

Article

Transforming European Competitiveness Under Conditions of Geoeconomic Fragmentation

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Abstract

This article analyses the transformation of the competitiveness of the European Union in the context of geopolitical fragmentation, geo-economic rivalry and the growing importance of economic security in contemporary economic governance. The article argues that the traditional efficiency-oriented understanding of competitiveness, associated primarily with productivity growth, market efficiency and trade openness, is increasingly complemented by a resilience-oriented governance framework that emphasizes strategic autonomy, technological capabilities, economic security and long-term adaptive resilience. Using a conceptually oriented qualitative research design based on interpretive analysis and analytically focused comparison, we integrate knowledge from studies of competitiveness, political economy, geo-economics and European economic governance. The research draws on academic literature primarily available in the Web of Science and Scopus databases, EU strategic documents and legislation, and selected aggregated indicators related to productivity, innovation, trade openness, technological development and sustainability. The findings show that geopolitical fragmentation, supply chain vulnerabilities, technological competition and strategic dependencies are increasingly changing the structural foundations of European competitiveness. Innovation and technological capabilities remain key determinants of long-term competitiveness, but their strategic importance is increasingly linked to resilience, technological sovereignty and economic security. The results also show that the European Union is gradually moving towards a hybrid governance model that combines market openness with strategic coordination, industrial policy and resilience-oriented adaptation. At the same time, significant asymmetries between Member States continue to limit the EU's ability to adapt in a coordinated manner. The article contributes to current debates on competitiveness by establishing an integrated analytical framework linking competitiveness, resilience, economic security, strategic autonomy and sustainable development in the context of geo-economic transformation.



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1. Introduction

The competitiveness of the European Union (EU) in the current international environment is increasingly affected by geopolitical fragmentation, geo-economic rivalry, technological competition and strategic uncertainty (Aiginger, 2021; Farrell & Newman, 2019; Pfeiffer, 2023). For decades, European competitiveness has been associated primarily

with productivity growth, market efficiency, trade openness and participation in global value chains within a liberalized international economic order (Rodrik, 2012; Tooze, 2018). However, recent crises, including the COVID-19 pandemic, energy shortages linked to the war in Ukraine, and the intensifying strategic competition between the United States and China, have exposed the vulnerabilities inherent in highly interconnected and efficiency-oriented economic structures (Tooze, 2021; Felbermayr, 2024; Barry, 2024; Marčeta & Bojnec, 2021). Economic interdependence is therefore increasingly seen not only as a source of growth and efficiency, but also as a source of strategic dependency and systemic risk (Blackwill & Harris, 2016).

These developments are changing the very meaning of competitiveness. While productivity, business performance, and cost-effectiveness remain important, increasing attention is being paid to resilience, adaptability, technological capacity, and vulnerability management (European Commission, 2023b; Draghi, 2024). Economic security has consequently become an important part of European economic governance, particularly in relation to strategic dependencies in sectors such as energy, semiconductors, digital infrastructure and critical raw materials (European Commission, 2023a; European Council, 2025).

This changing environment poses significant structural challenges for the European Union. Although the EU remains one of the world's largest economic players, it faces slowing productivity growth, uneven innovation performance, technological dependency, an ageing population and increasing competition in strategically important sectors (Draghi, 2024; Marčeta & Bojnec, 2022). OECD productivity indicators point to relatively weaker labour productivity growth in the EU over the past decade, particularly in technology-intensive sectors. Internal differences in fiscal capacity, industrial structure, technological development and economic resilience further complicate coordinated adaptation within Member States (Alexa et al., 2019; Dijkstra et al., 2023; Ivančík & Dušek, 2026a).

Competitiveness is increasingly a governance challenge that lies at the intersection of economic performance, resilience, strategic autonomy and long-term adaptation. The EU has to grapple with growing tensions between efficiency and resilience, openness and strategic autonomy, as well as between market liberalisation and demands for public intervention in strategically important sectors (Aiginger, 2021; Letta, 2024). However, existing literature often examines competitiveness, economic security, resilience and strategic autonomy as separate analytical categories. There is therefore a continuing need for integrated approaches that can explain how geopolitical and geo-economic transformations are changing the structural foundations of European competitiveness.

For this reason, the article aims to fill this gap by analysing the transformation of EU competitiveness in the context of geopolitical fragmentation, economic securitization, and increasing pressure for resilience-oriented adaptation. The research question is: How is EU competitiveness changing in the context of geopolitical fragmentation, economic securitization, and increasing pressure for resilience and strategic autonomy? The article argues that European competitiveness is increasingly being rethought through the interlinked logics of economic security, resilience-oriented governance, strategic autonomy, and long-term structural adaptation. These developments do not replace traditional determinants such as innovation, productivity, and trade openness, but change their strategic importance within the changing geo-economic environment.

From a methodological perspective, we use a conceptually oriented qualitative research design based on interpretive analysis and analytically focused comparison. Our research draws on theoretical literature, EU policy documents and legislation, policy frameworks and internationally recognised aggregate indicators relating to competitiveness, innovation, productivity, trade openness and sustainable development. Rather than econometrically test-

ing the causal hypotheses of the study, we provide a theoretically informed and empirically supported explanation of the structural transformation of European competitiveness.

The article contributes to the scientific literature in three main ways. First, we develop an integrated analytical framework linking competitiveness, economic security, resilience, strategic autonomy and sustainable development. Second, we examine the main determinants shaping the future competitiveness of the European Union, in particular innovation, productivity, technological capacities and strategic dependencies. Third, we contribute to the debate on European economic governance by showing how resilience-oriented governance increasingly complements traditional efficiency-oriented approaches to competitiveness.

In terms of systematics, the article is structured as follows, apart from the introduction. Section 2 develops a theoretical framework linking competitiveness, economic security and geo-economic transformation. Section 3 outlines the methodological approach and research design. Section 4 analyses the main determinants shaping EU competitiveness in the context of geopolitical and geo-economic transformation. Section 5 analyses the broader implications for European economic governance and long-term competitiveness. Section 6 summarises the main findings, including limitations, and outlines directions for future research.

2. Theoretical Framework: Competitiveness, Economic Security, and Geoeconomic Transformation

2.1. From Liberal Competitiveness to Resilience-Oriented Economic Governance

The traditional understanding of competitiveness within the European Union has been largely shaped by the liberal economic paradigm that dominated the post-Cold War international order. Competitiveness has been associated primarily with productivity growth, market efficiency, trade liberalization, technological innovation, and integration into global markets (Porter, 2011; Ketels & Porter, 2021). Economic openness and participation in global value chains have been widely seen as key drivers of long-term growth and efficiency (Rodrik, 2012). Under relatively stable geopolitical conditions, economic interdependence has generally been seen as a source of international stability and mutual benefits (Tooze, 2018). As a result, competitiveness has traditionally been measured through indicators such as productivity, export performance, innovation capacity, and macroeconomic stability (Schwab & Zahidi, 2020; Dijkstra et al., 2023).

However, the current geopolitical and geoeconomic environment increasingly challenges the assumptions underlying this liberal economic model. Intensifying geopolitical rivalries, disruptions in supply chains, the fragmentation of the global economy, and the strategic use of economic instruments have changed the conditions under which competitiveness is created and maintained (Farrell & Newman, 2019; Baldwin, 2020; Pfeiffer, 2023). Economic interdependence is now seen not only as a source of efficiency gains, but also as a potential source of vulnerability and coercion (Blackwill & Harris, 2016). The COVID-19 pandemic and the subsequent energy crisis associated with the war in Ukraine have further exposed the fragility of highly optimized supply chains and exposed structural vulnerabilities affecting industrial production, inflation, and long-term economic resilience within the European Union (Tooze, 2021; Felbermayr, 2024).

Technological competition between great powers has reinforced this shift by showing that technological and industrial capacities are becoming important instruments of geopolitical influence and strategic positioning (Barry, 2024; Draghi, 2024). Under such conditions, interpretations of competitiveness focused exclusively on efficiency and openness appear increasingly inadequate. Competitiveness is therefore being re-evaluated through the logic of economic governance focused on resilience.

In this framework, resilience refers not only to the capacity to recover from shocks, but also to the capacity to absorb disruptions, adapt to structural changes, maintain the continuity

of critical functions and preserve long-term development potential in conditions of uncertainty (European Commission, 2023b; Demertzis et al., 2025). Competitiveness thus goes beyond economic performance alone and encompasses dimensions such as technological sovereignty, strategic capacity, diversification of dependencies and institutional adaptability.

