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EXECUTIVE SUMMARY OF THE THESIS

European Productivity in the Global Context: analysis, comparison with Emerging Economies, and Selective Industrial Policy Models for a New European Competitiveness

TESI MAGISTRALE IN MANAGEMENT ENGINEERING – INGEGNERIA GESTIONALE

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1. Introduction

Over the past two decades, a persistent divergence in economic performance has reshaped the global landscape. While the United States has remained at the technological frontier and China has sustained rapid industrial upgrading, the European Union has experienced a prolonged productivity slowdown that has widened the prosperity gap and raised concerns over long run competitiveness. In recent policy debate, this divergence has been framed not as a temporary cyclical weakness but as a structural risk to Europe's economic model and political cohesion.[1]

This thesis investigates the structural and institutional drivers of Europe's productivity problem and assesses whether a selective industrial policy can be a viable response under the constraints of EU multi level governance and market fragmentation. The analytical premise is that Europe's gap is primarily a Total Factor Productivity problem rather than a simple capital deepening shortfall, implying a deeper failure in innovation translation, diffusion, and allocative efficiency. The thesis introduces the concept of a European middle technology trap to describe an economy that is losing edge in traditional medium technology manufacturing while transitioning unevenly into high growth digital and deep tech domains. It further treats selective industrial policy as a governance proposition rather than a slogan: selective intervention is defensible only if it is embedded in credible discipline devices, including conditionality, measurable performance criteria, time bounded support, and explicit exit rules, thereby limiting rent extraction and avoiding the preservation of persistently unproductive capacity.[2]

[1] Draghi (2024)

[2] Juhász (2024)

2. Literature Review

The thesis is anchored in a recent reappraisal of industrial policy and productivity dynamics. A central puzzle in the contemporary literature is why competitiveness constraints persist despite high levels of technology availability and increasingly interventionist policy environments. Firm level research has documented widening dispersion between a thin productivity frontier and a long tail of laggards, suggesting that aggregate slowdown is partly a diffusion failure rather than a frontier invention failure.[3] In this view, the decisive margin is not whether frontier technologies exist, but whether organisational capabilities, complementary intangibles, and competitive selection mechanisms enable broad based adoption and measurable productivity gains.[4]

A second strand emphasises that Europe is not a single institutional equilibrium. National models remain consequential for firm behaviour, skills formation, finance, and the organisation of production, even under a common market and shared regulatory constraints. This heterogeneity implies that a one size fits all industrial policy template is unlikely to work across the EU, and that the binding constraints to diffusion and scale formation differ across Germany, France, and Italy. The third strand focuses on the external environment. State led techno industrial competition, particularly from the US and China, has altered global location incentives and raised the opportunity cost of fragmented European responses.[5]

Against this backdrop, the thesis addresses one main research question: to what extent do Europe's heterogeneous institutional models and the competitive pressures from the US and China constrain or enable the effectiveness of a selective industrial policy aimed at closing the productivity gap. Two analytic sub questions discipline the comparative strategy. The first asks how the institutional logics of Germany, France, and Italy mediate their respective performance in productivity, innovation, and diffusion. The second asks under what conditions selective industrial policy can accelerate adoption and productivity growth within the EU's multi level governance framework, while preserving contestability and avoiding capture.

3. Evolution of the Productivity Gap between the USA, the EU, and China

The empirical foundation documents the evolution of the EU-US-China productivity gap and clarifies why productivity is the dominant driver of the widening prosperity gap. The thesis traces how a late twentieth century convergence phase gave way to a post 2000 slowdown, with a growing distance from the United States in both output and living standards. This diagnosis is consistent with evidence that the global productivity slowdown has been accompanied by technology divergence and increasing dispersion between frontier and laggard firms.[6]

The chapter then disaggregates the gap through sectoral dynamics. In manufacturing, Europe faces the diminishing returns of earlier global value chain expansion and the challenge of upgrading under intensified competition and geopolitical fragmentation. In services, the thesis highlights a stagnation pattern relative to more dynamic performance in the United States and several emerging economies, with implications for aggregate productivity given the rising weight of services in value added. In energy and decarbonisation, it stresses the coordination challenge of transforming an energy system while maintaining industrial competitiveness, in a context where volatility in input costs and infrastructure bottlenecks can depress investment and reallocation.

