a data-driven economy – and state administration is not yet a benchmark for digital change.

Europe is full of ideas, but too many of them never leave the lab or the garage. Innovation and strategic autonomy are twins. They must be nourished by public and, more importantly, private R&D spending. The future successor of EU programmes, such as Horizon Europe, must find a balance between basic research, applied science, and enabling market entry and let SMEs profit from it. With the United States



alienating brilliant minds from all over the world, the doors to the European knowledge space should be wider than ever.

Autonomy through openness

Some have misunderstood that autonomy does not mean closing Europe off from the world. If many in the United States now believe in unilateralism, exclusion, and protectionism, Europe should not follow this detrimental path. There is no inevitable contradiction between strategic autonomy and open markets. Our wealth depends on remaining a leader and promoter of free global trade. We must double our efforts in establishing new partnerships. There is a significant shared interest in many parts of the world to contribute to resilient supply chains, build trust, and adhere to rules and global standards, even in sensitive areas such as social and ecological standards. Our openness is our strength if we truly engage on an equal playing field with partners, not only in and with the Global South; the Global Gateway is a proper container to bundle these initiatives. Unfortunately, we still fail to live up to our own promises in terms of market access, technology transfer, and facilitating educational and professional exchange.

Strength through unity and innovation

Europe's strategic autonomy is a volatile yet unifying narrative. It is not given freely to us, but must be acquired through mobilising and bringing investment back to Europe; by scaling up innovation and by a vision of Europe as a hallmark of a human-centred development model. The world is now, and sadly, dominated by antagonistic forces, driven by a relentless pursuit of technology and resources. At the Martens Centre, we believe the EU has what it takes to succeed in this competition. Strategic autonomy is rooted in industrial competitiveness, backed by a unique and unified political and legal framework, the European Union.

2.1 The European and international political and regulatory framework

The EU regulatory framework on transitions has become broader and more oriented towards support for industrial activities.

Climate legislation remains the backbone. The European Climate Law made climate neutrality by 2050 legally binding and set an intermediate objective of at least 55 per cent net greenhouse gas emission reductions by 2030 compared with 1990 levels. By May 2026, the EU had also adopted a climate target of 90 per cent net emission reduction by 2040, with a domestic reduction component of 85 per cent and limited use of high-quality international credits.²⁶

This climate framework is reinforced by Fit for 55,²⁷ with the revision of the EU Emissions Trading System, the Carbon Border Adjustment Mechanism, the Effort Sharing Regulation, the revised Renewable Energy Directive and energy-efficiency legislation. These instruments have increased the pressure on industrial sectors to reduce emissions, but they have also deepened competitiveness concerns. High energy prices, technology bottlenecks and uneven administrative capacities affect the speed and cost of transition.

The industrial and de-risking dimension of transition efforts is now more explicit. The Net-Zero Industry Act sets a framework to strengthen EU manufacturing capacity for net-zero technologies, including a target of at least 50 million tonnes of annual CO₂ injection capacity by 2030.²⁸ The Critical Raw Materials Act

²⁶ European Parliament and Council of the EU, *Regulation (EU) 2021/1119 of 30 June 2021 Establishing the Framework for Achieving Climate Neutrality*, <https://eur-lex.europa.eu/eli/reg/2021/1119/oj/eng>; European Commission DG for Economic and Financial Affairs, *European Economic Forecast. Spring 2026*, Luxembourg, Publications Office of the EU, May 2026, <https://doi.org/10.2765/0071034>.

²⁷ European Commission, *'Fit for 55': Delivering the EU's 2030 Climate Target on the Way to Climate Neutrality* (COM/2021/550), 14 July 2021, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52021DC0550>.

²⁸ European Commission, *Commission Delegated Decision (EU) 2024/1763 of 14 March 2024 on the Renewal of the Determination*



introduces benchmarks for 2030: at least 10 per cent of annual EU consumption from extraction inside the Union, at least 40 per cent from EU processing, at least 25 per cent from recycling and no more than 65 per cent of any strategic raw material from a single third country at any relevant stage of processing.²⁹

Digital regulation has followed a similar path. The Digital Decade framework defines targets for skills, infrastructures, business digitalisation and digital public service to be met by 2030. The AI ACT, adopted in 2024, establishes a risk-based regulatory framework for artificial intelligence, with most rules applying from August 2026 after a phased implementation period.³⁰ Europe's ambition is therefore to position itself as global regulatory leader. The thorny issue is whether this framework will be accompanied by sufficient investment in computing capacity, data infrastructure, talent and industrial deployment.

Internationally, the EU operates in a weakening multilateral environment. Rodrik's seminal work on the governance limits of globalisation remains key to understanding the disruptive gap between deeply integrated markets and weak supranational political authority.³¹ The debate on decoupling and de-risking revolves around this point. A radical separation of global value chains remains unlikely in many sectors, but the EU has intensified efforts to reduce dependence on strategic suppliers, especially where economic interdependence creates coercive leverage or supply risks.³²

A particularly important area is research and innovation policy, which has seen a gradual shift towards a more selective and protective model. The revision of the Horizon Europe strategic plan for 2025 to 2027 places increasing emphasis on Open Strategic Autonomy as a guiding principle, marking a shift from the traditional approach of open scientific cooperation. This new direction reflects the EU's desire to strengthen its technological autonomy and reduce dependence on external actors in strategic sectors, in response to growing geopolitical challenges and global competition for innovation. However, this new orientation has generated a broad debate within the scientific community, which fears that it can contribute to undermining international cooperation and a consequent limitation of the circulation of knowledge and talent. Some of the experts interviewed for this study expressed concern that excessive protection of European technological capacities could slow down scientific progress, reducing access to shared research infrastructures and hindering partnerships with third countries.

In this framework geo-dirigisme has emerged as a key element. On the one hand, the EU intervenes through regulations and incentives to guide the evolution of industries in a more sustainable direction. On the other hand, the redefinition of supply chains through selective decoupling and targeted de-risking aims to reduce Europe's vulnerability to geopolitical pressures, ensuring greater strategic autonomy and long-term competitiveness. The issue of governance has also gained higher prominence. For public private cooperation to genuinely support transitions, there must be a competent, accountable and transparent public administration, capable of defining priorities and monitoring the actual allocation of funds. Lacking accountability, partnerships risk becoming an ineffective or, worse, distorted instrument.

The proposal of a Copernican revolution in the management of public expenditure is therefore gaining ground, implying a structural change. This means making public managers accountable for project delivery, strengthening a culture of monitoring, and linking investments to verifiable results. In this context, the world of research and universities can play a crucial role, but only if it is integrated into a system that rewards analytical rigour and capacity for impact. Without concrete feedback from research in decision making processes, policies risk remaining disconnected from economic and industrial reality.

that the Solvency Regime in Force in the United States Applicable to Undertaking with Their Head Office in that Third Country Is Provisionally Equivalent to that Laid Down in Title I, Chapter VI of Directive 2009/138/EC of the European Parliament and of the Council, https://eur-lex.europa.eu/eli/dec_del/2024/1763/oj/eng.

²⁹ 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>.

³⁰ European Parliament and Council of the EU, *Regulation (EU) 2024/1689 of 13 June 2024 Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act)*, <https://eur-lex.europa.eu/eli/reg/2024/1689/oj/eng>.

³¹ Ing, Lili Yan and Dani Rodrik (eds), *The New Global Economic Order*, London/New York, Routledge, 2026, DOI <https://doi.org/10.4324/9781003571384>.

³² Pilkington, Philip, *The Risk of Decoupling and De-risking*, Budapest, Hungarian Institute of International Affairs, 16 February 2024, <https://hiia.hu/en/decoupling-and-de-risking>.