This transformation does not imply an abandonment of liberal economic principles or open markets. Rather, it reflects an effort to recalibrate the relationship between efficiency, openness and resilience within a more fragmented international environment. Economic governance is becoming increasingly hybrid, combining market-oriented mechanisms with more active forms of industrial policy, strategic investment and risk management (Aiginger, 2021; Letta, 2024). Competitiveness increasingly depends on the ability of economies to sustain productivity, innovation and long-term growth while managing vulnerabilities and maintaining strategic flexibility in the face of geopolitical and geoeconomic transformation.

2.2. Economic Security and Competitiveness in the EU Context

The growing prominence of economic security within European policy debates reflects a broader shift in the relationship between economic governance, resilience, and strategic stability. In the EU context, economic security generally refers to the capacity to preserve economic stability, protect critical sectors and infrastructure, manage strategic dependencies, and maintain long-term resilience under conditions of geopolitical uncertainty and geoeconomic fragmentation (European Commission, 2023a; European Council, 2025). Importantly, economic security does not imply economic isolationism or the abandonment of open markets. Rather, it reflects the recognition that openness must be complemented by resilience and strategic capacity-building.

The rise in economic security is closely linked to changes in the international economic environment. Under conditions of intensifying geopolitical rivalry, trade, investment, technology, finance, and supply chains are increasingly influenced by strategic considerations that extend beyond traditional notions of market efficiency (Blackwill & Harris, 2016; Farrell & Newman, 2019). Economic interdependence is thus viewed not only as a source of mutual gains, but also as a potential source of vulnerability and coercion.

Within the European Union, concerns about economic security have been driven largely by excessive dependencies in critical sectors. The COVID-19 pandemic, the energy crisis, and broader geopolitical disruptions exposed the extent to which European economies rely on external suppliers in areas such as semiconductors, critical raw materials, pharmaceuticals, digital technologies, and energy resources (Tooze, 2021; European Commission, 2023a). OECD trade and supply-chain indicators likewise point to a high geographic concentration of imports in several strategically important sectors relevant to European industrial competitiveness. These developments highlighted how highly efficient economic structures may simultaneously generate systemic risks when resilience and diversification are insufficiently incorporated into economic governance.

Technological competition has further reinforced the strategic dimension of economic security. Technological capabilities increasingly influence productivity growth, industrial competitiveness, innovation performance, and geopolitical influence (Draghi, 2024; Barry, 2024). Dependence on external actors in strategically important technological sectors may therefore weaken not only economic performance but also long-term strategic autonomy and adaptive capacity. As a result, capabilities in areas such as semiconductors, artificial intelligence, cybersecurity, and clean technologies are increasingly regarded as essential components of both competitiveness and economic security (Demertzis et al., 2025; Horák, 2025).

From the perspective of economic governance, economic security introduces an important conceptual shift. Whereas traditional policy frameworks prioritised efficiency maximisation and cost optimisation, the economic-security perspective places greater em-

phasis on resilience, diversification, and vulnerability management (Gehrke, 2022; OECD, 2025). The concept of “de-risking” captures this evolution particularly well. Rather than pursuing complete economic decoupling, the European Union seeks to reduce excessive strategic dependencies while preserving the broader benefits of openness and global integration (European Commission, 2023b; European Council, 2025).

Integrating economic security into governance also creates important tensions and policy dilemmas. Measures designed to strengthen resilience may lead to higher production costs, reduced short-term efficiency, and increased public spending (Felbermayr, 2024). Industrial-policy interventions supporting strategic sectors may likewise generate tensions with competition policy and fiscal constraints within the EU. Competitiveness within the economic-security framework therefore depends on balancing openness with strategic protection, efficiency with resilience, and market mechanisms with public intervention.

The multidimensional nature of economic security is particularly visible within the European Union because of substantial disparities among Member States in industrial capacity, fiscal space, innovation performance, and economic resilience (Alexa et al., 2019; Marčeta & Bojnec, 2022). Nevertheless, economic security should not be understood solely as a defensive concept. Alongside vulnerability management, it increasingly encompasses the proactive strengthening of competitiveness through innovation, technological development, and industrial upgrading (Aiginger, 2021; Pinkus et al., 2024). Economic security and competitiveness therefore function as mutually reinforcing dimensions of contemporary economic governance.

2.3. Strategic Autonomy and European Economic Governance

Strategic autonomy has become a central concept in current debates on the future development of the European Union in an increasingly fragmented geo-economic environment (Demertzis et al., 2025; Rekowski, 2025). Originally associated primarily with defence and security policy, the concept has gradually spread to the economic sphere and now plays an important role in discussions on industrial policy, technological sovereignty, supply chains, energy security and the resilience of critical sectors (European Commission, 2023a; Letta, 2024). Strategic autonomy essentially reflects the EU’s ambition to strengthen its ability to act independently in strategically important areas while remaining an integrated part of the global economy.

Its growing importance is closely linked to the intensified geopolitical rivalry, the fragmentation of the global economy and the strategic use of economic instruments by great powers (Blackwill & Harris, 2016; Farrell & Newman, 2019). In this context, strategic autonomy can be understood as an effort to reduce overdependence in critical sectors while strengthening the productive and technological capacities of the European economy.

Importantly, strategic autonomy does not mean economic self-sufficiency or protectionist isolation. Rather, it is reflected in the concept of “open strategic autonomy”, which seeks to balance openness with resilience and strategic flexibility (Gehrke, 2022; European Commission, 2023b). The aim is not to retreat from global integration, but to manage interdependence more selectively by diversifying supply chains, supporting strategic sectors and strengthening technological capacities.

Within European economic governance, this shift has contributed to the growing role of industrial policy and strategic investment. Concerns about technological dependency and structural vulnerabilities have prompted greater public support for sectors such as semiconductors, artificial intelligence, renewable energy, digital infrastructure, batteries and critical raw materials (Aiginger, 2021; Draghi, 2024; Ivančík & Dušek, 2026c). Technological capabilities increasingly affect not only productivity and innovation, but also geopolitical positioning and long-term resilience (Barry, 2024; Horák, 2025).

However, the pursuit of strategic autonomy creates significant tensions within the European economic model. The EU remains deeply embedded in international trade and global value chains, which continue to represent important sources of growth and innovation (Ketels & Porter, 2021). Efforts to reduce strategic dependencies may therefore lead to trade-offs between resilience and efficiency, industrial support and competition policy, as well as between transnational coordination and national strategic priorities. These tensions are further complicated by differences between Member States in industrial capacities, fiscal space and technological development (Alexa et al., 2019; Dijkstra et al., 2023).

European economic governance is consequently becoming more strategic and intervention-oriented, especially in sectors considered crucial for long-term competitiveness and economic security (Letta, 2024; Felbermayr & Pekanov, 2025). This transformation, however, does not represent a departure from the liberal-economic foundations of European integration. Rather, it reflects the emergence of a hybrid governance model in which market-oriented mechanisms coexist with greater strategic coordination and selective public interventions.

From an analytical perspective, strategic autonomy functions as one of the main mechanisms through which the European Union adapts its governance model to a more fragmented and competitive international environment. Competitiveness therefore depends not only on productivity and openness, but also on the ability to maintain technological capabilities, preserve strategic flexibility and reduce vulnerabilities in key sectors.

2.4. Towards an Analytical Framework of European Competitiveness

The preceding discussion shows that current European competitiveness can no longer be adequately explained by approaches focused solely on productivity, efficiency and market integration. The growing interlinkages between competitiveness, economic security, resilience, strategic autonomy and sustainability require a broader analytical framework that is able to capture the multidimensional nature of competitiveness in the contemporary global economy (Aiginger, 2021; Demertzis et al., 2025).

Traditional models of competitiveness have emphasized productivity growth, technological innovation, comparative advantage and trade openness as the main determinants of long-term economic performance (Porter, 2011; Ketels & Porter, 2021). While these factors remain fundamental, recent structural transformations suggest that competitiveness also depends on the ability to manage vulnerabilities, absorb external shocks, and maintain strategic flexibility in conditions of uncertainty.

The analytical framework developed in this article conceptualises European competitiveness as the interaction of five interconnected dimensions:

- productivity and economic performance,
- innovation and technological capacity,
- resilience and economic security,
- strategic autonomy and governance capacity,
- sustainable development.

