

BIANCAMARIA RAGANELLI
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RULES FOR A NEW ERA

INNOVATION AND SUSTAINABILITY'S ISSUES AND CHALLENGES IN EUROPE

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BIANCAMARIA RAGANELLI
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RULES FOR A NEW ERA

**INNOVATION AND
SUSTAINABILITY'S
ISSUES AND CHALLENGES
IN EUROPE**

GENDNAIO 2026



I SAGGI DI MINERVA BANCARIA

L'Istituto di Cultura Bancaria "Francesco Parrillo" è un'associazione sorta a Milano nel 1948. "L'Istituto, escluso qualsiasi fine di lucro, ha per scopo, oltre che provvedere alla pubblicazione della **Rivista Bancaria – Minerva Bancaria**, di promuovere e diffondere la cultura bancaria a mezzo di pubblicazioni o di ogni altro mezzo idoneo" (art. 2 dello Statuto).

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*To those who keep
curiosity alive and
let their minds,
hearts, and eyes stay
forever young*

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It reflects the commitment devoted to the development of the *Jean Monnet Module on European Innovative and Sustainable Law* (www.eusl.it) - University of Rome Tor Vergata - financed by the European Commission (2022–2025) promoting research and debate on European integration in areas such as public procurement, financial supervision, innovation, AI, and public decision-making. It has offered two interdisciplinary educational modules, combining lectures, seminars, and workshops, open to students, researchers, and professionals, with contributions from academics, institutions, and market experts.

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This publication stands as a testament to the collaborative spirit that guided the project and to the shared commitment of Institutions, scholars, practitioners, and audience in advancing knowledge and dialogue on European integration.

Ultreia et Suseia

Biancamaria Raganelli



Legal Pathways for Innovation and Sustainability in a Changing Europe.

Book Context and Rationale

How can law and regulation navigate the complexities of the new era?

Are rules already too numerous so that they risk slowing down development, discouraging experimentation, or constraining technological creativity? And does it still make sense to reflect on sustainability in Europe when other global actors appear to prioritise competitiveness, speed, and strategic advantage over long-term ecological commitments?

International debates raise further questions. How can legal systems remain legitimate when decision-making is increasingly mediated by algorithms and opaque technological infrastructures? What becomes of accountability when actions are performed by autonomous or semi-autonomous systems? Can societies rely on traditional regulatory models in a world characterised by exponential technological growth, systemic uncertainty, and planetary boundaries? And how should law respond when innovation promises efficiency and progress yet simultaneously generates new vulnerabilities, asymmetries of power, and risks of exclusion?

These questions frame the challenge that Europe faces today and are not rhetorical. They reflect a growing awareness—shared across global

scholarship—that the frameworks inherited from the past century are no longer adequate to govern the realities of the present one. They invite us to reconsider the foundations of our legal and institutional architecture and to ask, with renewed urgency, what kind of future we want to shape through the rules we choose to adopt.

The European Union, together with the rest of the global community, is currently navigating a phase of profound transformation marked by the convergence of two defining forces of contemporary society: innovation and sustainability. These forces are reshaping not only economic structures and technological environments but also the legal and institutional foundations upon which European governance has long been constructed. Innovation, driven by digitalisation, artificial intelligence, automation, and data-driven systems, is altering the modalities through which decisions are taken, resources are allocated, and power is exercised. At the same time, sustainability has emerged as a normative imperative that challenges traditional models of growth, production, and regulation by placing environmental protection, social cohesion, and intergenerational responsibility at the centre of public policymaking. Taken together, these dynamics generate tensions that extend well beyond specific sectors and demand a fundamental rethinking of the role of law in Europe.

At the core of this paradigm shift lies a transformation in the relationship between law and social change. Traditionally, legal systems have operated on the assumption that norms can be designed to regulate relatively stable practices, and that deviations from those norms can be addressed through mechanisms of enforcement and adjudication. Innovation challenges this assumption by introducing forms of activity that evolve rapidly, operate through complex technological infrastructures, and frequently transcend national and sectoral boundaries. Sustainability introduces a

further layer of complexity by requiring the law to account for long-term and cumulative effects that are not easily captured by regulatory instruments oriented towards short-term horizons. Taken together, these forces call into question the adequacy of legal models based on fixed rules, clear temporal assumptions, and linear causality.

This book is situated within the broader context of the ongoing transformation described above. It does not seek to offer an exhaustive account of legal developments relating to innovation and sustainability in the European Union, nor does it aim to address all possible issues and challenges. Such an undertaking would be neither feasible nor conceptually desirable, given the breadth, fluidity, and interdisciplinary nature of the subject matter. Instead, the book seeks to identify and examine a set of key issues that, taken together, reveal a broader pattern of legal and institutional transformation. By bringing these contributions into dialogue, the volume delineates a unifying thread running across different legal domains and institutional perspectives. This fil rouge lies in the recognition that innovation and sustainability are not merely objects of regulation but drivers of a deeper paradigm shift in the ways in which law is conceived, interpreted, and applied.

At the core of this paradigm shift lies a reconfiguration of the relationship between law and societal change. Traditional legal systems have long operated on the assumption that norms can be designed to regulate relatively stable practices, and that deviations from those norms can be addressed through mechanisms of enforcement and adjudication. Innovation challenges this assumption by introducing activities that evolve rapidly, operate through complex technological infrastructures, and frequently transcend national and sectoral boundaries. Sustainability adds a further layer of complexity by requiring the law to account for long-term and cu-

mulative effects that are not easily captured by regulatory instruments oriented towards short-term horizons. Taken together, these forces call into question the adequacy of legal models based on fixed rules, clear temporal horizons, and linear causality.

