The EU's AI Experiment: Between Regulation, Innovation, and Sovereignty

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AI	Artificial Intelligence
API	Application Programming Interface
BIAs	Behavioural Impact Assessments
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CE	Conformité Européenne (European Conformity)
CNMC	Comisión Nacional de los Mercados y la Competencia (Spain)
CJEU	Court of Justice of the European Union
	DA – Data Act
DGA	Data Governance Act
DG COMP	Directorate-General for Competition (European Commission)
DG CONNECT	Directorate-General for Communications Networks, Content and Technology (European Commission)
DMA	Digital Markets Act
DSA	Digital Services Act
ECJ	European Court of Justice
EDPS	European Data Protection Supervisor
EEC	European Electronic Communications Code
EU	European Union
EUMR	EU Merger Regulation
FLOPs	Floating Point Operations (per second)
GAIA-X	European Cloud and Data Infrastructure Initiative
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GPAI	General-Purpose Artificial Intelligence
GPT	General-Purpose Technology
HPC	High-Performance Computing
ICN	International Competition Network
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IPCEI-CIS	Important Projects of Common European Interest on Cloud Infrastructure and Services
ISO	International Organization for Standardization
ISO/IEC JTC 1	Joint Technical Committee 1 of ISO and IEC
ITU	International Telecommunication Union
MNOs	Mobile Network Operators
NCAs	National Competition Authorities
OECD	Organisation for Economic Co-operation and Development
OSA	Open Strategic Autonomy
SIEC	Significant Impediment to Effective Competition
SMEs	Small and Medium-Sized Enterprises
SSNIP	Small but Significant and Non-Transitory Increase in Price
TEU	Treaty on the European Union

TFEU	Treaty on the Functioning of the European Union
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
US	United States
WTO	World Trade Organization

1 Europe, Artificial Intelligence, and the Search for a Model

Artificial Intelligence has moved from the margins of technological discourse to the centre of global politics, economics and law. It is no longer a back-office tool for optimising industrial processes; it has become a general-purpose technology with systemic implications. AI shapes how markets allocate value, how individuals exercise rights, and how states conceive sovereignty. It shapes undertaking-level competitiveness, sectoral resilience, and constitutional legitimacy. Few technologies in recent history have had such broad and overlapping consequences.

In this new reality, the European Union faces a paradox that defines this book. On the one hand, Europe is not a global leader in foundational AI models, large-scale compute, venture capital, or hyperscale platforms. Its innovation ecosystem is fragmented, undercapitalised, and often relies on non-European infrastructures for cloud, chips, and data. On the other hand, Europe has become the world's most ambitious regulator of AI. Through the AI Act, the Digital Markets Act, the General Data Protection Regulation, and sectoral instruments, the EU has positioned itself as a standard-setter in a fragmented international landscape. This duality, industrial weakness paired with normative leadership, frames both Europe's vulnerability and its opportunity.

This paradox is not a simple contrast but a dynamic tension. Europe's regulatory capacity is real: the so-called 'Brussels Effect' (or '*EU Regulatory Leverage*' as preferred by the author) demonstrates how EU rules can set global benchmarks in areas from privacy to digital markets. Yet regulation alone cannot substitute for capabilities. Without competitive companies, compute infrastructure, and broad-based adoption, the EU risks shaping global norms while becoming dependent on external providers for the very technologies it seeks to govern. Conversely, if regulation is paired with investment, experimentation, and institutional agility, Europe's values-based governance could evolve into a source of trust, legitimacy, and even competitiveness in a world where AI systems are often viewed with suspicion.

This book takes that paradox as its starting point. It asks whether Europe's distinctive regulatory approach, anchored in rights, fairness, and market openness, can be transformed into a competitive advantage rather than a structural handicap. It argues that law and policy are not merely reactive instruments for policing risks ex post. They are constitutive forces that shape how AI interacts with markets, societies, and democratic institutions. In Europe's case, law is not a passive observer to innovation but part of the infrastructure that determines whether innovation is inclusive, contestable, and strategically autonomous.

The chapters that follow examine this question across different but interlinked dimensions: how competition law can adapt to algorithmic markets; how merger control must respond to acquisitions and consolidations in the AI economy; how telecom networks evolve from utilities into AI-enabling infrastructures; how rights protections are strained by automated decision-making; how behavioural AI challenges dignity and agency; how sovereignty depends on chips, compute, and data governance; how SMEs embody the inclusiveness of Europe's model; and how trust functions as the hidden infrastructure of legitimacy. Taken together, these perspectives offer integrated rather than fragmented analyses, providing a coherent narrative of how Europe can both regulate and innovate, turning its paradox into a strategy.