Together, these dimensions form a mutually reinforcing framework shaping the long-term competitiveness of the European Union under conditions of geopolitical and geoeconomic transformation.

Productivity and economic performance remain key, as labour productivity, industrial efficiency and macroeconomic stability continue to underpin long-term growth and fiscal sustainability (Schwab & Zahidi, 2020; Marčeta & Bojnec, 2022). Innovation and technological capacity reflect the growing importance of technological development for productivity growth, industrial transformation and geopolitical positioning (Draghi, 2024; Barry, 2024). Resilience and economic security capture the ability of economies to ab-

sorb shocks, maintain continuity of critical functions and reduce strategic vulnerabilities (European Commission, 2023b; OECD, 2025).

Strategic autonomy and governance capacities highlight the growing role of institutions, industrial policy and strategic investments in shaping competitiveness and long-term adaptation (Pinkus et al., 2024; Letta, 2024). Sustainable development encompasses environmental sustainability, demographic adaptation and social cohesion as structural determinants of long-term resilience and competitiveness (Aiginger, 2021; Ivančík & Dušek, 2026b).

These dimensions create both complementarities and tensions. Measures aimed at strengthening resilience and strategic autonomy can increase costs and reduce short-term efficiency, while an excessive focus on efficiency can create long-term vulnerabilities. Similarly, a transformation focused on sustainability can create pressures to adapt while creating opportunities for innovation and industrial modernisation (Sempere-Ripoll et al., 2020).

This framework reflects the increasingly hybrid nature of European economic governance, in which market-oriented principles are complemented by strategic coordination, industrial policy and governance mechanisms focused on resilience (European Commission, 2023a; Draghi, 2024). Competitiveness can therefore be understood not as a static economic state, but as a dynamic process of structural adaptation shaped by the interaction between domestic economic structures and the changing international environment. Figure 1 illustrates the integrated analytical framework on which the conceptual structure of this article is based.

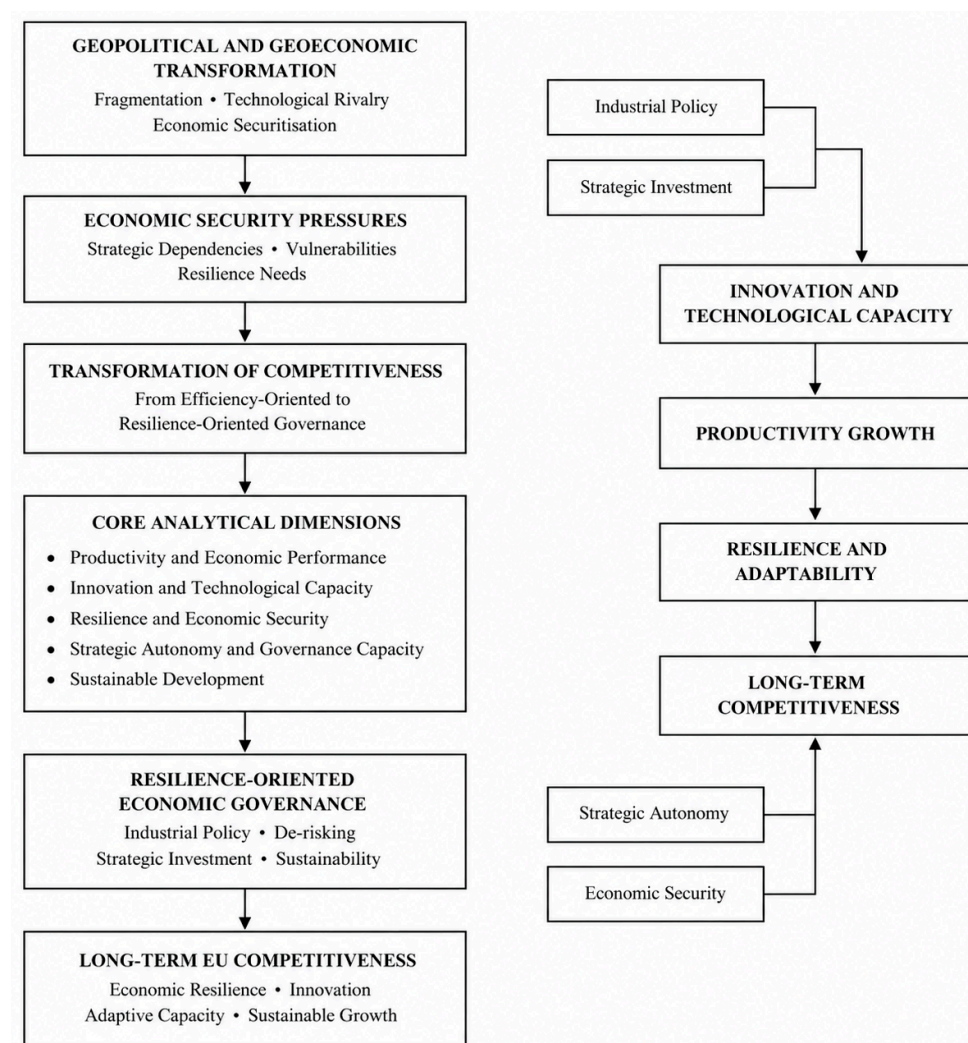


Figure 1. Analytical Framework of EU Competitiveness Transformation. **Source:** Author's own elaboration based on the analytical framework developed in the article.

3. Methodology and Research Design

3.1. Research Design

In this article, we use a conceptually oriented qualitative research design to examine the transformation of European competitiveness in the context of geo-economic fragmentation and the increasing integration of economic security considerations into economic governance. Given the multidimensional and evolving nature of competitiveness, the study does not seek to test causal hypotheses through econometric modeling. Instead, it offers a theoretically informed and empirically supported interpretation of how competitiveness is re-evaluated within a resilience-oriented governance framework.

Our research adopts an interpretive analytical perspective that approaches competitiveness not only as a measurable economic outcome, but as a broader governance phenomenon shaped by economic, technological, institutional, geopolitical, and sustainability-related factors. This perspective is particularly relevant in the context of the evolving European Union, where economic governance is characterized by institutional complexity, multidimensional policy interactions, and gradual processes of structural adaptation (Schimmelfennig, 2018; Letta, 2024).

From a methodological perspective, the analysis proceeds in four interconnected phases. The first phase consists of a review and synthesis of academic literature on competitiveness, political economy, geo-economics, economic security, resilience, and strategic autonomy. The second phase focuses on selected strategic documents and policy frameworks developed by EU institutions and international organizations, with a particular emphasis on the changing understanding of competitiveness and economic security. The third phase involves the examination of aggregate indicators related to productivity, innovation, technological development, trade openness, and sustainability. These indicators are not used to test hypotheses, but serve as empirical reference points that help contextualize broader structural developments affecting European competitiveness. The final phase integrates theoretical insights, policy developments and empirical observations through the analytical framework developed in the article.

The study also includes elements of analytically focused comparison. Rather than systematically comparing individual Member States, it examines selected dimensions of competitiveness and governance in the broader EU context. Particular attention is paid to the interaction between productivity, innovation, resilience, strategic autonomy and sustainability as interrelated determinants of long-term competitiveness.

The conceptual nature of the research reflects the emphasis on explanation and interpretation rather than prediction. The aim is to examine how the logic of competitiveness is evolving within the European Union and how traditional determinants such as productivity, innovation and trade openness are being reshaped by geopolitical uncertainty, strategic dependencies, technological rivalry and systemic vulnerabilities.

This methodological approach combines elements of political economy analysis, economic governance research and geo-economic interpretation. Such an interdisciplinary perspective reflects the interconnected nature of contemporary economic governance, where strategic, technological, environmental and geopolitical considerations shape economic performance (Aiginger, 2021; Demertzis et al., 2025). Combining interpretive analysis, analytically focused comparison and selected empirical illustrations, the article explains how European competitiveness is changing in the context of geo-economic fragmentation and resilience-oriented governance.

3.2. Data and Sources

The empirical basis of this study is based on the triangulation of three categories of sources: academic literature, strategic policy documents and internationally recognized

aggregated indicators. The combination of these sources allows us to examine European competitiveness not only as an economic outcome, but also as a management concept shaped by resilience, economic security, strategic autonomy and sustainability considerations. The use of multiple types of sources reduces the dependence on a single analytical perspective and strengthens the interpretative robustness of the research.