The chapters in this volume engage with these challenges from different perspectives while converging around a shared concern with the capacity of European law to respond to systemic change. Each contribution examines a specific manifestation of the broader tension between innovation, sustainability, and existing legal structures. Some chapters focus on the challenges posed by emerging technologies to regulatory oversight and accountability, highlighting the growing distance between legal responsibility and technological operation. Others address sustainability-related imperatives that strain conventional regulatory logics by introducing considerations of precaution, resilience, and collective responsibility. Despite the diversity of subject matter, the contributions are united by a common underlying question: how can law evolve so as to govern new realities without forfeiting its normative coherence and legitimacy?

The volume is structured into two thematic sections, each addressing selected legal questions arising from the evolving landscape of innovation and sustainability. The chapters do not aim to offer a comprehensive or systematic account of these domains but instead present situated reflections developed within the framework of the Jean Monnet Module on EU Innovative and Sustainable Law, funded by the European Commission. The contributors—scholars and practitioners from academia, institutions, and industry—engage with diverse regulatory challenges, illustrating the complexity and interdependence of legal responses to technological and ecological transformation.

The first section is devoted to innovation and digitalisation. It opens with an analysis of automated public decision-making and the erosion of human discretion in administrative processes (Biancamaria Raganelli), followed by a study of artificial intelligence and the evolving role of public powers in balancing fundamental rights and national security (Michele Corradino). The interface between the Digital Markets Act and EU competition law enforcement is examined with particular attention to procedural convergence and substantive tensions (Giuseppe Colangelo). A further contribution investigates the role of environmental data within the EU Data Strategy and its potential to support the green transition (Öznur Uğuz). The relationship between technological innovation and sustainability in financial markets is explored through the lens of regulatory asymmetries and market dynamics (Antonio Davola), while the restructuring of financial markets under the pressure of the twin transitions is addressed from a legal and institutional perspective (Stefania Cavaliere). The opportunities and risks of open finance, including data governance and consumer protection, are discussed in a joint contribution (Liliana Frattini Passi and Biancamaria Raganelli). The use of State aid law to support techno-ecological market transitions is analysed with reference to compatibility assessments and strategic objectives (Alessandra Polsieno and Lorenzo Rodo Nico), and the legal accountability of artificial intelligence systems is examined in relation to liability frameworks and professional responsibilities (Tiziana Serrani).

The second section turns to sustainability, addressing its normative foundations and sectoral applications. It begins with a reflection on social sustainability as a pathway to inclusive and resilient societies (Biancamaria Raganelli), followed by an analysis of energy incentives, regulatory change, and the principle of legal certainty (Biancamaria Raganelli). The interdependence between sustainable development and biodiversity protection is

examined in light of EU and international legal instruments (Anna Maria Chiariello). Sustainable procurement is addressed both as a driver of innovation in public utilities (Valentina Bianchini and Martina Purilli) and as a strategic tool in the EU's broader sustainability transformation (Aura Iurascu). The evolution of Italian public procurement law is analysed in relation to new sustainability requirements and persistent structural challenges (Giacomo Roma), while the use of positive action to support SMEs in sustainable procurement is discussed with emphasis on legal design and policy effectiveness (Biancamaria Raganelli and Gustavo Piga). The priorities of the EU financial sector in the current political cycle are explored through regulatory trends and market responses (Thorsten Beck, M.A. Barata, and Valerio Novembre), and the integration of sustainability into banking business activities is examined with reference to governance, compliance, and risk management (Raffaele Lener and Paola Lucantoni). The socio-economic impact of STEM education on sustainability is addressed as a legal and institutional pathway (Barbara Martini), and the final chapter presents an Italian case study on measuring inclusion, offering methodological insights and policy reflections (Ulrike Sauerwald).

Taken together, these contributions offer a critical and multifaceted account of the legal dimensions of innovation and sustainability, highlighting both the opportunities and the unresolved tensions that shape Europe's regulatory responses in a rapidly evolving global context.

Biancamaria Raganelli

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RULES FOR A NEW ERA

Innovation and Sustainability Issues and Challenges in Europe

Edited by Biancamaria Raganelli

Legal systems across jurisdictions are increasingly confronted with innovation and sustainability challenges that strain the foundational assumptions upon which modern regulatory regimes have long relied.

Regulatory frameworks traditionally designed to govern relatively stable practices now encounter activities that evolve rapidly, are mediated by complex technological infrastructures, and routinely transcend national, sectoral, and institutional boundaries. At the same time, sustainability compels the law to engage with long-term, cumulative, and often diffuse effects that are not readily accommodated by regulatory instruments calibrated to short-term temporal horizons. Taken together, these dynamics call into question the adequacy of legal models predicated upon fixed rules, determinate temporal assumptions, and linear conceptions of causality. They also generate tensions that extend well beyond individual sectors and call for a fundamental rethinking of the role of law in Europe.

This volume aims to identify and analyse a set of core issues and challenges that reveal a broader pattern of legal and institutional transformation. By placing a range of diverse contributions in structured dialogue, it delineates a unifying thread that runs across multiple fields of law and governance contexts. The fil rouge lies in the recognition that innovation and sustainability are not merely objects of legal regulation, but constitutive forces driving a paradigmatic shift in how regulation is conceived, interpreted, and applied.

Rules for a New Era offers an exploration of the profound transformations shaping contemporary societies, in which innovation and sustainability operate as structuring forces reshaping legal and regulatory frameworks in public administration, public procurement, and finance, while also addressing questions of social sustainability and inclusion.



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