It is also interesting to observe the evolving attitude of the European institutional actors towards transitions. The main political groups have adopted differentiated approaches. The European People's Party, while recognising the need to support modernisation and stronger competitiveness, tends to favour a gradual and realistic approach, emphasising the economic and social risks associated with excessive acceleration. In this vein, it has supported measures to protect Europe's industrial base, calling for greater flexibility in the application of rules that have a strong impact on traditional sectors undergoing reconversion. The Progressive Alliance of Socialists and Democrats and Renew Europe, by contrast, promote a more ambitious and systemic vision of transitions, calling for integrated policies combining environmental sustainability, digitalisation, inclusion and social innovation. Both groups emphasise the role of skills, innovation and a more cohesive single market as key elements of a fair and competitive transition.

The Greens and the European Free Alliance represent the most radical component in supporting transitions, considering them as a lever not only to address the climate emergency, but also to rethink the European economy more profoundly. They support alternative models of production and consumption and call for stricter fiscal and environmental regulation. On the opposite side, the European Conservatives and Reformists and Identity and Democracy are critical of the current transition framework, expressing concern about the loss of industrial competitiveness, the rising costs for citizens and businesses, and a potential erosion of national sovereignty.

Alongside these differences among political groups, it is also useful to analyse the official positions adopted by the European Parliament on some key sectoral dossiers. In the automotive field, the Parliament approved the Regulation providing for the phase out of sales of cars with internal combustion engines by 2035, marking a strong commitment to the transition towards electric mobility. As regards the energy sector, Parliament supported binding targets for reducing consumption and increasing renewables within the Fit for 55 package and the REPowerEU plan.³³ At the same time, the Digital Compass 2030 established binding goals regarding digital infrastructure, skills and transformation of public administration.³⁴

Tobacco regulation remains part of this wider picture of differentiated sectoral governance. It has also undergone a regulatory and industrial evolution that reflects the broader transformation of European policies. The European Parliament Resolution of 16 February 2022 on strengthening Europe in the fight against cancer called for an update of scientific assessments on innovative products, placing the sector within a review process consistent with the broader dynamics of regulatory and technological transition.³⁵

This body of regulation reflects an integrated vision of transitions, in which environmental, technological and financial policies are coordinated to build a more resilient and competitive Europe. However, as also highlighted in the Draghi and Letta reports, the effectiveness of these measures depends on the ability to implement them coherently across different member states, avoiding fragmentation and promoting genuinely multi-level European governance.

2.2 The strategic implications of the EU Strategic Agenda

The EU Strategic Agenda 2024 to 2029 defines a series of fundamental priorities for strengthening the European project, including the safeguard of democratic values, security and common defence, and the promotion of prosperity and competitiveness through sustainable, digital and industrial transitions.³⁶ The objective is to guide Europe towards a future that strengthens the competitive capacity of the European economic system in an increasingly complex global context.

Not by chance, alongside environmental and technological objectives, the Agenda places strong emphasis

³³ European Commission, *REPowerEU Plan* (COM/2022/230), 18 May 2022, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52022DC0230>.

³⁴ European Commission, *2030 Digital Compass: The European Way for the Digital Decade* (COM/2021/118), 9 March 2021, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52021DC0118>.

³⁵ European Parliament, *Resolution of 16 February 2022 on Strengthening Europe in the Fight against Cancer - Towards a Comprehensive and Coordinated Strategy*, https://www.europarl.europa.eu/doceo/document/TA-9-2022-0038_EN.html.

³⁶ European Council website: *Strategic Agenda 2024-2029*, cit.



on innovation, skills development and the completion of a genuinely integrated single market, considered one of the most effective instruments for unlocking the potential of European industry, reducing internal fragmentation and attracting investment. A key component of the new political cycle is also the intention to lighten the regulatory burden for European businesses, avoiding the risk of over-regulation, namely an excess of rules that often hinders innovation or penalises competitiveness, especially in strategic sectors. In this sense, the Agenda highlights the need for more agile, proportionate and objective oriented regulation to support rather than complicate the transformation of the productive system.

The omnibus packages presented by the European Commission in 2024 go in the same direction. It aims to reduce regulatory burdens, simplify procedures and ensure greater coherence among European regulatory instruments. These initiatives testify to the Commission's intention to respond to demands from businesses and member states for more efficient and less bureaucratic governance, capable of fostering the responsiveness of the European economy and the timely adoption of innovative solutions.

Particular attention is also devoted to the needs of SMEs, which represent the backbone of both the Italian and European economy, but often struggle to access finance, innovation and foreign markets.

From this perspective, emerging priorities, including energy security, value chain resilience, technological autonomy and the development of new skills, become crucial areas for implementing transitions and providing Europe with the instruments to exert a global leadership. Effective implementation of the Strategic Agenda will therefore be decisive in turning transition into a driver of growth, innovation and inclusion.

Within this framework, the European Parliament, among other institutions and in synergy with them, plays a central role in guiding and monitoring the ecological, digital and industrial transitions. Many of the most relevant strategies, from the Green Deal to regulation on artificial intelligence, have been launched or strongly supported by EP. Interviews conducted for this research have highlighted the twofold role of the European Parliament. On the one hand, it promotes and approves the instruments needed to accompany the transformation of the European productive model. On the other hand, it exercises oversight over their implementation, with the aim of ensuring that transitions are fair, inclusive and sustainable.

This balance requires a shared effort at the economic and social level. For transitions to be genuinely transformative, all member states must be able to start from comparable conditions and pursue common objectives. In this regard, the Letta and Draghi reports represent fundamental steps in the rethinking of Europe's industrial and competitive architecture. It is increasingly clear that the continent's competitiveness must be built on three pillars, namely environmental sustainability, economic solidity and social inclusion.

By Spring 2026, the EU transition agenda had entered a more difficult macroeconomic environment. The Commission's Spring 2026 Economic Forecast had identified the Middle East conflict and the related energy shocks as the main factors behind a renewed slowdown in growth and a rebound in inflation. After expanding by 1.5 per cent in 2025, EU GDP is projected to slow to 1.1 per cent in 2026 and recover only moderated to 1.4 per cent in 2027. In the euro area, growth is expected to decline from 1.4 per cent in 2025 to 0.9 per cent in 2026, before reaching 1.2 per cent in 2027. Inflation is projected to rise again, from 2.5 per cent in the EU in 2025 to 3.1 per cent in 2026, before easing to 2.4 per cent in 2027; in the euro area, it is expected to reach 3.0 per cent in 2026 and 2.3 per cent in 2027.³⁷

The Commission attributes this deterioration to a major disruption in global energy markets. The closure of the Strait of Hormuz has curtailed seaborne oil and LNG flows by around 15 and 20 per cent, respectively, while gas and crude oil prices increased sharply between late February and late April 2026. At the same time the current shocks differ from 2021-2022 energy crisis: the EU is now less exposed to pipeline gas from Russia, has expanded renewable energy production and has reduced energy use by industry and households. This makes the shock less asymmetric for Europe than the previous crisis, but still significant for industrial costs, investment, consumption and public finances.

In policy terms, the forecasts reinforce the central argument that the energy transition is increasingly a condition for macroeconomic resilience, industrial competitiveness and strategic autonomy. Higher

³⁷ European Commission DG for Economic and Financial Affairs, *European Economic Forecast. Spring 2026*, cit.



energy prices are expected to weaken firms' investment capacity, tighten financing conditions and reduce export performances, while public deficits are projected to widen as governments seek to cushion the impact on households and firms.

This has implications for funding. The EU has deployed targeted instruments, especially for climate and digitalisation, such as Horizon Europe, Erasmus Plus, InvestEU and ESF Plus to support integration between human capital, businesses and institutions. The experience of the automotive sector shows how necessary it is to connect innovation, training and new professions. A true industrial revolution requires long-term vision, massive investment and solid social infrastructure.

The challenge of European competitiveness has therefore also a geopolitical dimension. The Union cannot afford to depend so heavily on other global actors. European strategic autonomy – technological, industrial and productive – depends on the ability to speak with one voice, overcoming fragmented national logics and relaunching interstate cooperation.