The first category consists of academic literature from the fields of competitiveness studies, political economy, European integration, geoeconomics, economic governance and economic security. These sources provide conceptual and theoretical foundations for understanding the evolving relationship between competitiveness, resilience, strategic autonomy and economic security in the contemporary international environment (Porter, 2011; Farrell & Newman, 2019; Aiginger, 2021; Pfeiffer, 2023). Particular attention is paid to contributions that examine the relationship between economic performance and broader governance transformations associated with geopolitical fragmentation and strategic competition. The second category includes strategic documents and policy frameworks developed by EU institutions and international organisations. These materials are used to identify how European policymakers understand competitiveness in relation to resilience, economic security, technological sovereignty and sustainable development. Key sources include the European Economic Security Strategy (European Commission, 2023a), the European Union Long-Term Competitiveness Strategy (European Commission, 2023b) and the Draghi Report on the Future of European Competitiveness (Draghi, 2024). Together, these documents provide insights into evolving policy priorities and help to link theoretical debates with practical governance responses.

The third category consists of internationally recognised aggregated indicators and statistical datasets used to contextualise broader structural developments affecting European competitiveness. The analysis is based on indicators related to productivity, innovation performance, R&D expenditure, technological development, digitalisation, trade openness, industrial competitiveness, economic security and sustainable development (Bocean & Vărzaru, 2023).

More specifically, the empirical contextualisation includes OECD labour productivity indicators, R&D expenditure as a percentage of GDP, European Innovation Scoreboard indicators, selected measures of technological capacity and digitalisation, indicators of trade openness and strategic dependencies, indicators of renewable energy deployment and greenhouse gas emission trends. These indicators were selected because they directly correspond to the main analytical dimensions examined in the article, namely productivity and economic performance, innovation and technological capacity, resilience and economic security, strategic autonomy and governance capacity and sustainable development.

The main sources include Eurostat, OECD datasets, the European Innovation Scoreboard, the World Economic Forum Competitiveness Indicators and selected EU Competitiveness Reports (Schwab & Zahidi, 2020; Dijkstra et al., 2023). These indicators are not used for formal causal testing. Instead, they serve as empirically based reference points that support the identification of long-term structural trends and provide contextual evidence for the interpretation of major EU policy initiatives, including the European Chip Act, REPowerEU and policies targeting strategic dependencies in critical sectors.

To complement the aggregated indicators, the article includes selected empirical examples related to supply chain resilience, industrial policy, technology governance, energy transition and strategic dependencies in critical sectors. These examples are not presented as stand-alone case studies. Rather, they demonstrate how broader trends identified in the literature and policy documents are reflected in specific areas of European economic governance. Their purpose is to strengthen the explanatory dimension of the analysis and to link abstract concepts with current policy developments.

Overall, the selected sources support a theoretically informed yet empirically supported interpretation of the transformation of European competitiveness. Rather than seeking precise causal quantification, the study focuses on identifying broader structural patterns, governance transformations, and strategic dynamics that shape the future competitiveness of the European Union.

3.3. Analytical Framework

The analytical framework used in this study builds on the conceptual model developed in Section 2.4 and serves as the main tool guiding the empirical analysis. Rather than considering competitiveness as a narrowly economic category measured primarily through productivity or trade performance, it approaches European competitiveness as a multidimensional phenomenon shaped by the interaction of economic, technological, institutional, geopolitical and sustainability-related factors.

The framework is organized into five interrelated dimensions: (1) productivity and economic performance, (2) innovation and technological capacity, (3) resilience and economic security, (4) strategic autonomy and management capacity, and (5) sustainable development. Together, these dimensions provide a coherent analytical structure through which to examine the transformation of European competitiveness in a systematic and integrated manner.

Within the empirical analysis, each dimension serves as a lens through which broader trends affecting European competitiveness are interpreted. Productivity and economic performance are assessed in relation to long-term growth dynamics and structural economic performance (Porter, 2011; Marčeta & Bojnec, 2022). Innovation and technological capacity are examined with a particular emphasis on technological development, digital transformation and innovation ecosystems as sources of competitiveness and technological sovereignty (Draghi, 2024; Barry, 2024). Resilience and economic security are assessed based on the ability of economic systems to absorb shocks, manage vulnerabilities and maintain continuity in conditions of uncertainty (European Commission, 2023b; OECD, 2025). Strategic autonomy and management capacities are analysed in relation to institutional adaptation, industrial policy and strategic investment (Pinkus et al., 2024; Letta, 2024). Sustainable development is included as a long-term structural dimension influencing competitiveness through environmental sustainability, demographic change and social cohesion (Aiginger, 2021; Ivančík & Dušek, 2026b).

The framework also includes broader transformations within the international economic environment as external conditions affecting all five dimensions. Geopolitical fragmentation, technological rivalry and disruptions in global value chains are therefore considered as systemic drivers that shape the strategic context in which European competitiveness develops (Farrell & Newman, 2019; Pfeiffer, 2023).

From a practical perspective, the framework is applied through the examination of five interrelated areas addressed in the empirical part of the article: geopolitical and geo-economic fragmentation; innovation and productivity dynamics; trade openness and strategic dependencies; governance for resilience; and sustainable development. These areas correspond to the main themes analysed in Section 4 and provide a basis for assessing how current governance transformations are reshaping the traditional determinants of European competitiveness. The framework therefore functions not only as a conceptual model but also as an analytical tool that brings together theoretical insights, policy developments and empirical observations within a single interpretative framework.

3.4. Methodological and Research Limitations

The methodological approach adopted in this article has several limitations that should be acknowledged in the interests of analytical transparency and methodological consistency. Given the qualitative and conceptual nature of the research design, the study does not seek to generate statistically generalizable findings or formally test causal hypotheses. Instead, it provides an interpretive explanation of the transformation of European competitiveness in the context of geopolitical and geoeconomic changes.

First, the article does not use econometric modeling or extensive quantitative analysis. Although aggregate indicators related to productivity, innovation, competitiveness, and resilience are included, they are used to identify broader structural trends rather than to establish direct causal relationships.

Second, the research relies heavily on secondary sources, including academic literature, policy documents, institutional reports, and aggregated datasets. Although triangulation enhances analytical robustness, interpretation remains partly influenced by the conceptual assumptions and institutional priorities embedded in these materials.

Third, the analytical framework necessarily involves a certain degree of conceptual abstraction. Competitiveness, economic security, resilience, strategic autonomy and sustainable development are multidimensional and partly overlapping concepts, the boundaries of which remain contested in both academic and policy debates (Gehrke, 2022; Demertzis et al., 2025).

Fourth, the empirical analysis focuses primarily on the European Union as an integrated governance framework, rather than on detailed comparisons of individual Member States. While this facilitates the examination of broader structural transformations, it limits the depth of analysis regarding national differences and sector-specific dynamics.

Finally, the rapidly changing nature of geopolitical and geo-economic developments introduces an additional layer of uncertainty. Economic security, industrial policy and resilience-oriented governance remain dynamic policy areas shaped by persistent geopolitical tensions, technological transformation and structural economic changes (European Commission, 2023a; Draghi, 2024).

These limitations do not diminish the analytical relevance of our study. A conceptual qualitative approach is particularly suited to examining complex transformations that cannot be adequately captured by narrow econometric methodologies. By combining interpretive analysis, theoretical synthesis and empirically based observation, the article offers a coherent framework for understanding the evolving relationship between competitiveness, resilience, economic security and strategic governance within the European Union.

4. Results

European competitiveness is increasingly shaped by the interaction of economic performance, resilience, technological capabilities and strategic governance. In a context of geopolitical fragmentation and geo-economic uncertainty, the traditional emphasis on efficiency is gradually being complemented by a stronger focus on resilience in economic governance (Aiginger, 2021; Draghi, 2024).

This shift does not imply an abandonment of openness or market principles. Rather, it reflects the need to reconcile productivity, innovation and trade integration with economic security, strategic autonomy and vulnerability management. At the same time, substantial asymmetries in innovation capacity, industrial structure, fiscal space and resilience to external shocks persist across Member States, complicating coherent responses at EU level (Alexa et al., 2019; Dijkstra et al., 2023). Table 1 summarizes the main determinants shaping the transition from efficiency-oriented competitiveness to resilience-oriented competitiveness within the European Union.

Table 1. Key Determinants of EU Competitiveness under Conditions of Geoeconomic Transformation.

