Between compliance and competitiveness: rethinking EU regulation as a driver of innovation

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Introduction

The relationship between regulation and innovation sits at the heart of one of the most contested debates in contemporary European economic policy. As the European Union has expanded its regulatory ambitions, from the General Data Protection Regulation (GDPR) to the AI Act, from the Corporate Sustainability Reporting Directive (CSRD) to the Emissions Trading System (ETS), the question of whether such rules constrain or catalyse economic dynamism has grown increasingly urgent. The Omnibus Simplification Package of February 2025 and its digital counterpart of November 2025 signal a recognition at the Commission level that the regulatory balance may have tipped too far toward compliance burdens and away from competitive outcomes (European Commission, 2025a; European Commission, 2025b). This paper examines the theoretical and empirical foundations of this tension, drawing on the Porter Hypothesis and recent scholarship on EU digital competitiveness and industrial policy. It advances a set of reform directions aligned with the concept of 'pragmatic federalism' under discussion at the Seventh Siena Conference on the Europe of the Future.

1. The Porter hypothesis revisited: what recent evidence tells us

The starting point for any serious analysis of the regulation–innovation nexus in the environmental context remains the Porter Hypothesis (PH), which posits that well-designed environmental and market regulation can, under certain conditions, stimulate innovation by pushing firms to develop cleaner, more efficient technologies, partially or fully offsetting the direct compliance costs (Porter & van der Linde, 1995). The hypothesis is conventionally distinguished between a 'weak' version, that regulation triggers eco-innovation, and a 'strong' version, that such innovation generates net economic benefits sufficient to enhance competitiveness. Two decades of empirical scholarship have complicated, but not overturned, this framework. A recent multi-country meta-analysis by Yan et al. (2024), synthesising 84 studies across 34 countries, confirms a positive and statistically significant overall relationship between environmental regulation and green innovation, while identifying substantial heterogeneity driven by regulation type, sector, and national context. Market-incentive instruments, such as carbon pricing and emission trading, show consistently stronger innovation effects than command-and-control approaches (Dechezleprêtre et al., 2023; Chen et al., 2025), a finding directly relevant to the ongoing debate on ETS reform in the EU.

A critical refinement concerns the heterogeneous effects of regulation across firm size and market position. Chambers, McLaughlin and Richards (2022), exploiting industry-level regulatory data across the United States, find that cumulative regulatory burden disproportionately suppresses entry rates among smaller firms while larger incumbents retain the organisational and financial

capacity to absorb compliance costs, and, crucially, to exploit regulatory complexity as a barrier against challengers. This incumbency advantage is directly relevant to the EU context: it helps explain why the GDPR, for instance, has been converted by firms such as IBM and Mastercard into proprietary compliance-as-a-service offerings, while limiting data access for start-ups that depend on third-party data for training AI models (Bradford, 2024). The policy implication is clear: uniform regulatory obligations that ignore firm-size heterogeneity systematically disadvantage the challenger firms that drive disruptive innovation.

2. The EU's regulatory paradox: standard-setting without industrial leadership

The European Union has emerged as the pre-eminent global standard-setter in the digital and sustainability domains. The GDPR reshaped data governance worldwide; the Digital Markets Act and Digital Services Act introduced new accountability frameworks for platform economies; the EU Taxonomy and CSRD defined the architecture of sustainable finance reporting. And yet, as the Draghi Report on the Future of European Competitiveness concluded with unusual candour, a 'decade of regulatory leadership has not translated into industrial strength' (Draghi, 2024, Part A, p. 7). No global digital champion of scale has emerged from Europe. Capital formation for deep-tech ventures remains constrained. The gap between regulatory ambition and industrial outcome is the defining paradox of European policy in the current decade.

Bradford (2024) provides the most rigorous recent treatment of this paradox in the digital domain. Challenging the tech industry's assertion that EU digital regulation is the primary cause of Europe's innovation lag, she identifies four structural root causes that precede and outweigh any regulatory effect: the absence of an integrated digital single market; underdeveloped and fragmented capital markets; punitive bankruptcy laws that discourage risk-taking; and immigration policies that constrain the attraction of global talent. Her conclusion, that the EU faces a 'false choice' between digital regulation and innovation, is directly actionable for the PSSG 2 agenda: the problem is not regulation per se, but the structural conditions in which regulated firms must operate. This diagnosis is corroborated by Martens (2025), who argues that the Digital Omnibus package, while reducing some administrative friction, fails to address the deeper structural barriers, particularly in data market competition and cross-border scaling, that prevent EU digital firms from achieving the size necessary to compete with American and Chinese platforms.