Italy, for example, has distinguished itself in key sectors such as the circular economy and has launched a process of accelerating authorisation procedures for renewables. In strategic sectors such as steel and ceramics, the need for a harmonised European industrial policy has become urgent to guarantee support instruments capable of facilitating a just transition. Comparison with other national models, such as the Greek one, where the price of energy is determined by renewables, suggests the possibility of more effective policies in managing energy costs.

To fill this gap, the European Parliament must promote a structured dialogue between the public and private sectors with an eye to facilitating policy implementation and building genuine transnational strategic alliances. Multi-level dialogue among firms, universities and institutions is an everyday reality in Brussels, but it must be strengthened to enhance shared governance and corporate social responsibility. A virtuous example is precision agriculture, also used in the tobacco sector, where technological innovation can ensure more efficient use of resources such as water, provided it is also made accessible to small businesses to avoid new inequalities.

3. Strategic sectors in transformation: Automotive, tobacco and the energy sector

It is within this framework that transformative processes in key productive sectors for European national systems are taking place. The automotive sector, within which the energy transition is also relevant, the energy sector, and the tobacco sector represent emblematic cases of how the challenges arising from transitions on a global scale, and more specifically in Europe, require a profound redefinition of supply chains, business models, and relations among firms, institutions and consumers.

It is worth comparing the Italian case with that of other Southern and Eastern European countries, such as Greece and Romania, as well as with Sweden, which share some vulnerabilities but also specific approaches.

The *Italian case*, although marked by structural criticalities and a certain slowness in coordination across institutional levels, presents some strengths that should be enhanced. In the automotive sector, Italy has a significant industrial base, but it faces challenges linked to the reconversion of the supply chain towards electric mobility. The shift to low emission vehicles requires substantial investment, support for SMEs and targeted industrial policies, key elements to also avoid the risk of delocalisation and safeguard employment. On the energy front, despite a strong potential in renewables and high performance in the circular economy, delays persist in plant authorisations and in the upgrading of the electricity grid. In addition, energy costs remain high, affecting industrial competitiveness, including in comparison with countries such as Spain that have introduced favourable pricing systems. In the tobacco sector, Italy hosts the most significant share of European production and has undertaken industrial innovation processes. In this context, there is a growing tendency to move towards alternative products, with a potentially positive impact on economic performance, employment and technological innovation.

In Greece, access to European funds has represented a significant lever for investment in renewables



and for the digitalisation of public administration. However, implementation delays also persist due to bureaucracy and to a fragile administrative structure. Greece has undertaken important reforms, but it faces difficulties like Italy in fully integrating transitions with competitiveness, especially for SMEs and in peripheral territories.

By contrast, *Romania* shows a high degree of dependence on European funding to achieve its transition objectives but struggles to translate transition strategies into concrete action because of institutional shortcomings and territorial disparities. Although the Romanian Recovery and Resilience Plan allocate a significant share of resources to the green and digital transition, difficulties remain in coordinating different levels of government and in strengthening skills at the local level.

The case of *Sweden* deserves special attention, particularly for the approach adopted in sectors such as tobacco. The Swedish model has shown how it is possible to combine sustainability and innovation through public policies based on scientific evidence and a strong dialogue with the productive sector. The spread of alternative products has had a positive economic impact thanks to a flexible and pragmatic governance. Sweden can therefore be regarded as an advanced regulatory laboratory.

The cases of the four countries present different features within the European context, but they all highlight the need to make transitions more structured, implementable and competitive, by focusing on effective governance, regulatory simplification and investment in human and institutional capacities. The challenge is to ensure that transitions become real drivers of growth, innovation and inclusion, while enhancing territorial and sectoral capacities.

3.1 The automotive sector

The automotive sector is at the centre of a profound industrial reconversion linked to the electrification of mobility, the digitalisation of vehicles and the progressive strengthening of the European regulatory framework on emissions. Regulation (EU) 2019/631,³⁸ amended by Regulation (EU) 2023/851, sets CO₂ standards for new passenger cars and vans. For 2025-2029, the EU fleet-wide targets are 93.6g CO₂/km for new cars and 153.9g CO₂/km for new vans. For 2030-2034, the targets are 49.5 CO₂/km for cars and 90.6g CO₂/km for vans. The 2035 target is 0g CO₂/km for both categories.³⁹

The Regulation (EU) 2025/1214⁴⁰ introduced a targeted adjustment that has changed the compliance timetable without changing the substantive emission targets. For the 2025-2027 period, compliance with CO₂ emission performance standards for new cars and vans will be assessed over a three-year average rather than on a strict annual basis. This flexibility reduces the risk of immediate annual penalties during the first phase of the stricter target cycle. Market data for 2025 confirm that the transition is advancing, but unevenly across segments. New EU passenger car registrations increased by 1.8 per cent, while battery-electric cars reached 17.4 per cent of the market. Hybrid-electric vehicles became the largest powertrain category, with 34.5 per cent of registrations, while the combined share of petrol and diesel cars fell to 35.5 per cent.⁴¹ The van segment remains more challenging: new EU van registrations declined by 8.8 per cent in 2025, diesel still accounted for 80.7 per cent of the market and electrically chargeable vans reached 11.2 per cent.⁴² These figures show that electrification is progressing faster in passenger cars than in commercial vehicles, where cost, infrastructure availability and operational requirements continue to

³⁸ European Parliament and Council of the EU, *Regulation (EU) 2019/631 of 17 April 2019 Setting CO₂ Emission Performance Standards for New Passenger Cars and for New Light Commercial Vehicles*, <https://eur-lex.europa.eu/eli/reg/2019/631/oj/eng>.

³⁹ European Parliament and Council of the EU, *Regulation (EU) 2023/851 of 19 April 2023 Amending Regulation (EU) 2019/631 as Regards Strengthening the CO₂ Emission Performance Standards for New Passenger Cars and New Light Commercial Vehicles in Line with the Union's Increased Climate Ambition*, <https://eur-lex.europa.eu/eli/reg/2023/851/oj/eng>.

⁴⁰ European Parliament and Council of the EU, *Regulation (EU) 2025/1214 of 17 June 2025 Amending Regulation (EU) 2019/631 to Include an Additional Flexibility as Regards the Calculation of Manufacturers' Compliance with CO₂ Emission Performance Standards for New Passenger Cars and New Light Commercial Vehicles for the Calendar Years 2025 to 2027*, <https://eur-lex.europa.eu/eli/reg/2025/1214/oj/eng>.

⁴¹ European Commission DG for Climate Action website: *Cars and Vans*, https://climate.ec.europa.eu/node/207_en.

⁴² Acea, *New Commercial Vehicle Registrations, European Union*, 29 January 2026, https://www.acea.auto/files/Press_release_commercial_vehicle_registrations_full_year_2025.pdf.



shape investment decisions.

In the heavy-duty vehicle segment, Regulation (EU) 2024/1610 amended Regulation (EU) 2019/1242 by strengthening CO₂ emission performance standards and broadening the scope of the framework.⁴³ Compared with the average CO₂ emissions of the 2019 reporting period, the Regulation maintains a 15 per cent reduction target for selected vehicle sub-groups for the reporting periods 2025-2029. It then sets more ambitious targets for the wider heavy-duty vehicle fleet: a 45 per cent reduction for all vehicle sub-groups other than vocational vehicles for the reporting periods 2030-2034; a 65 per cent reduction for all vehicle sub-groups for 2035-2039; and a 90 per cent reduction from 2040 onwards. The revised framework also extends the regulatory architecture beyond heavy lorries to cover a broader range of heavy-duty vehicles, including medium lorries, city buses, coaches and trailers, with specific provisions for zero-emission city buses and trailer efficiency.