Determinant	Traditional Competitiveness Logic	Emerging Resilience-Oriented Logic	Implications for EU Governance
Productivity	Efficiency, cost optimisation, labour productivity growth	Productivity linked to resilience, adaptive capacity, and strategic flexibility	Support for productivity-enhancing investment, industrial modernisation, and workforce adaptation
Innovation	Market-driven innovation and technological advancement	Innovation as a source of resilience, technological sovereignty, and strategic autonomy	Greater support for R&D, innovation ecosystems, and strategic technologies
Trade Openness	Liberalisation, export orientation, global value-chain integration	Selective openness combined with de-risking and diversification	Balancing openness with resilience-oriented trade and industrial policies
Technological Capacity	Competitiveness through technological diffusion and efficiency gains	Technological sovereignty and reduced dependency in critical sectors	Strategic investment in semiconductors, AI, digital infrastructure, and clean technologies
Energy Security	Access to affordable energy through global markets	Diversification, resilience, and sustainable energy transition	Expansion of renewable energy systems and reduction in external vulnerabilities
Supply Chains	Cost-efficient global supply-chain integration	Supply-chain resilience, redundancy, and strategic diversification	Strategic stockpiling, reshoring, nearshoring, and diversification initiatives
Industrial Policy	Limited intervention within liberal-market governance	Strategic industrial coordination and support for critical sectors	More active industrial policy and state-supported strategic investment
Strategic Autonomy	Reliance on global interdependence and open markets	Reduction in excessive strategic dependencies	Development of “open strategic autonomy” governance mechanisms
Sustainability	Sustainability primarily as a regulatory and environmental objective	Sustainability integrated into competitiveness and resilience frameworks	Integration of green transition with industrial competitiveness and innovation
Economic Security	Secondary consideration within economic governance	Central governance principle linked to resilience and competitiveness	Integration of economic-security considerations into EU economic governance

Source: Author’s own elaboration based on the analytical framework developed in the article.

4.1. Geopolitical Fragmentation and the Transformation of European Competitiveness

Geopolitical fragmentation is changing the structural foundations of European competitiveness. The liberalized international environment that supported European economic expansion for several decades is giving way to a more fragmented and strategically contested order characterized by geopolitical rivalry, technological competition, and the growing politicization of economic relations (Rodrik, 2012; Farrell & Newman, 2019).

The key driver of this process is the intensifying strategic competition between the United States and China. Trade restrictions, export controls, sanctions, investment reviews and industrial policy measures increasingly serve geopolitical goals rather than purely economic ones (Baldwin, 2020; Barry, 2024). For the European Union, whose economic model

remains largely dependent on openness and global value chains, this creates uncertainty and exposes structural weaknesses (Vojtech et al., 2018).

The COVID-19 pandemic and the war in Ukraine have accelerated these trends by exposing European dependence in strategically important sectors. Supply chain disruptions have highlighted the vulnerabilities associated with concentrated production networks, while the energy crisis has shown how external dependence can directly affect industrial competitiveness, inflation and macroeconomic stability (Tooze, 2021; European Council, 2025).

The extent of these weaknesses became particularly visible after the Russian invasion of Ukraine in 2022. Before the outbreak of war, several member states, notably Germany and Italy, remained highly dependent on Russian natural gas supplies. The subsequent disruption of energy flows contributed to rising energy costs, production constraints in energy-intensive industries and growing concerns about the long-term competitiveness of the European manufacturing industry. The EU's response, including the REPowerEU initiative and the accelerated diversification of energy sources, illustrates how energy security has become closely linked to broader competitiveness and resilience strategies (European Commission, 2022; European Council, 2025).

Higher energy costs weakened energy-intensive industries and increased the pressure for intervention in the field of industrial policy. At the same time, technological competition has become a decisive factor that shapes competitiveness and strategic autonomy. Technologies such as semiconductors, artificial intelligence, digital infrastructure and clean energy solutions are increasingly supporting economic power and geopolitical influence (Draghi, 2024; Horák, 2025). In response, the EU intensified efforts to strengthen technological sovereignty and reduce excessive dependence in critical sectors.

As a result, competitiveness is no longer evaluated solely on the basis of productivity, export performance or cost efficiency. It increasingly depends on the ability to absorb shocks, diversify dependencies, maintain strategic flexibility and adapt to geopolitical and technological changes (European Commission, 2023b; Demertzis et al., 2025).

Geopolitical fragmentation thus changes competitiveness from a predominantly economic concept to a broader challenge in the field of public administration, which combines productivity, resilience, technological capacities and long-term adaptation within an increasingly uncertain international environment.

4.2. Innovation, Productivity, and Technological Capacity as Determinants of Competitiveness

Innovation, productivity and technological capabilities remain key determinants of European competitiveness. However, in a context of geopolitical fragmentation and technological rivalry, their importance extends beyond economic growth and market efficiency to include resilience, strategic autonomy and economic security (Porter, 2011; Draghi, 2024).

The European Union continues to experience weaker productivity growth than several major global competitors, particularly in technology-intensive sectors. OECD indicators point to slower labour productivity growth within the EU over the past decade, reflecting structural challenges such as uneven innovation performance, fragmented capital markets, an ageing population, regulatory complexity and underinvestment in strategically important sectors (Alexa et al., 2019; Dijkstra et al., 2023). These weaknesses increasingly limit the EU's ability to maintain technological leadership and long-term competitiveness.

Innovation capacity has therefore taken on greater strategic importance. Technological capacities play an increasingly important role in shaping productivity growth, industrial modernisation and the ability to manage dependencies in critical sectors (Banerjee et al., 2020; Draghi, 2024). While the European Union retains important strengths in research capacity, higher education and advanced manufacturing, it continues to lag behind leading

global competitors in areas such as semiconductors, artificial intelligence, digital infrastructure and advanced digital technologies (Horák, 2025). Significant differences also persist between Member States in research intensity, digitalisation and innovation ecosystems, further complicating efforts to strengthen technological sovereignty at EU level.

Technological development is also closely linked to resilient governance. Dependence on external actors in critical technologies creates vulnerabilities that can weaken industrial competitiveness and strategic flexibility (European Commission, 2023a). The European Chip Act provides a particularly important example of this approach. The initiative, adopted in 2023, aims to strengthen the European semiconductor ecosystem by supporting research, innovation, manufacturing capacities and strategic investments. The Act reflects growing concerns about technological dependencies and supply chain vulnerabilities in a sector that is increasingly recognised as crucial for industrial competitiveness, digital transformation, economic security and long-term strategic autonomy (European Union, 2023). Its adoption was also influenced by intensified technological competition between the United States and China, which has raised concerns about access to advanced semiconductors and the resilience of global technology supply chains. A relevant indicator in this context is the European Union's target to increase its share of global semiconductor production to 20% by 2030, reflecting broader efforts to strengthen technological capacities and reduce strategic dependencies (European Union, 2023; Draghi, 2024). More broadly, it illustrates how competitiveness policy, industrial policy and economic security objectives are increasingly intertwined within the framework of contemporary European economic governance.

Human capital, workforce adaptability and digital skills remain key to sustaining long-term innovation capacity. However, this transition brings important trade-offs. Policies aimed at strengthening technological sovereignty and industrial resilience often require greater public intervention and strategic coordination, which can increase fiscal pressure and market fragmentation (Pinkus et al., 2024). Balancing innovation-driven growth with resilience-oriented governance therefore represents one of the main challenges facing European economic governance. Innovation and technological capacity thus function not only as sources of productivity growth, but also as key components of resilience, strategic autonomy and long-term competitiveness within the European Union. Figure 2 illustrates the interaction between innovation, productivity, resilience and competitiveness within the analytical framework developed in this article.