2 Relevance of the Subject

The urgency of this inquiry is clear. The United States and China are advancing with models that blend technological dominance with either permissive markets or state-driven strategies. Europe risks being reduced to a 'referee' in the global AI race if it cannot complement its regulatory power with industrial and economic capabilities. At stake are not only competitiveness and innovation, but also cohesion, pluralism, and democratic legitimacy within the Union. If AI adoption remains concentrated in a few global players, Europe's economic backbone, its SMEs, risks exclusion. If rights and safeguards fail to adapt to automated decision-making, Europe's constitutional identity could be undermined. And if sovereignty remains rhetorical, the Union could become dependent on external technologies in ways that erode strategic autonomy.

Against this backdrop, the book does not treat regulation as an endpoint, but as a necessary strategic instrument. In short, the subject of this book is not simply 'AI', but Europe's attempt to define its digital future.

3 Structure of the Book

The book is structured in ten chapters, each addressing a different dimension of the EU's encounter with AI. The sequence is deliberate: it begins with the EU's overarching regulatory wager, then moves through sectoral and doctrinal challenges, and finally turns to questions of sovereignty, SMEs, and legitimacy. The progression reflects both analytical breadth and thematic depth, building a cumulative narrative of how law, economics, and constitutional principles interact in Europe's AI strategy. The breadth and depth of this analysis are reflected in the book's structure. Each chapter adds a layer to the argument, moving from Europe's regulatory bet to the wider implications for markets, rights, sovereignty, and trust:

i. Chapter 1 frames the AI Act as Europe's strategic bet. It shows how the Union, lacking the industrial weight of AI superpowers, seeks to project influence through a comprehensive risk-based regime. The chapter introduces the architecture of the Act, the reasoning behind its tiered obligations, and the political ambition of using regulation as a lever of sovereignty and market trust.
ii. Chapter 2 situates Europe within the global AI race. It contrasts the EU's regulatory-first approach with the innovation-led model of the United States and the state-driven strategy of China. Drawing on comparative evidence, the chapter outlines Europe's strengths in research and ethical leadership, while also mapping structural weaknesses in compute, investment, and scaling.
iii. Chapter 3 turns to competition law. It examines how algorithmic markets challenge doctrines built on human intent, stable market definitions, and observable conduct. By looking at algorithmic collusion, recommender systems, and data-driven lock-in, the chapter highlights where traditional tools struggle and how antitrust enforcement must evolve to keep markets open and contestable.
iv. Chapter 4 addresses merger control in the AI economy. It explores how acquisitions of small but strategic players, often below notification thresholds, can reshape innovation trajectories. Using the *Illumina/GRAIL* case as a reference point, the chapter considers how the SIEC test, remedies, and referral mechanisms need to adapt when value lies in data, talent, and ecosystem effects rather than present-day revenues.
v. Chapter 5 shifts the focus to telecoms, where networks are redefined as AI infrastructure. It analyses how Europe's fragmented market structure interacts with merger control, and how initiatives like the Digital Decade and the forthcoming Digital Networks Act recalibrate the balance between competition, investment, and resilience. Telecom consolidation is presented not only as a sectoral issue but as a systemic question for AI readiness.
vi. Chapter 6 explores the interface between automated decision-making and EU fundamental rights. It asks whether the GDPR, the AI Act, and equality law provide adequate safeguards when decisions are increasingly delegated to opaque systems. Particular attention is given to accountability gaps, structural discrimination risks, and the role of courts, especially the CJEU, in shaping a digital rights jurisprudence.
vii. Chapter 7 analyses behavioural AI and the politics of influence. It tracks the move from traditional nudging to personalised, real-time persuasion, distinguishing welfare-enhancing personalisation from exploitative manipulation. The chapter weaves together consumer law, competition concerns, and constitutional principles, showing how design choices can become both market power and a test of dignity.
viii. Chapter 8 redefines the debate on digital sovereignty. It argues that regulatory ambition must be matched by industrial capacity in compute, chips, cloud, and data. The chapter outlines four pillars of sovereignty, technology,

data, norms, and economic scale, and introduces Open Strategic Autonomy as a doctrine for navigating dependencies while projecting European standards globally.

ix. Chapter 9 centres on SMEs as the litmus test of Europe's AI model. It explains how smaller undertakings face distinctive hurdles in expertise, finance, and compliance, and proposes enablers such as federated sandboxes, shared compliance tools, and strategic public procurement. The chapter presents SMEs not as marginal beneficiaries but as essential actors for pluralism, cohesion, and democratic legitimacy in the AI economy.

x. Chapter 10 concludes by reframing trust as the hidden infrastructure of AI governance. It argues that credibility, accountability, and institutional capacity determine whether Europe's rules can function domestically and resonate globally. Building on this, the chapter outlines a European AI social contract and situates the EU as a custodian of adaptive standards and democratic legitimacy in a fragmented international order.

This structure addresses core areas of EU law, such as competition law and fundamental rights, situates them within global and sectoral contexts, and links them to systemic themes of sovereignty, SMEs, and trust. Rather than treating each domain separately, the book shows how they interconnect, competition law cannot be retooled without understanding algorithmic dynamics; merger control cannot adapt without grasping the role of AI in telecom networks; sovereignty cannot be claimed without empowering SMEs; and trust cannot be sustained without embedding rights into technical architectures.