In 2025, the European market for trucks over 3.5 tonnes contracted, with 307,460 new registrations in the EU, down 6.2 per cent compared with 2024. The decline affected both heavy trucks of 16 tonnes and above, which fell by 5.4 per cent, and medium trucks between 3.5 and 16 tonnes, which decreased by 9.9 per cent. Italy recorded a less negative trend than the EU average: registrations of trucks over 3.5 tonnes amounted to 27,709 units, down 2.8 per cent, while the heavy-truck segment of 16 tonnes and above reached 22,988 units, a decrease of 2.7 per cent. However, the technological transition remains limited in the heavy-duty segment. In the EU, diesel still accounted for 93.2 per cent of new registrations of trucks over 3.5 tonnes, while in Italy its share reached 96.3 per cent. Electrically chargeable trucks rose to 4.2 per cent of the EU market but accounted for only 2.2 per cent in Italy; in the segment of heavy trucks of 16 tonnes and above, the Italian share fell to around 0.34 per cent. These figures confirm that the decarbonisation of heavy-duty road transport is progressing, but at a slower pace than in other areas of mobility.

The industrial challenge is therefore broader than vehicle electrification. It concerns batteries, software, charging infrastructure, grid readiness, raw materials, recycling and the future of component suppliers. The Batteries Regulation⁴⁴ and the Critical Raw Materials Act (CRMA),⁴⁵ both of which strengthen the industrial dimension of the transition and the security of supply, proceed on this path and continue to be implemented. The Alternative Fuels Infrastructure Regulation is also relevant, as it links the deployment of zero- and low-emission vehicles to the availability of recharging and refuelling infrastructure across the EU.⁴⁶

Furthermore, these measures are embedded in a wider climate and industrial framework that increasingly links emissions reduction, carbon pricing and supply-chain resilience. The Carbon Border Adjustment Mechanism (CBAM), whose transitional phase ran from 2023 to 2025 and whose definitive regime starts in 2026, is relevant for the automotive sector mainly through upstream materials such as steel and aluminium. Its objective is to reduce carbon leakage by aligning the carbon cost of selected imports with the cost faced by EU producers under the EU emissions Trading System. As free ETS allowances are progressively reduced in the sectors covered by CBAM, European manufacturers are likely to face stronger incentives to decarbonise production processes and secure lower-carbon inputs.⁴⁷

The EU response in 2025 moved in a more explicitly industrial direction. The Commission's Industrial Action Plan, presented in March 2025, framed the transition around innovation and digitalisation, clean

⁴³ European Parliament and Council of the EU, *Regulation (EU) 2024/1610 of 14 May 2024 Amending Regulation (EU) 2019/1242 as Regards Strengthening the CO₂ Emission Performance Standards for New Heavy-Duty Vehicles and Integrating Reporting Obligations*, <https://eur-lex.europa.eu/eli/reg/2024/1610/oj/eng>.

⁴⁴ European Parliament and Council of the EU, *Regulation (EU) 2023/1542 of 12 July 2023 Concerning Batteries and Waste Batteries*, <https://eur-lex.europa.eu/eli/reg/2023/1542/oj/eng>.

⁴⁵ 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>.

⁴⁶ European Parliament and Council of the EU, *Regulation (EU) 2023/1804 of 13 September 2023 on the Deployment of Alternative Fuels Infrastructure*, <https://eur-lex.europa.eu/eli/reg/2023/1804/oj/eng>.

⁴⁷ European Parliament and Council of the EU, *Regulation (EU) 2023/956 of 10 May 2023 Establishing a Carbon Border Adjustment Mechanism*, <https://eur-lex.europa.eu/eli/reg/2023/956/oj/eng>.



mobility, supply-chain resilience, skills and fair competition. In December 2025, the Commission added an Automotive Package designed to give the sector more flexibility while maintaining the long-term climate-neutrality objective. The political signal is clear: the EU is seeking to preserve the direction of decarbonisation while adjusting its instruments to the competitive pressure faced by European manufacturers, especially in batteries, software, affordable electric vehicles and critical inputs.

3.2 The tobacco sector

The tobacco sector is undergoing a profound transformation that is taking shape through the shift from traditional combustible products to new generation smoke free products based on technological innovation. In recent years, European institutions have recognised the need to integrate the tobacco sector into the broader path of industrial transition. Through initiatives within its Strategic Agenda 2024 to 2029, the European Union has underlined the importance of aligning industrial policies with the objectives of environmental sustainability and competitiveness. In this framework, the tobacco sector is seen not only as an industry undergoing reconversion, but also as a strategic sector in which innovation can act as a driver for restoring competitiveness and generating new business models.

A turning point in the recent history of the sector dates back around 25 years, when major producers radically rethought their future. Several multinational companies in the sector began to imagine a long-term trajectory aimed not only at product innovation, but at reorganising the scientific, industrial and cultural model itself. This evolution stems from growing awareness of the central role of tobacco combustion in generating the toxic substances responsible for the main harmful health effects.

From this awareness, and thanks to investments in research and development, came the transition towards alternative products that do not involve combustion. Although these products are not risk free, their objective is to offer alternatives to adult smokers who would otherwise continue to consume traditional cigarettes. However, the effectiveness of these alternatives in contributing to a reduction in smoking prevalence depends on multiple factors, including regulation. In the regulatory debate, the precautionary principle has often been invoked as guidance for the introduction and management of new products. However, while it remains absolutely necessary to maintain a focus on prevention and smoking cessation, in some cases the application of an absolute precautionary principle, namely a form of precaution that results in a ban or in a severe limitation on access to innovations that are not yet fully understood or are still subject to scientific assessment, may prove counterproductive.

In Italy, for example, recent data show stable smoking prevalence over the last two decades. According to official sources, around 20 per cent of the adult population continues to smoke, despite the prevention and control measures introduced since the early 2000s. This raises questions about the effectiveness of current policies and the need to assess alternative approaches.

In light of the European Union objective of reducing smoking prevalence to 5 per cent by 2040, a more articulated approach appears necessary, one that also takes into account the potential role of technological innovation in changing consumption behaviour.

In this context, it is worth considering that in some countries such as Italy, where innovative products have been regulated through a specific regulatory framework, a clear substitution effect is taking place among consumers who adopt innovative products and stop using traditional ones. This has occurred thanks to a combination of different factors: an industrial and training ecosystem that, in the Italian case, integrates mechatronics, packaging, universities and research centres; the concept of an extended supply chain, involving companies strongly rooted in the territory, also through agreements between the private sector, institutions and trade associations; and a significant macroeconomic impact, accompanied by differentiated taxation that has encouraged reinvestment in transformation.

The approach of European institutions tends to recognise the role of innovation as a factor of transformation, but the regulatory framework is not free from tensions. At the Italian level, a differentiated regulatory and fiscal regime has been introduced, encouraging investment in innovative products. At the European level, by contrast, new directives under discussion, particularly on excise duties and tobacco



products, risk undermining the progress achieved.

In particular, the Tobacco Excise Directive aims to equalise the taxation of products with and without combustion, overlooking scientific evidence. In some countries, such as France, restrictive measures have already fuelled the illicit market, with illegal consumption exceeding 30 per cent, meaning that more than one cigarette out of three has been sold illegally. In addition, the revision of the Tobacco Products Directive, expected during the current European legislature, could be strongly influenced by a highly restrictive international approach that risks stifling innovation and reducing the space for more balanced industrial policies.

A tension is therefore emerging between European policies and national models. While some countries, as in the Italian case, have succeeded in creating an ecosystem favourable to innovation, Brussels risks imposing constraints that may reduce the ability to attract investment and slow down industrial reconversion.

The tobacco case also forms part of the broader European debate on the loss of industrial competitiveness. It also stands out for the attempt to avoid a closed approach to innovation. Some national systems instead tend to adopt restrictive measures based on bans or generalised limitations that risk stifling innovation. Such a regulatory structure, according to numerous studies and policy analyses including those carried out by the OECD, may undermine the capacity to invest in research and development, thereby reducing the opportunities for the sector's qualitative evolution.

Various international actors have embarked on paths aimed at building a more sustainable and competitive production chain. However, as will be seen in the case study analysis, the transition pathway of the tobacco sector is not homogeneous across Europe.