A central contribution of this chapter is to formalise the European middle technology trap as the organising mechanism linking sectoral trends to Europe's structural predicament. The trap captures the erosion of traditional medium technology advantages under intensified competition, combined with an uneven transition into high growth digital and deep tech domains. It is expressed not only in sectoral composition but

[3] Andrews et al. (2016)
[4] Brynjolfsson et al. (2018)
[5] Juhász et al. (2024)
[6] CompNet, "New CompNet Firm Productivity Report, 10th Vintage Micro-Aggregated Dataset and Policy Report" (2025)

also in scale formation constraints. Europe produces too few high growth firms capable of scaling across a fragmented internal market, limiting the returns to innovation and reinforcing productivity dispersion.

4. Institutional Heterogeneity in Europe: Germany, France, and Italy

The thesis then disaggregates the European case by treating the EU as a political construction that accommodates distinct institutional logics rather than as a unified economic space with a single growth model. Germany, France, and Italy are analysed as three pillars that combine economic weight with distinct organisational and governance patterns, shaping how firms invest, innovate, and respond to shocks.

Germany is examined as a coordinated industrial capitalism anchored in export orientation, dense manufacturing clusters, and a dual structure combining large global firms with a specialized Mittelstand. The thesis emphasises that this model historically supported incremental upgrading through vocational training, supplier networks, and coordination mechanisms. Contemporary pressures are analysed through the interaction of energy costs, the automotive transition, geopolitical fragmentation, and dependence on external demand, which tighten constraints on investment and restructuring.

France is treated as a state enabled system in which administrative capacity, strategic steering, and large scale projects shape industrial outcomes. The thesis links innovation performance to the capacity of the state to mobilise national instruments and influence EU level rules. This configuration can be an asset in strategic domains where sequencing, public procurement, and risk absorption are decisive, but it also faces implementation frictions and a persistent duality between frontier excellence and diffusion constraints for smaller firms.

Italy is characterised by structural fragmentation, a high prevalence of SMEs and family ownership, and persistent diffusion bottlenecks. The thesis links productivity dynamics to weaknesses in governance quality, managerial capabilities, and the ability to pair technology adoption with complementary organisational upgrading. This is consistent with evidence that management practices and organisational capabilities are major determinants of productivity dispersion across firms and countries.[7] The implication is that Italy's constraint is less about the availability of technologies and more about absorption capacity, complementarities, and the cost of coordination in fragmented ecosystems.

Across the three cases, the thesis establishes why Europe's aggregate productivity performance cannot be improved through a uniform policy template. Institutional heterogeneity is a binding design constraint for any European policy framework. A selective strategy must therefore accommodate differences in state capacity, firm structure, and coordination regimes, while still preserving contestability and coherent European level prioritisation.

5. Emerging economies and the post 2019 shock regime in European industry

The comparative lens then shifts to China and India as benchmark cases of techno industrial strategy and capability building. China is analysed as a scale intensive supply side model in which industrial policy, guided finance, administrative targets, and procurement shape market structure and accelerate upgrading in strategic domains. Recent firm level evidence on Made in China 2025 illustrates how such strategies can affect innovation and industrial outcomes while also generating recurrent tensions related to overcapacity and financial risk.[8] India is framed as a distinct trajectory in which a state built digital backbone lowers transaction costs and expands formal participation in markets, combined with selective manufacturing policy and expanding capabilities.[9] The analytic purpose is not to treat either model as normatively replicable for Europe, but to specify how their trajectories change relative prices, reshape strategic sectors, and tighten competitive constraints.