The case of the ETS illustrates both the promise and the limits of market-based environmental regulation. Calel and Dechezleprêtre (2016), exploiting installation-level inclusion criteria to estimate causal effects, find that the EU ETS increased low-carbon innovation among regulated firms by approximately 10%, without crowding out patenting in other technological fields. This positive causal effect is one of the cleaner pieces of evidence in favour of the narrow PH: market-based instruments, when the price signal is stable and credible, do drive innovation. The policy implication cuts directly against the direction of travel in 2025: the proposed suspension of ETS and CBAM provisions, discussed in the preparatory webinar for this Conference, risks dismantling precisely the price-signal consistency on which the innovation effect depends.

3. Toward a new regulatory grammar: from compliance costs to competitive architecture

Addressing the regulation–innovation trade-off requires not simply less regulation, but smarter regulation, calibrated to produce maximum behavioural change at minimum systemic cost, and

distributed equitably across firm types. Three reform directions merit particular attention in the context of the Siena Conference's broader discussion of pragmatic federalism.

First, a decisive shift from input-based to **outcome-based regulatory design**. The CSRD in its original form required elaborate reporting of sustainability metrics regardless of any demonstrable link to environmental or social improvements. The Omnibus Package's simplification of CSRD reflects a necessary correction, but risks swinging toward deregulation if not accompanied by stronger outcome indicators and meaningful ex-post evaluation. A 'measure less, measure better' standard should guide the next generation of EU regulatory impact assessment, one that judges regulation not by the density of its reporting obligations but by the magnitude of the behavioural change it induces. Yan et al. (2024) confirm that this design choice matters: regulations specifying environmental outcomes rather than technological means generate significantly larger innovation responses across their meta-analytic sample.

Second, **market-based instruments** and **consumer-side incentives** deserve substantially greater emphasis. The meta-analytic evidence in Yan et al. (2024) is unambiguous that flexible, market-based regulation, carbon pricing, tradeable permits, interoperability mandates, generates stronger innovation incentives than prescriptive alternatives. Empowering consumers as active participants in innovation diffusion, through data portability rights, green procurement incentives, and transparent product labelling, can amplify demand-side pull that no supply-side regulation alone can generate. Bradford (2024) adds a systemic argument: where EU-level rules achieve genuine harmonisation across member states, they ease rather than aggravate the compliance burden relative to fragmented national implementation. The priority, then, should be genuine single-market integration rather than deregulation as such.

Third, **industrial policy** must accompany, and in some cases precede, regulatory reform. As Mazzucato (2021) argues in her framework of mission-oriented innovation policy, transformative technological change requires patient, risk-bearing public investment that sets directional goals and coordinates public and private actors across the full innovation chain, from basic research through to market deployment. Europe's answer to the US Inflation Reduction Act and China's state-led model cannot be imitation, but it must be a credible third way that integrates public purpose with private capability. Concretely, this means reforming Horizon Europe around competitive use-case challenges rather than academic grant cycles, deploying European Investment Bank financing more systematically toward deep-tech scale-up, and using the 'clusters of integrations' institutional architecture to enable coalitions of willing member states to advance joint industrial strategies without the paralysis of unanimity.

Conclusion

The evidence reviewed here converges on a finding that is both reassuring and demanding: Europe's competitive shortfall is not caused by the fact of regulation, but by its design, prescriptive rather than outcome-based, fragmented across twenty-seven markets, and unaccompanied by the industrial policy needed to turn compliance into capability. The trade-off between regulation and innovation is real under these conditions, and largely self-inflicted. Fixing it requires three things at once: simplifying obligations without abandoning ambition, completing the single market so that rules work as a lever of scale rather than a source of friction, and pairing regulation with mission-oriented public investment that de-risks the transition for firms that cannot wait. PSSG 2 should turn this diagnosis into specific, implementable proposals, ones concrete enough to

survive contact with the political calendar and cross-partisan enough to outlast any single government.

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