The transformations underway are based on the following elements.

- *Technological innovation.* The digitalisation of supply chains, the adoption of solutions for the automated management of production processes and the implementation of advanced traceability technologies represent essential elements for improving efficiency and reducing waste. The Italian tobacco sector, for example, is experimenting with the use of advanced digital systems for quality management and supply chain transparency, thereby contributing to improved international competitiveness. Resilient innovation requires an ecosystem that brings together research, industry and institutions. Collaborations with universities, calls for innovation and investments in research and development have not only enabled the sector to launch its own transition, but have also strengthened its capacity to contribute to innovation in other industrial sectors, from agriculture to mechatronics.
- *Competitiveness and resource efficiency.* The adoption of advanced and innovative technologies makes it possible to achieve significant operational cost savings and greater production flexibility. Companies that modernise are able to offer new generation products. In this scenario, the ability to combine investments in research and development with regulatory simplification policies emerges as a key factor both at European and national level.
- *A comprehensive and balanced regulatory framework.* The definition of stable and balanced European regulatory frameworks, and of those of some member states such as Italy, can promote long term investment and sustainable innovation, especially in strategic value chains. Clear and coherent rules provide a predictable context for investing in transition.

A successful transition in the tobacco sector requires close cooperation among European institutions, member states and economic actors through a multilevel governance mechanism capable of combining industrial innovation, sustainability and competitiveness. The role of international organisations and multilevel governance is crucial in this sector as well in order to ensure coherence and timely intervention. Moreover, the adoption of new generation products and investment in technological innovation represent fundamental tools for increasing sustainability and competitiveness in the sector, while at the same time creating new employment opportunities and strengthening productive supply chains. As will be seen below, the models adopted by countries such as Sweden offer a positive example, while the Italian, Greek and Romanian experiences highlight both structural challenges and the margins for intervention needed



to guide the transition.

3.3 The energy sector

By 2026, the EU energy transition had entered a more mature and more politically demanding phase, shaped by the convergence of climate implementation, energy-security concerns and geopolitical crisis management. The European Climate Law continues to provide the binding long-term framework, with climate neutrality by 2050 and intermediate targets of at least 55 per cent net greenhouse gas emissions reduction by 2030 compared with 1990 levels. Yet the strategic context has become more complex: Russia's continued war against Ukraine and the Middle East crisis, including the volatility of global energy markets, have reinforced the link between decarbonisation, security of supply and industrial competitiveness.

REPowerEU remains the main framework through which the EU has connected energy security and clean-energy deployment. Launched in May 2022 in response to the disruption caused by Russia's invasion of Ukraine, the plan is built around three objectives: saving energy, diversifying supplies and producing clean energy. Its implementation has helped the EU reduce exposure to Russian fossil fuels, coordinate gas procurement, stabilise energy markets after the 2022 shocks and accelerate investment in renewables, efficiency and infrastructure. According to the Commission, EU dependency on Russian gas had fallen from 45 per cent of overall imports at the beginning of the war to 12 per cent in 2025, while oil imports had declined from 27 per cent at the beginning of 2022 to 2 per cent with only two member states still importing Russian oil. The new framework is designed to make the reduction of Russian energy imports gradual, coordinated and permanent.

The second major development is the EU response to the Hormuz crisis. In April 2026, the Commission presented the AccelerateEU Communication,⁴⁸ explicitly framed as a response to rising energy costs, volatile fossil-fuel markets and the escalating Middle East conflict. The Communication combines short-term crisis management with structural acceleration of the clean-energy transition: closer EU coordination, protection for consumers and businesses, faster deployment of homegrown clean energy, grid upgrades and investment mobilisation. The Commission also quantified the vulnerability created by fossil-fuel dependence: in 2025, the EU imported around 340 billion euro worth of fossil fuels, and since the beginning of the Middle East conflict in March 2026 and the closure of the Strait of Hormuz, it had spent an additional 24 billion euros on fossil-fuel imports.⁴⁹

This dual crisis has therefore altered the political economy of the energy transition. The EU is no longer presenting clean energy only as a climate-policy requirement, but as a competitiveness and security imperative. In this context, renewables, electrification, grids, storage, efficiency and demand-side measures are treated as tools to reduce exposure to imported fossil fuels, protect households and firms from price volatility, and strengthen the resilience of the European industrial base. The April 2026 informal European Council confirmed this direction, discussing the economic impact of the Middle East conflict, the need to restore freedom of navigation in the Strait of Hormuz, and the role of accelerated clean-energy deployment in ensuring European energy security.

⁴⁸ European Commission, *AccelerateEU - Energy Union. Affordable and Secure Energy through Accelerated Action* (COM/2026/370), 22 April 2026, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52026DC0370>.

⁴⁹ European Commission DG for Energy, *Commission Discusses Gas and Oil Supply Risks with EU Countries as the Conflict in the Middle East Reaches a 3-Month Mark*, 28 May 2026, https://energy.ec.europa.eu/node/7220_en.



Box 2 The EU's quest for technological sovereignty: Finding the balance between knowledge protection and cooperation

by André Wolf, Centre for European Policy (cep)

In the power struggle of a multipolar world, the pursuit of technological leadership has become a cornerstone of geoeconomic strategies. It promises not only persistent productivity growth, but also a leading role in the design of new global markets through transnational processes that could redesign economic and political relationships. By aligning trade rules and technical standards with the technological expertise of domestic companies, long-term market dominance and monopoly rents can be secured. During the current period of technological transition, it is particularly important for Europe to gain leadership in climate-neutral and digital technologies in order to maintain prosperity and political stability.

The intensified technological competition represents a strategic challenge for Europe's growth model. A critical factor is the role of international cooperation in research and development (R&D). Of paramount importance is the role that universities, multinational enterprises and centres of excellence play in the development and diffusion of new technologies. In times of a serious worsening of the geopolitical climate, the prevailing view on international cooperation in the Western world is shifting profoundly. Instead of embracing the fruits of an international division of labour, a cautious view on cooperation is spreading, stressing the risks for domestic competitiveness and in parts even national security. The EU is no exception in this regard, as evident in its Economic Security Strategy and the related legislative proposals. Consequently, avoiding the risks of knowledge outflows through R&D joint ventures, goods exports or foreign direct investment (FDI) might gain policy priority over exploiting the benefits of knowledge exchange with third countries.

Against this backdrop, it is crucial for the EU to decide what role it will assign to technology partnerships with third countries in the future. In recent years, the EU has attempted to stimulate technological development and internal R&D cooperation through numerous policy initiatives. These initiatives include a significant expansion of fiscal R&D support through the flagship Horizon program, the InvestEU Fund, and several specialised support funds focused on green technologies, such as the Innovation Fund and the Modernisation Fund.⁵⁰ At the same time, the EU has intensified its outreach to third countries. This has been expressed by a series of formal cooperation agreements like the EU-Japan Strategic Partnership Agreement, the EU-Republic of Korea Digital Partnership and the EU-Canada Strategic Partnership Agreement. The most heavy-weighted form of cooperation in terms of market size has so far been established with the United States.

The potential benefits of cross-border technology cooperation are various. From the perspective of a tech-intensive domestic industry, there can be several reasons for a geographic outsourcing of R&D activities. One reason may be the high availability of researchers and engineers with adequate skills at the foreign location. In addition to the knowledge embodied in research workers, foreign R&D locations can also serve to gain access to non-codified knowledge at the location through personal exchange with local R&D institutions, i.e. to benefit from spatially bounded knowledge spillovers.⁵¹ In the case of partnerships between independent companies from different countries, there are advantages from the pooling of capital. These include cost advantages from the sharing of fixed costs for R&D facilities and efficiency gains through the common exploitation of economies of scale and scope. Furthermore, in a long-term perspective, the sharing of the manifold risks (e.g. development of technologies and markets) involved in R&D activities enable a reduction of the financing costs of the participating companies.⁵² An

⁵⁰ European Commission DG for Climate Action website: *Modernisation Fund*, https://climate.ec.europa.eu/node/216_en.