It is worth underscoring that this work has been aligned with the Commission's adoption of the Apply AI Strategy on 8 October 2025, which constitutes a sector-first framework to accelerate AI uptake in key industries and the public sector while strengthening technological sovereignty. Apply AI complements the April 2025 AI Continent Action Plan, translating its ambition into concrete sectoral flagships (such as healthcare, manufacturing, mobility, defence/space, energy, cultural/creative industries, and electronic communications), cross-cutting enablers (EDIHs as *Experience Centres for AI*, AI Factories/Gigafactories, TEFs, regulatory sandboxes, AI-skills), and a new governance layer built around the Apply AI Alliance and an AI Observatory. This package situates the AI Act within an activation agenda, pivoting from risk management to deployment at scale, especially for SMEs.

4 Methodology

The methodology combines legal analysis, economic reasoning, and policy evaluation. The book does not rely on doctrinal interpretation alone, nor does it treat regulation as abstract theory. Instead, it grounds

arguments in case law, legislative, and institutional strategies. It integrates these with insights from economics, political science, and technology studies.

This interdisciplinary approach is not ornamental but necessary. AI reshapes markets, rights, and sovereignty simultaneously; no single discipline can capture its full impact.

The method is therefore one of synthesis: bringing together competition doctrine, rights jurisprudence, industrial policy, and technical analysis into a coherent European perspective.

At the same time, the book's analytical framework is deliberately dialectical. It maps structural tensions that define Europe's encounter with AI. These tensions, between scale and pluralism (telecom consolidation vs competition), regulation and innovation (the AI Act as both safeguard and potential burden), rights and capabilities (values leadership vs infrastructural gaps), and compliance as cost vs compliance as opportunity, are not flaws in the European approach but dilemmas that must be managed.

By foregrounding these trade-offs, the book highlights that Europe's AI trajectory cannot be reduced to linear narratives or single-objective policymaking. The value of this methodology lies precisely in showing how law, economics, politics, and technology interact in complex, sometimes conflicting ways, and in examining how these frictions can be reconciled into a viable model. In this sense, the analysis is not only descriptive but constitutive: it seeks to map the choices and balances that will determine whether the EU's distinct regulatory path becomes a source of weakness or a foundation for competitive and democratic strength in the AI century.

The book acknowledges that the themes it addresses, competitiveness, rights, sovereignty, SMEs, can appear to pull in different directions. Some chapters stress regulatory burdens; others highlight regulation as an asset. Some call for stricter vigilance against dominance; others argue for allowing scale in telecoms. These are not contradictions but reflections of the multifaceted nature of AI governance. The tension is real: Europe must preserve contestability while enabling investment, enforce rights while fostering innovation, and regulate globally while empowering local SMEs. By presenting these perspectives sequentially, the book shows how they can be reconciled within a broader strategy that is neither laissez-faire nor protectionist, but rooted in proportionality, pluralism, and strategic autonomy.

5 Contribution

The contribution of this book lies in offering the first comprehensive, interdisciplinary account of Europe's encounter with artificial intelligence that is both legally rigorous and policy-aware. While much of the existing scholarship isolates competition law, data protection, or industrial policy, this volume integrates these strands into a coherent narrative. It demonstrates how the AI Act, merger control, digital market regulation, and rights jurisprudence cannot be understood in silos, but only as parts of a broader European strategy in which law, economics, and politics intersect.

The book does not promise easy answers or formulaic recommendations. Instead, it foregrounds the structural trade-offs that Europe must navigate: innovation versus regulation, competitiveness versus pluralism, sovereignty versus interdependence. By analysing these tensions rather than smoothing them over, the book provides a framework for understanding why Europe's AI model is distinctive, what risks it faces, and how it might evolve.

Its significance is threefold. First, it contributes to academic debates by situating AI within the traditions of EU law, internal market regulation, competition, and fundamental rights, while also drawing on economic theory and political science. Second, it speaks to policy practice, offering insights that are directly relevant to regulators, legislators, and practitioners grappling with live questions of merger thresholds, algorithmic collusion, and SME participation. Third, it enriches the global conversation on technology governance: by tracing how Europe's rules travel beyond its borders, the book illuminates the conditions under which the *EU Regulatory Leverage* may, or may not, translate into geopolitical influence.

At its core, the book argues that Europe's role in the AI century will depend not only on its capacity to legislate but also on its ability to empower diverse actors, safeguard rights, build infrastructures, and project influence globally. This requires moving beyond the conventional dichotomy of regulation versus innovation, and recognising that credible, rights-based governance can itself be a source of competitiveness in a world increasingly concerned with trust, safety, and legitimacy.

If successful, Europe can show that digital leadership comes at the expense of fairness, cohesion, or democracy. This book is therefore not only a study of legal doctrine or policy design, but also a manifesto for Europe's strategic choices in an era where artificial intelligence has become the architecture of markets, societies, and sovereignty.