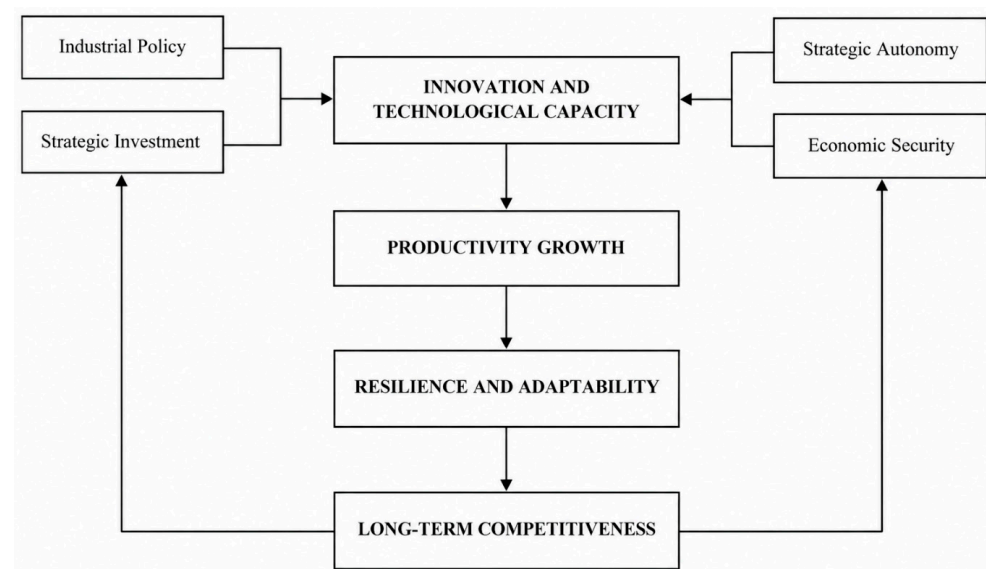


Figure 2. Relationships between Innovations, Productivity, Resilience, and Competitiveness. **Source:** Author's own elaboration based on the analytical framework developed in the article.

4.3. Trade Openness, Strategic Dependencies, and Economic Resilience

Trade openness has long been one of the main pillars of European competitiveness. Economic integration, export-led growth and participation in global value chains have contributed significantly to productivity growth, industrial development and technology diffusion across the European Union (Rodrik, 2012; Ketels & Porter, 2021). Openness continues to provide important benefits by facilitating access to markets, technologies, investments and transnational innovation networks.

However, the current international environment shows that deep economic interdependence can also create structural vulnerabilities and strategic dependencies (Farrell & Newman, 2019; Gehrke, 2022). The COVID-19 pandemic has exposed the fragility of highly interconnected supply chains, while the war in Ukraine has exposed the extent of Europe's dependence on external energy suppliers and its impact on industrial competitiveness, inflation and macroeconomic stability (Tooze, 2021; European Council, 2025). Similar vulnerabilities remain visible in sectors such as semiconductors, critical raw materials, batteries, pharmaceuticals and digital technologies.

Strategic dependencies are particularly evident in the area of critical raw materials needed for batteries, renewable energy technologies and advanced manufacturing. The high concentration of global processing capacity outside Europe, particularly for several rare earth elements and battery-related inputs, has intensified concerns about security of supply and contributed to growing support for diversification strategies and the development of domestic capacities within the European Union (European Commission, 2023a; European Union, 2024).

A significant regulatory response to these challenges was the adoption of the Critical Raw Materials Act, which came into effect in 2024. The act aims to reduce excessive strategic dependence by strengthening domestic mining, processing and recycling capacities while diversifying external sources of supply. The initiative was motivated by growing concerns about the concentration of global supply chains for critical materials that are essential for the green and digital transformation. Strategic vulnerabilities are particularly visible in materials such as lithium, cobalt, graphite and rare earth elements, which are essential for battery production, renewable energy technologies, semiconductors and advanced manufacturing. Indicators commonly used to assess these vulnerabilities include the degree of import dependence, the level of supplier concentration and domestic mining and processing capacities. Together, these indicators highlight the extent to which external dependencies can affect the long-term resilience and competitiveness of the European Union (European Union, 2024; European Commission, 2023a).

All these vulnerabilities have combined to increase the importance of resilience in European economic governance. Resilience is not only about recovering from crises, but also about the ability to diversify dependencies, maintain the continuity of critical functions and adapt to geopolitical and geo-economic disruptions (European Commission, 2023b; Demertzis et al., 2025). Competitiveness therefore depends not only on efficiency and openness, but also on strategic flexibility and the effective management of vulnerabilities. The EU has responded with 'risk reduction' strategies that aim to selectively reduce overdependence while preserving the broader benefits of global economic integration (European Commission, 2023a). These measures include supply chain diversification, strategic sourcing, support for domestic production capacities and investment in critical technologies. However, such policies come with important trade-offs. Greater resilience often requires higher production costs, increased public investment and reduced short-term efficiency gains traditionally associated with globalised production systems (Felbermayr & Pekanov, 2025).

The emergence of the EU Risk Reduction Strategy is closely linked to the European Economic Security Strategy adopted in 2023 (European Commission, 2023a). In contrast

to economic decoupling, which implies a broader restriction of economic relations, risk reduction seeks to preserve the benefits of international openness while reducing overdependence in strategically important sectors (Baechler, 2025). The strategy was shaped by a number of interlinked events, including supply chain disruptions during the COVID-19 pandemic, vulnerabilities exposed by the energy crisis following the Russian invasion of Ukraine, growing concerns about dependence on Chinese manufacturing capacities in critical sectors, and the broader context of intensified technological and geopolitical competition. In this framework, indicators such as import concentration, supplier diversification, strategic dependency assessments, energy dependency levels and semiconductor manufacturing capacity increasingly serve as reference points for assessing economic security risks and resilience needs within the European Union (European Commission, 2023a; European Council, 2025).

These challenges are not evenly distributed across the European Union. Member States differ significantly in their industrial structure, fiscal capacity, export orientation, technological development and exposure to external dependencies (Alexa et al., 2019; Dijkstra et al., 2023). Economies with a stronger industrial base and greater fiscal flexibility are generally better placed to adapt to supply chain restructuring and geopolitical instability.

The evolving nature of global trade relations requires the European Union to balance openness with resilience, efficiency with strategic security, and market integration with forms of adaptive governance that are able to respond to geopolitical and geoeconomic uncertainty.

4.4. Sustainable Development and Long-Term Competitiveness

Sustainable development has become a key factor for long-term European competitiveness. Sustainability is no longer considered exclusively as an environmental objective, but is increasingly linked to resilience, industrial modernization, innovation capacity and long-term economic stability (Aiginger, 2021; Pisani-Ferry et al., 2024). In the context of climate change, demographic transition and geopolitical uncertainty, the ability to manage sustainable adaptation plays an increasingly important role in shaping the competitiveness of advanced economies.

The European Union has integrated sustainability into its broader governance framework through initiatives linked to the European Green Deal, climate neutrality, digital transformation and resilience-oriented governance (European Commission, 2023b). The transition to low-carbon production systems requires significant investments in infrastructure, industrial modernization and technological advancement. It also creates opportunities for innovation-driven growth in sectors such as renewable energy, batteries, hydrogen technologies and sustainable manufacturing (Draghi, 2024; Pinkus et al., 2024). A sustainability-focused transformation can therefore strengthen the EU's position in emerging global markets while fostering technological leadership in strategically important sectors.

The central policy framework supporting this transformation is the European Green Deal, launched in 2019 as the European Union's long-term strategy to achieve climate neutrality by 2050 while strengthening sustainable economic growth and industrial competitiveness. This initiative seeks to address the structural challenges of climate change, environmental degradation, energy dependence and resource inefficiency. Its implementation is supported by a wide range of policy measures covering clean energy, industrial decarbonisation, sustainable mobility and the development of a circular economy (European Commission, 2019; European Commission, 2023b). Progress towards these goals is commonly assessed using indicators such as greenhouse gas emissions, the share of renewable energy in gross final energy consumption and energy intensity levels. These indicators provide important evidence on the extent to which the green transi-

tion contributes simultaneously to environmental sustainability, economic resilience and long-term competitiveness.

However, the relationship between sustainability and competitiveness entails important trade-offs. Stricter environmental regulation and higher costs of energy transition can weaken the competitiveness of energy-intensive sectors and increase the pressure for firms and households to adapt (Felbermayr & Pekanov, 2025). The energy crisis that followed the war in Ukraine further highlighted the close links between sustainability, energy security and economic resilience (European Council, 2025). The EU is therefore seeking to combine decarbonisation objectives with efforts to diversify energy sources and strengthen energy resilience.

Demographic transition and social cohesion also affect sustainable competitiveness. Population ageing, labor shortages and skill shortages can undermine productivity growth and fiscal sustainability if insufficient attention is paid to education, training and labor market adaptation (Šimelytė et al., 2021). Regional disparities and uneven innovation capacity across Member States further complicate the implementation of common sustainability and competitiveness strategies (Dijkstra et al., 2023). Sustainable transformation in the EU therefore depends not only on technological modernization, but also on social resilience and institutional coordination.