⁵¹ Smallbone, David et al., *Challenges and Prospects of Cross-Border Cooperation in the Context of EU Enlargement. Deliverable 7: State of the Art Literature Review*, Kingston University, 2007.

⁵² Arnold, Erik, "Understanding Long-Term Impacts of R&D Funding: The EU Framework Programme", in *Research Evaluation*,



important factor to increase the mutual gains from partnerships is the complementarity of the partners' knowledge profiles. Companies with expertise in different knowledge segments can complement each other well in joint R&D activities, provided that the knowledge involved can be combined.

A forward-looking EU technology strategy should aim to optimise Europe's position in these global knowledge networks, while at the same time carefully managing the strategic risks resulting from unintended knowledge outflows. This requires recognising the intrinsic autonomy of international research and development policy in political communication. Precisely, the EU should stop mixing physical threats with genuinely economic risks under the header of economic security. What the EU needs instead is a dedicated international technology strategy that exploits the potential for cooperation and minimises risks for system-relevant future technologies. An analysis by the Centre for European Policy has shown that the current EU patent portfolio shows little focus on the technologies currently considered critical.⁵³ The establishment of long-term technology partnerships with third countries is a promising way of compensating for such a lack of specialisation. Ideally, such partnerships should address all stages of the innovation process.

In recent years, China has provided the decisive impetus for increased technological competition, thus becoming one of the EU's top competitors in terms of technological innovation and expertise, especially in the exploitation of "rare earth" elements. The Chinese People's Republic was urged to realign its industrial strategy due to increased cost competition from developing countries and the desire for stable, long-term growth. The goal is to expand Chinese industrial production into the more knowledge-intensive downstream stages of international supply chains. The government's ambitious long-term plan, "Made in China 2025", plays a guiding role in this. Through this plan, China intends to gradually become the world's leading industrialised nation by 2049.⁵⁴ In terms of research activities, the People's Republic has already caught up with the world leaders.

From the other side, due to its persistent role as a technology pioneer, the United States will have to remain a major research partner for the EU even in times of increased US isolationism. However, to reduce one-sided dependencies and the resulting political risks, a simultaneous expansion of research cooperation with other major forces will be integral. Above all, this includes technological superpowers such as Japan and South Korea, which have so far been little integrated into international research networks, thus filling the existing partnership agreements with life. Previous practical barriers to cooperation, such as spatial distance and language barriers, are in the process of losing significance due to the triumph of digital labs and AI-supported communication. This makes the current situation ideal for establishing new research relations.

Moreover, technology partnerships should be strengthened and stabilised through reciprocal access to public programs of R&D support. The recent inclusion of New Zealand, Canada and South Korea as associate members in the EU's Horizon Europe program is a good example of this. These countries are highly successful in the development of technologies critical for Europe's transition. Moreover, they are in a similar economic development stage as the EU, providing motivation for joint strategies in dealing with external competitive pressure from emerging economies like China. In the future, such partnerships should be extended to more countries. To make them attractive for partners, they should not only be embedded in the funding structure but also be granted influence on the thematic governance in future planning periods. To fully reap the benefits of a diversified partner portfolio, the EU should seek to partially merge its bilateral partnerships to plurilateral technology clubs, cooperating in areas where joint efforts are promising strong scale economies. This concerns, for instance, the enforcement of

Vol. 21, No. 5 (December 2012), p. 332-343, <https://doi.org/10.1093/reseval/rvs025>.

⁵³ Wolf, André, "The Future of Global Technology Cooperation. Trends and Risks of the EU's Engagement in International R&D Networks", in *cepStudies*, No. 7/2024 (30 July 2024), <https://www.cep.eu/eu-topics/details/the-future-of-global-technology-cooperation.html>.

⁵⁴ Malkin, Anton, "Made in China 2025 and the Proliferation of Intangible Assets", in Erik Baark et al. (eds), *Innovation and China's Global Emergence*, Singapore, NUS Press, 2021, p. 203-231, <https://epress.nus.edu.sg/innovationandchina/chapternine>.



intellectual property rights protection in international research cooperation and common work on standardisation as a way to guide the future technology development. Recent bilateral trade agreements of the EU like the Comprehensive Economic and Trade Agreement (CETA) with Canada or the EU-Indonesian Trade Agreement are a good starting point for this, as they include dedicated chapters on mutually recognising and enforcing technical standards and rules on intellectual property protection. These should be extended to plurilateral initiatives. Specifically, concerning critical technologies, the “mighty technology triangle” US-Japan-EU offers a lot of room for tripartisan cooperation beyond the existing bilateral initiatives. In establishing common rules and principles, the EU will need to maintain a certain degree of pragmatism. Moreover, to avoid a further fragmentation of the global research landscape, it is important that access to these clubs remains possible and is granted in a non-discriminatory fashion (i.e. based on objective criteria like respect of intellectual property and scientific freedom).

The unilateral instruments envisaged by the EU for protecting its economic security should be incorporated into a joint concept for safeguarding common innovation leadership within the framework of technology clubs, at least to the extent they concern genuinely economic risks. This strengthens mutual trust among club members and increases the effectiveness of defence measures, e.g. by making it more difficult for firms to circumvent export control rules through FDI and trade diversion. Besides intensified joint work in basic research and product development, partnerships should also address the latter stages of the innovation process, in particular the transformation of ideas into scalable business models. This gives the opportunity to jointly tackle current bottlenecks of European innovation ecosystems. These include a scarcity of venture capital in Europe especially compared to the United States, which represents a particular barrier to the commercialisation and upscaling of infant technologies. Regulatory complexity and the administrative costs imposed on emerging businesses by legal reporting requirements are further major obstacles, as highlighted by start-up surveys. Moreover, skilled worker shortage in the EU caused by demographic change is a structural innovation barrier. Partners could work on overcoming such bottlenecks e.g. by establishing joint public-private venture capital programs, harmonising profit tax rules and easing the exchange of professionals. In this way, research collaboration could form the basis for a holistic, not isolationist approach to technological sovereignty.

4. Some case studies: Italy, Greece, Sweden and Romania

4.1 The Italian case

In Italy, policies for the green and digital transition are strongly influenced by European guidelines. The National Recovery and Resilience Plan has been the main instrument for implementing the transitions, with more than 40 per cent of funds allocated to the ecological transition and around 26 per cent to digitalisation.⁵⁵ Key measures include the promotion of renewable energy, energy efficiency and the development of digital networks. However, Italy faces several critical issues in the implementation of these policies. The main challenges concern complex bureaucracy, slow regulatory adaptation and fragmentation of responsibilities across different levels of government. In addition, there are significant disparities among Italian regions in terms of Infrastructure and administrative capacities, which complicates the implementation of reforms.

A relevant aspect of the Italian transition concerns the regulatory and industrial policy framework of strategic sectors such as automotive and tobacco, which reflect the tensions among decoupling, de-risking and geo-dirigisme. An additional key aspect also concerns multilevel governance aimed at enhancing coordination between European institutions and member states. For Italy this implies strengthening dialogue between the central government and the regions to ensure more effective implementation of

⁵⁵ D'Alfonso, Alessandro, “Italy's National Recovery and Resilience Plan: Latest State of Play”, in *EPRS Briefings*, June 2026, [https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI\(2021\)698847](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2021)698847).



transition policies.

In the automotive industry, for example, Italy is implementing derisking strategies by incentivising domestic production of key components and promoting agreements with reliable suppliers.