[7] Branstetter & Li (2024)

[8] Alonso et al. (2023)

[9] Alpino et al. (2024)

These external pressures converge in the period 2019 to 2025, which the thesis treats as a compressed sequence of shocks that stress tested European industrial adaptation. The COVID 19 pandemic accelerated digitalisation and organisational experimentation. Subsequent supply chain disruptions exposed the fragility of just in time architectures and elevated resilience as a strategic input. The energy crisis increased input costs and forced accelerated investment in energy security and decarbonisation. In parallel, geopolitical fragmentation and large-scale US industrial policy instruments shifted the competitive baseline for investment and location choices.[10]

The thesis organises this period as a transition in operating logic from lean optimization to selective robustness. It highlights that firm level heterogeneity remains decisive: stronger firms and regions absorb shocks and invest, while weaker ones delay upgrading, reinforcing divergence. This observation anchors the later argument that policy effectiveness must be assessed through diffusion throughput and capability accumulation across the long tail rather than through frontier performance alone.

6. A framework for a selective European industrial policy

The prescriptive core of the thesis specifies an operational framework designed to convert diagnosis into implementable policy discipline. The central claim is that Europe's constraint is an implementation gap. Instruments, funding, and technology availability exist, but they are not consistently embedded in a decision logic that selects where intervention is justified, protects competition and contestability, and converts support into measurable diffusion rather than persistence.

To address this, the thesis proposes a three-level architecture that separates enabling conditions, selection, and delivery.

Level	Core role
Marco reforms	Reduce fragmentation and raise returns to upgrading
Strategic Positioning and Selection Matrix	Prioritise interventions with conditionality and exit rules
BESNI delivery layer	Coordinate ecosystem complements to accelerate diffusion

Table 6-1

The framework is disciplined through explicit evaluability criteria:

- **Conditionality** linked to observable upgrading outcomes, with time bounded support as the default and credible, enforceable exit rules.
- **Contestable** delivery to prevent lock in and gatekeeping.
- **Success** defined as faster diffusion among high potential laggards, reduced productivity dispersion through upgrading rather than protected persistence, and stronger reallocation dynamics.
- **Failure** indicated by frontier only gains, widening dispersion, worsening misallocation, or persistent support without measurable upgrading. The thesis's core contribution is therefore not a call for more industrial policy, but a policy operating system that links selectivity to measurable upgrading outcomes.

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7. Concluding remarks and future activities

The thesis concludes that Europe's productivity slowdown is best interpreted as a structural

[10] Adner & Kapoor (2010)

outcome of weak diffusion and scale formation under market fragmentation and heterogeneous institutional capacities. Horizontal reforms are necessary but not sufficient if diffusion and scaling remain blocked. Conversely, selective intervention without discipline and delivery capacity risks becoming a vehicle for rent preservation rather than productivity growth.

Selective industrial policy is viable only conditionally. It must be embedded in credible discipline devices, including conditionality, performance metrics, time bounded support, and explicit exit rules. It must also be paired with a delivery architecture that targets complements and absorption capacity, translating prioritisation into diffusion at scale while preserving competition and contestability. This design logic is consistent with the recent literature that redefines industrial policy as a governance problem under uncertainty and political economy constraints.[11]

Limitations are discussed explicitly. Productivity measurement, particularly Total Factor Productivity, remains sensitive to data construction and to the treatment of intangibles and quality change. Diffusion processes are often observed through proxies rather than direct measures, limiting precision in attribution. Methodologically, the thesis is primarily comparative and institutional and does not estimate a unified causal model of policy levers, reflecting the identification difficulty intrinsic to multi-level governance and policy endogeneity. Future activities therefore focus on evaluation design and policy experimentation: developing monitoring systems based on linked microdata, testing selection routines through pilot applications of the Strategic Positioning and Selection Matrix, and evaluating delivery architectures such as BESNI through quasi experimental designs where feasible. The broader objective is to shift the industrial policy debate from slogans toward testable governance arrangements that preserve competition while accelerating diffusion.

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