Sustainable development thus functions not only as a normative goal, but also as a structural condition for long-term competitiveness, resilience and strategic adaptation within the European Union.

4.5. Economic Security and the Reconfiguration of EU Economic Governance

Economic security has become one of the central organizing principles of European economic governance. In a context of geopolitical fragmentation, technological rivalry and supply chain instability, the European Union is gradually moving away from a model focused primarily on market efficiency, liberalization and regulatory integration towards a more resilience-oriented and strategically coordinated framework (Rodrik, 2012; Tooze, 2018).

Economic security is increasingly assessed through a combination of indicators that capture both structural vulnerabilities and resilience capacities. Commonly used indicators include import dependency levels in critical sectors, supplier concentration ratios, exposure to external energy suppliers, technological dependency ratios, foreign direct investment screening statistics and indicators of domestic manufacturing capacity in strategically important sectors. Other benchmarks include supply chain concentration ratios, semiconductor manufacturing capacity, dependency ratios on critical raw materials and R&D expenditure in key technologies. Together, these indicators provide an empirical basis for assessing the extent to which the European Union is able to reduce strategic vulnerabilities while maintaining competitiveness, resilience and openness in an increasingly fragmented international environment (European Commission, 2023a; OECD, 2025).

This shift reflects a growing awareness that excessive strategic dependence can undermine industrial resilience, macroeconomic stability and long-term competitiveness. The COVID-19 pandemic, the energy crisis and broader geopolitical disruptions have exposed the vulnerabilities associated with highly globalized production systems and dependence on external suppliers in strategically important sectors (European Commission, 2023a; Felbermayr, 2024). Economic governance is therefore increasingly integrating resilience, strategic capacities and vulnerability management into broader competitiveness frameworks.

One of the clearest manifestations of this development is the renewed role of industrial policy. The EU and its Member States are increasingly supporting sectors considered crucial for competitiveness and economic security, including semiconductors, renewable

energy technologies, digital infrastructure, artificial intelligence and critical raw materials (Draghi, 2024; European Union, 2024). Public investment, strategic coordination and state-sponsored innovation initiatives now complement traditional market-oriented approaches to governance. The concept of “open strategic autonomy” reflects this hybrid model, combining economic openness with efforts to reduce overdependence and strengthen resilience in critical sectors (European Commission, 2023b; Gehrke, 2022).

The integration of economic security into EU governance also creates significant tensions and institutional challenges. Differences between Member States in fiscal capacity, industrial structure and technological development complicate the implementation of coherent pan-European strategies (Rekowski, 2025). Increased public intervention and support for industrial policy can strengthen resilience and technological sovereignty, but they can also create tensions with competition policy, fiscal discipline and internal market cohesion (Felbermayr & Pekanov, 2025). Moreover, excessive securitisation of economic governance can contribute to fragmentation within the global economy. Economic security therefore changes the foundations of European economic governance. The future competitiveness of the European Union will depend on its ability to balance openness with resilience, market integration with strategic coordination, and economic efficiency with long-term adaptability in the face of geopolitical and geo-economic uncertainty.

5. Discussion

5.1. From Efficiency to Resilience? The Changing Logic of European Competitiveness

The findings indicate that European competitiveness is gradually evolving from a predominantly efficiency-oriented model towards a more resilience-oriented framework of economic governance. Traditional determinants such as productivity growth, market efficiency, and trade openness remain essential, yet they no longer provide a sufficient explanation of competitiveness under conditions of geopolitical fragmentation, technological rivalry, and systemic uncertainty (Porter, 2011; Ketels & Porter, 2021). Increasingly, competitiveness depends on the ability to combine economic performance with resilience, technological capacity, and strategic adaptability.

A key driver of this shift is the growing role of economic security within European governance. Strategic dependencies in areas such as energy, critical technologies, supply chains, and digital infrastructure have demonstrated that economic interdependence may generate not only efficiency gains, but also structural vulnerabilities (European Commission, 2023a; Farrell & Newman, 2019). The COVID-19 pandemic, the energy crisis, and broader geopolitical disruptions exposed the limitations of highly optimised production systems and accelerated the incorporation of resilience into wider competitiveness frameworks.

The relationship between efficiency and resilience nevertheless involves important trade-offs. Measures designed to strengthen resilience, including supply-chain diversification, strategic stockpiling, reshoring initiatives, and industrial-policy support, may enhance long-term adaptive capacity but can also increase costs and reduce some of the efficiency gains associated with global economic integration (Tooze, 2021; Felbermayr, 2024). An excessive emphasis on strategic protection may weaken openness, competition, and innovation dynamics, while an excessive focus on efficiency may increase vulnerability to external shocks.

Viewed more broadly, competitiveness in the contemporary European context depends on balancing efficiency with resilience, openness with strategic flexibility, and market integration with adaptive governance under conditions of geopolitical and geoeconomic uncertainty.

5.2. Competitiveness and Economic Security: Complementarity or Tension?

The results point to a growing interconnectedness between competitiveness and economic security within the European governance framework. Economic security no longer operates exclusively as a category of defence policy. It increasingly shapes the conditions under which innovation, industrial resilience and long-term competitiveness are promoted within the European Union (Gehrke, 2022; European Commission, 2023a).

Technological capacity and innovation occupy a central place in this relationship. Economies capable of supporting advanced technologies, innovation ecosystems and strategic sectors are generally in a better position to strengthen resilience and maintain competitiveness in the face of geo-economic rivalry (Draghi, 2024; Barry, 2024). This helps to explain the EU's growing emphasis on technological sovereignty, industrial policy and strategic investments in sectors such as semiconductors, digital infrastructure, renewable energy and artificial intelligence.

However, integrating economic security into economic governance creates significant tensions. Policies aimed at reducing strategic dependence and strengthening resilience often require public intervention, industrial policy support and greater strategic coordination (Pinkus et al., 2024; Letta, 2024). While such measures can strengthen long-term adaptive capacity, they can also lead to higher production costs, fiscal pressure and tensions in the internal market. The EU's 'risk reduction' strategy illustrates this challenge in finding a balance by seeking to reduce overdependence while preserving the wider benefits of openness and global integration (European Commission, 2023b). Table 2 summarises the main interactions between competitiveness, resilience and strategic autonomy within the current EU governance framework.

Table 2. Interaction between Competitiveness, Resilience, and Strategic Autonomy in the European Union.

Dimension	Contribution to Competitiveness	Main Risks	EU Governance Response
Economic Openness	Supports trade, productivity, and market access	External dependencies and supply-chain disruptions	De-risking and diversification strategies
Innovation and Technology	Enhances productivity, industrial upgrading, and technological sovereignty	Technological dependence and uneven innovation capacity	Support for R&D, AI, semiconductors, and digital infrastructure
Industrial Policy	Strengthens strategic sectors and long-term resilience	Market distortions and fiscal asymmetries	Coordinated industrial investment and strategic funding
Energy and Sustainability	Promotes green competitiveness and industrial modernisation	Transition costs and critical raw-material dependencies	Renewable-energy investment and resilient energy governance
Economic Security	Protects critical sectors and strengthens adaptive capacity	Risk of over-securitisation and fragmentation	Balancing openness with resilience-oriented governance

Source: Author's own elaboration based on the analytical framework developed in the article.

The evidence presented in this study suggests that competitiveness and economic security should not be interpreted exclusively as conflicting goals. In conditions of geopolitical fragmentation, governance focused on resilience can itself become a source of long-term competitiveness by supporting innovation, industrial modernization and technological adaptation (Pisani-Ferry et al., 2024). At the same time, however, excessive securitization and protectionism can weaken openness and reduce incentives to innovate.

Competitiveness and economic security therefore function simultaneously as complementary and tension-generating dimensions of European governance. The future competitiveness of the European Union will depend on its ability to reconcile resilience-oriented adaptation with openness, market efficiency and innovation-driven growth.

5.3. Structural Constraints and Internal Asymmetries Within the European Union

An important conclusion from this study is that the transformation of European competitiveness remains highly uneven within the European Union. Although the EU increasingly promotes resilience, technological sovereignty and economic security at the supranational level, Member States differ significantly in industrial capacities, innovation performance, fiscal space and institutional resilience (Alexa et al., 2019; Marčeta & Bojnec, 2022). These asymmetries significantly affect the ability of individual economies to adapt to geopolitical and geoeconomic changes.