The tobacco sector is subject to an articulated and progressively strengthened European regulatory framework characterised by increasingly stringent rules. The Tobacco Products Directive 2014/40/EU introduced a harmonised framework at European level, governing key aspects such as emissions, packaging, methods of sale and commercial communication of products containing tobacco and nicotine.⁵⁶ Alongside this stand the Excise Directive 2011/64/EU, which regulates the structure and level of taxation of tobacco products,⁵⁷ and Directive 2003/33/EC, which places strict limits on advertising and sponsorship.⁵⁸

Italy has rigorously transposed this regulatory architecture, introducing a framework that recognises and values the differentiation between traditional and innovative tobacco products, as provided for by the Tobacco Products Directive itself. This differentiation translates into distinct regulatory and fiscal regimes that reflect the specific characteristics of different products and aim to ensure a balance between industrial needs and technological innovation. This approach makes it possible to take account of the sector's evolving trajectories, promote excellent supply chains and at the same time encourage more sustainable practices throughout the chain. The Italian case can therefore represent an example of careful and balanced regulatory transposition, seeking to combine European directives with regulatory action capable of accompanying, rather than hindering, the transitions underway within the sector. Moreover, in Italy, the combination of an industrial and training ecosystem, including mechatronics, packaging, higher technical institutes, universities and research centres, together with institutional agreements and an extended supply chain, has generated significant added value. The Italian model, based on research, training and a strong link with the local productive fabric, therefore stands out as a case of excellence at European level.

These examples show how geo dirigisme, understood as strategic state intervention to steer economic and productive processes, has by now become a structural element also in Italian industrial policy. The active role of the state, through instruments such as the National Recovery and Resilience Plan and sectoral incentive policies, has consolidated in the management of transitions in key sectors, with the objective of safeguarding national competitiveness and fostering change.

The strategic line of the previous European Commission, strongly oriented towards the ecological transition, set ambitiously binding objectives, generating frictions among member states on how to apply them across different industrial sectors. Sectors such as automotive and tobacco are emblematic in this regard. In particular, the push towards the electrification of transport has triggered divergent national reactions, with countries whose industry is highly exposed asking for greater gradualism or exemptions.

Similarly, over the last few years, and especially in recent months, several requests have been put forward by certain member states, not supported by Italy, to reconsider the current European regulatory framework on tobacco with an approach that penalises innovative smoke free products in the context of the revision of the Excise Directive and of the wider sectoral framework. These positions are often linked to national interests, such as the presence of manufacturing bases connected to traditional smoking products, in contrast with Italian interests. The proposal to revise the Excise Directive was presented by the European Commission on 16 July 2025. The aim is to restore the effectiveness of EU-wide minimum tax rates on tobacco products and extend their scope to cover new product types. The initiative aims to support the EU's goal of a tobacco-free generation by 2040, recognising taxation as a key tool in reducing tobacco use. This approach would have a direct impact on products manufactured in Italy and marketed

⁵⁶ European Parliament and Council of the EU, *Directive 2014/40/EU of 3 April 2014 on the Approximation of the Laws, Regulations and Administrative Provisions of the Member States Concerning the Manufacture, Presentation and Sale of Tobacco*, <https://eur-lex.europa.eu/eli/dir/2014/40/oj/eng>.

⁵⁷ Council of the EU, *Council Directive 2011/64/EU of 21 June 2011 on the Structure and Rates of Excise Duty Applied to Manufactured Tobacco (Codification)*, <https://eur-lex.europa.eu/eli/dir/2011/64/oj/eng>.

⁵⁸ European Parliament and Council of the EU, *Directive 2003/33/EC of 26 May 2003 on the Approximation of the Laws, Regulations and Administrative Provisions of the Member States Relating to the Advertising and Sponsorship of Tobacco Products*, <https://eur-lex.europa.eu/eli/dir/2003/33/oj/eng>.



worldwide. This highlights the risk that the European regulatory framework may, in some cases, reflect specific national interests rather than a fully integrated vision of the single market.

4.2 The Greek case

In Greece the green and digital transitions are part of a post-crisis economic reconstruction trajectory that has largely transformed the country's industrial policy priorities. After a decade marked by fiscal consolidation and contraction of investment, Greece has used the Recovery and Resilience Facility as a lever to modernise energy infrastructure, digital networks and public administration. The Greek national plan allocates a significant share of resources to renewables, electricity interconnections, digitalisation of public services and support for innovation in SMEs.

The green transition is particularly relevant. Greece has accelerated the production of energy from renewable sources, with significant growth in solar and wind, and aims to strengthen its role as a regional energy hub in the South-Eastern Mediterranean. However, authorisation bottlenecks and limited administrative capacity at local level continue to slow implementation of those plans. The country has recorded tangible progress in the digitalisation of public services and in the diffusion of digital identity and in the establishment of interoperable platforms. The main gap concerns advanced skills and the scalability of innovation in the private sector, within a productive fabric dominated by micro enterprises.

In this framework, the tobacco sector represents a concrete example of successful industrial transition. The reconversion of plants historically dedicated to traditional manufacturing towards innovative smoke free production has strengthened high value-added supply chains, with a strong export orientation and integration into European value chains.

This path demonstrates how, in a context characterised by structural constraints, the combination of technological innovation, regulatory stability and integration into the single market can potentially generate a competitive industrial transition. In line with the EU Strategic Agenda 2024 to 2029,⁵⁹ Greece too is showing greater attention to the link between transition and competitiveness in the belief that achieving European targets requires support instruments, regulatory certainty and policies in support of productive supply chains.

To strengthen this path, Greece will need to consolidate multilevel governance, enhance technical skills in local administrations and favour greater integration of its enterprises into European strategic supply chains. The success of the transition will depend on the capacity to translate European objectives into a model consistent with the national productive structure and oriented towards long term growth.

4.3 The Romanian case

Romania presents a different but equally interesting profile. The country is today one of the main manufacturing platforms in Central and Eastern Europe and benefits from a growing reallocation of European value chains. The National Recovery and Resilience Plan allocates around 41 per cent of resources to the green transition and 21 per cent to the digital transition, with interventions concerning energy efficiency, renewables, grid infrastructure and the digitalisation of public services.

Romania starts from a relatively diversified energy mix, including hydropower and nuclear energy, and has significant potential in wind and photovoltaics. The main limitation is not so much regulatory as administrative. Delays in implementation, bureaucratic complexity and territorial disparities affect the effective capacity to absorb European funds.

On the digital side, the country stands out for a dynamic and competitive information technology ecosystem, with technological hubs in Bucharest, Cluj Napoca and Iași. The challenge lies in extending this innovative capacity to the entire productive system and in modernising public administration.

In Romania too, the tobacco sector constitutes a virtuous example of industrial transition. Industrial reconversion has strengthened technical skills, qualified employment and the resilience of the supply chain.

⁵⁹ European Council website: *Strategic Agenda 2024-2029*, cit.



In line with the EU Strategic Agenda 2024 to 2029,⁶⁰ Romania has the opportunity to move beyond a merely adaptive approach to European directives and develop a more targeted industrial strategy, capitalising on its position as a regional manufacturing hub. Transitions can represent a multiplier of competitiveness if accompanied by regulatory simplification, institutional strengthening and investment in human capital.

The cases of both Greece and Romania demonstrate that industrial transition is not a linear process, but a complex and multifaceted dynamic of productive upgrading, integration into European value chains and technological innovation. The tobacco sector, notably its reconversion towards innovative products and plant modernisation, offers a tangible example of how transition and competitiveness can move forward in a synergic and mutually reinforcing way.

4.4 The Swedish case

The case of Sweden helps to understand how innovation in the tobacco sector can be configured as a strategic axis of industrial competitiveness and sustainable transition. The adoption and diffusion of alternative smoke free products have become widespread, contributing to a structural transformation of the Swedish market. Smoking prevalence among adults remains consistently below 5 per cent, a figure that positions Sweden as the first European smoke-free country according to the threshold defined at EU level, well ahead of European targets and in contrast with an average above 20 per cent in the rest of the Union.⁶¹

This result is closely linked to a regulatory ecosystem characterised by clarity of rules, distinction among product categories and predictability. The Swedish approach has enabled consumers to gradually modify their habits within a stable framework, avoiding regulatory uncertainty that could discourage investment or innovation. Public governance has maintained a balance between public health objectives and industrial coherence, fostering a context in which the research, development and production of innovative products can consolidate on both a national and European basis.

From the point of view of industrial sustainability, the sector has integrated practices consistent with advanced ESG standards. According to the most recent corporate sustainability reports,⁶² European plants have progressively increased the use of electricity from renewable sources, adopted energy efficiency programmes, reduced the impact of packaging through recyclable solutions and strengthened traceability throughout the supply chain. In Nordic markets, these practices are embedded in an industrial context already strongly oriented towards decarbonisation and process innovation.

The Swedish case reflects a broader model of integrated transition. In the automotive sector, the country has focused on electrification, vehicle digitalisation and low emission productive models, supported by an advanced technological ecosystem. Similarly, in the energy sector, Sweden has one of the most decarbonised mixes in Europe. According to data from the IEA and the Swedish Energy Agency, electricity production is almost entirely free from fossil fuels, thanks to the combination of hydropower, nuclear and wind. This context allows manufacturing firms to operate in a low emission environment, thereby strengthening the international competitiveness of products.⁶³

Overall, the Swedish case shows how the integration of technological innovation, regulatory stability and industrial sustainability can generate a systemic comparative advantage. The tobacco sector, through the transition towards innovative products and the adoption of advanced industrial practices, fits coherently into this national paradigm of sustainable competitiveness, demonstrating how transitions can be governed strategically rather than merely reactively.

⁶⁰ Ibid.

⁶¹ Smoke Free Sweden, *European Parliament Declares Sweden Smoke-Free*, 2 June 2026, <https://smokefreesweden.org/?p=1165>.

⁶² EY Sweden, *EY Sweden Annual and Sustainability Report FY25* (in Swedish), 2025, https://www.ey.com/en_se/about-us/ey-sweden-annual-and-sustainability-report-fy25.

⁶³ International Energy Agency website: *Countries & Regions: Sweden*, last updated on 4 November 2024, <https://www.iea.org/countries/sweden>.



Policy recommendations

In order to support a coherent, sustainable and competitive industrial transition in Europe, it is essential to adopt an integrated approach that overcomes isolated sectoral logics and promotes a policy framework that values technological innovation, regulatory neutrality and the balance between sustainability and competitiveness.

In the *automotive field*, it is urgent to strengthen a common industrial strategy enabling European supply chains to face global competition, especially from China, by promoting joint investment in batteries, components and software. In this sense, the Swedish and Italian experiences show the need for a coordinated public private ecosystem based on stable incentive policies and workforce upgrading, to be extended also to the countries of Southern and Eastern Europe.

Similarly, the *energy sector* requires acceleration in renewables and decarbonisation by overcoming current regulatory bottlenecks. A priority is to harmonise authorisation systems, develop smart grids and promote fair fiscal mechanisms that do not penalise countries facing structural delays such as Romania and Greece. The Swedish case shows that only through long term planning and a strategic alliance between the state and enterprises is it possible to achieve an almost entirely renewable energy production system.

In the *tobacco sector* the European regulatory framework needs to recognise the existence of differentiated product categories, incentivising industrial innovation related to next generation products in line with the principles of environmental sustainability, production transparency and competitiveness. Merely prohibitive approaches risk instead to inhibit or hinder the reconversion of the sector.

Furthermore, it is crucial that Europe strengthen multilevel governance and the synergy among funds supporting innovation and development such as the National Recovery and Resilience Plans, InvestEU, Horizon and ESF Plus and territories, so that even in more fragile contexts enabling conditions can be created to guide transitions with fairness and pragmatism, as positively demonstrated by the Swedish model and, in part, by Italy in the circular economy and renewable sectors.

Looking ahead

The picture emerging from the study shows that the transitions underway, green, digital, industrial and energy related, cannot be regarded exclusively as sectoral processes. They are part of a broader transformation processes involving geopolitical and demographic dimensions and redefining global cooperation and multilateralism. The multilateral system is in a profound crisis. Climate COPs have produced significant political commitments, but the global context is marked by deepening competition among major powers and geopolitical blocs. Technical organisations such as the International Telecommunication Union and the World Intellectual Property Organization remain central in defining digital standards and intellectual property, but struggle to coordinate divergent interests among major powers.

In this challenging international landscape, the European Union continues to pursue a strategy launched already in 2010. Sustainability is treated as an industrial lever, regulation as a stimulus to technological innovation, and market integration as a factor of scale. However, the EU suffers from structural shortcomings due to the weaknesses of its governance system: complex decision-making processes, lengthy co-decision, as shown by the omnibus packages still in trilogue, difficulties of coordination between the various institutions and fragmentation among the relevant Directorates General of the Commission, such as Climate, GROW and DEFIS. The result is often a delay in implementation compared to the United States and China.

As a result, transitions risk being uncertain and unsustainable because of high normative ambition but difficulty in ensuring industrial continuity, regulatory predictability and long-term planning. Artificial intelligence is an evident example. It is not merely a technological revolution, but a systemic factor affecting productivity, employment, security and intellectual property. The AI Act has placed the EU in a position of regulatory leadership, but global competition requires large scale investment capacity and production at



scale, two areas where China and the United States enjoy structural advantages.

Significantly, the Draghi report mentions major scientific infrastructures such as CERN and to the Future Circular Collider project as strategic assets. Europe possesses top level scientific excellence, but it needs an integrated strategic vision linking frontier research, industrial policy and stable financing. The recent establishment of European financial instruments, with resources exceeding 65 billion across different programmes dedicated to innovation and transition, testify to a substantial effort. Yet the ability to translate these funds into competitive industrial supply chains and increased export value remains central.

On the climate front, the perception of excessive ambition in some sectors such as automotive, agriculture and energy has fuelled political tensions. The debate over biofuels, the technological neutrality supported by some member states, and the discussion on methods of calculating emissions show the need for a more pragmatic approach. Ecological transition should continue but effective instruments such as the Industrial Accelerator Act need to support and facilitate the transformation of European industry. Of paramount importance are also the establishment of a European preference principle, stronger alliances among energy intensive countries and closer coordination with the Commissioner responsible for industry.

The case of the automotive sector is emblematic. Without technological neutrality and integration of supply chains involving batteries, biofuels and hydrogen, the risk is a loss of competitiveness vis a vis China. Similarly, in the tobacco sector, an approach leading to non-differentiated fiscal equalisation would risk compromising consolidated innovative supply chains in a global market that counts over one billion smokers. Regulation remains key, but for the transitions to be successful effective decision making and the ability to distinguish among the different product categories and impacts should be ensured.

Three concluding points regarding Italy are worth emphasising.

- *Strategic pragmatism.* Italy must support the climate and digital transition through realistic instruments, promoting technological neutrality, production at scale and preserving national supply chains in European negotiations. The major challenge for the country remains political coordination and the ability to influence the EU's decision-making, overcoming a historical deficit in positioning.
- *Governance and simplification.* Incisive administrative simplification and better integration between European funds and national industrial policies are necessary. Time is crucial. EU planning should fix realistic regulatory deadlines while Brussels decisionmakers and bureaucracy often tend to underestimate the obstacles that industrial sectors face in their adjustment and transformation processes.
- *Multilevel and diplomatic vision.* Italy must strengthen its capacity for dialogue with the Commission and with other member states, building alliances on strategic sectors such as energy, automotive, biofuels and advanced manufacturing. It also needs to constantly reaffirm its commitment to an inclusive multilateralism. Coherence should be ensured between the internal European agenda and participation in global institutions as a way also to prevent competition among blocs from undermining multilateral fora.
- *Transitions cannot be guided by a merely prescriptive logic.* They must be accompanied by investment, strategic vision, production at scale and political coordination. Without these elements, Europe risks remaining a normative power without an adequate industrial and technological base, which is a key requirement to transform transitions into a structural lever of competitiveness and economic autonomy.

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