The EU's long-term competitiveness continues to be affected by several structural constraints, including fragmented capital markets, uneven innovation ecosystems, technological dependency in key sectors, an ageing population and slower productivity growth compared to its main global competitors (Dijkstra et al., 2023; Draghi, 2024). Differences in technological development and research capacities are particularly important. Northern and Western European economies generally have stronger innovation systems and greater fiscal flexibility, while several Central and Southern European economies continue to face slower industrial modernisation and lower research intensity. These differences make it difficult to implement coherent competitiveness and resilience strategies at EU level.

Institutional constraints further amplify these challenges. Although EU governance is increasingly focusing on resilience, sustainability and economic security, its implementation often depends on national political priorities and fiscal capacities (European Commission, 2023b; Rekowski, 2025). The hybrid structure of EU governance therefore creates coordination difficulties in areas such as industrial policy, strategic investment and technology management. Moreover, the growing role of industrial policy may itself exacerbate existing asymmetries, as Member States with greater fiscal capacities are generally in a better position to support strategic sectors and attract investment (Felbermayr & Pekanov, 2025).

The transformation of European competitiveness is therefore influenced not only by external geopolitical pressures, but also by internal structural fragmentation and uneven adaptive capacity within the European Union. Long-term competitiveness will increasingly depend on the EU's ability to strengthen cohesion, coordination and convergence among Member States.

5.4. Implications for European Economic Governance

The discussion points to the gradual evolution of European economic governance towards a more hybrid model that combines market-oriented integration with strategic coordination, industrial policy and adaptation aimed at resilience. In a context of geopolitical fragmentation and technological rivalry, competitiveness depends not only on market efficiency, but also on the ability to manage vulnerabilities and support long-term structural transformation.

One of the clearest manifestations of this shift is the renewed role of industrial policy within the European Union. Sectors related to semiconductors, digital infrastructure, renewable energy sources, advanced manufacturing and critical raw materials are increasingly receiving strategic support through public investment and coordinated governance mechanisms (Pinkus et al., 2024; Letta, 2024). This development does not necessarily mean a rejection of open market principles. Rather, it reflects the effort to adapt the European economic model to a more competitive and uncertain international environment.

The relationship between sustainability and competitiveness is also becoming increasingly important. The green transformation, digitalisation and decarbonisation of industry can strengthen innovation capacity and create new competitive advantages, but at the same time they generate adjustment pressures that affect energy costs, labour markets and industrial competitiveness (Pisani-Ferry et al., 2024). Economic governance must therefore balance sustainability objectives with industrial resilience and long-term productivity growth.

The growing integration of economic security considerations into governance reflects a broader convergence of economics and geopolitics. Economic policy increasingly takes into account concerns related to technological sovereignty, supply chain resilience and strategic dependencies (Farrell & Newman, 2019; Gehrke, 2022). However, the EU does not seem to be abandoning its traditional model of openness and integration. Instead, it is adapting this model through resilience-oriented governance and strategic coordination mechanisms.

Overall, this discussion reinforces the main thesis of the article that European competitiveness is increasingly shaped by the interaction between economic security, resilience, technological transformation and sustainability. The future competitiveness of the European Union will depend not only on productivity and innovation, but also on its ability to coordinate strategic adaptation and maintain long-term resilience in conditions of geopolitical and geoeconomic uncertainty.

6. Conclusions

The transformation of the international economic environment is changing the foundations of competitiveness within the European Union. Geopolitical fragmentation, technological rivalry, supply chain instability and growing concerns about economic security are challenging the assumptions that have long underpinned the liberal economic model of European integration (Rodrik, 2012; Farrell & Newman, 2019). Competitiveness can no longer be understood solely through productivity, market efficiency and trade outcomes. It increasingly reflects the interaction between economic performance, resilience, technological capabilities, strategic autonomy and sustainable development. In this article, we examine how EU competitiveness is changing in the context of geopolitical fragmentation, economic securitisation and resilience-oriented adaptation. We argue that the European Union is gradually moving away from a model focused primarily on efficiency towards a framework of economic governance that is more resilient and strategically coordinated. This shift does not imply an abandonment of openness or liberal economic principles. Rather, it reflects the need to reconcile openness with resilience, technological sovereignty and strategic adaptation in an increasingly uncertain international environment.

We formulated the following research question: How is EU competitiveness changing in the context of geopolitical fragmentation, economic securitization, and increasing pressure for resilience and strategic autonomy? Based on our conceptual analysis of academic literature, EU strategic documents and aggregate indicators, we conclude that European competitiveness is undergoing a structural shift from a predominantly efficiency-oriented model towards a hybrid framework in which economic security, resilience and strategic autonomy play a central role. Under conditions of geopolitical rivalry, supply-chain disruptions and energy insecurity, competitiveness increasingly depends on the EU's capacity to manage strategic dependencies, strengthen technological capabilities, diversify critical inputs and sustain key economic functions in an uncertain environment. This evolution is reflected in the growing prominence of open strategic autonomy and a more interventionist governance approach, where industrial policy, strategic investment and risk-management tools complement traditional market mechanisms.

Our research further shows that this transformation does not replace traditional determinants of competitiveness, but redefines their strategic importance. Innovation, productivity and trade openness remain essential, yet they are now increasingly evaluated through the lens of resilience, technological sovereignty and economic security. Technological capacities in areas such as semiconductors, artificial intelligence, clean energy and digital infrastructure function both as drivers of productivity and as foundations of strategic autonomy. Trade openness continues to bring benefits, but is more closely tied to de-risking, diversification and sustainability objectives. Overall, we find that EU competitiveness is evolving into a dynamic, hybrid model that seeks to reconcile efficiency with resilience, openness with strategic control, and green and digital transitions with long-term structural adaptation, while remaining constrained by persistent asymmetries in innovation capacity, fiscal space and resilience across Member States.

The discussion highlighted how geopolitical and geo-economic developments are changing the conditions under which production, trade, innovation and governance operate within the European Union. The COVID-19 pandemic, the energy crisis and supply chain disruptions have exposed vulnerabilities associated with excessive strategic dependence and highly optimised production systems (Tooze, 2021; European Council, 2025). Resilience and economic security have consequently moved closer to the centre of European competitiveness debates and policy frameworks.

Innovation, productivity and technological capacity remain key determinants of competitiveness, but their importance is increasingly influenced by geopolitical conditions. Technological developments affect not only economic growth and industrial performance, but also resilience, strategic autonomy and geopolitical positioning (Draghi, 2024; Barry, 2024). At the same time, the European Union continues to face structural constraints linked to uneven innovation performance, fragmented industrial capacities, demographic pressure and technological dependencies in strategically important sectors.

Our analysis has highlighted the growing importance of governance for resilience. Trade openness and global integration continue to provide substantial economic benefits, but increasingly require complementary governance mechanisms that are able to manage vulnerabilities and diversify strategic dependencies. Economic security thus acts as a framework linking competitiveness, industrial policy, resilience and strategic autonomy within a more fragmented international environment.

Another challenge is the uneven nature of the competitiveness transformation within the European Union. Significant disparities persist across Member States in labour productivity (Víghová et al., 2023; Stangova & Vighova, 2024), innovation capacity, fiscal space, technological development and resilience to external shocks (Alexa et al., 2019; Dijkstra et al., 2023). These asymmetries complicate coherent responses at EU level and may weaken the broader coherence of the European economic model.

From a theoretical perspective, this article contributes to current debates on competitiveness by establishing an integrated analytical framework linking economic performance, innovation, resilience, economic security, strategic autonomy and sustainable development. From a methodological perspective, we have used a qualitative, concept-based approach, based on interpretive analysis and analytically focused comparison rather than formal econometric modelling.

Nevertheless, several limitations remain. The analysis relied primarily on secondary sources, strategic policy documents and aggregated indicators, rather than on original quantitative datasets or comparative case studies. Moreover, the rapidly changing nature of geopolitical and geo-economic developments means that some of the dynamics discussed in this article may continue to evolve beyond the time frame of the study. Our future research could therefore extend the analysis through sector-specific investigations, compar-

ative assessments of Member States or more detailed empirical analysis of governance for resilience and economic security. However, the ultimate competitiveness of the European Union will, in our view, depend on its ability to balance efficiency with resilience, openness with strategic autonomy and market integration with adaptive governance. In a context of accelerating geopolitical and technological change, competitiveness reflects not only economic performance in the narrow sense, but also a broader capacity for strategic adaptation, institutional coordination, technological modernisation and long-term resilience.

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