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*Edited by Federica Giovanella*

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INTRODUCTION TO THE SPECIAL ISSUE  
 “EUROPEAN LAW AND DIGITAL TECHNOLOGIES”

*Federica Giovanella*

I. INTRODUCTION

This Special Issue “*European Law and Digital Technologies*” collects the papers presented during the *Young Scholars’ Workshop* of the same title held in Udine on September 4-5, 2025<sup>1</sup>.

The starting point of this workshop is the increasing number of Directives and Regulations adopted by the EU in recent years, aimed at governing various digital technologies and introducing new principles, liability rules, classifications, and more.

It is well known that, in doing so, the EU seeks to position itself as a leading legal system—a model for other jurisdictions to consider when deciding whether and how to regulate technological innovation. It is also well known that, according to the now famous “Brussels Effect” formula coined by Anu Bradford<sup>2</sup>, the EU has indeed managed to present itself, if not as a model, at least as a source of inspiration for numerous regulatory innovations beyond its borders. This represents yet another illustration of the theory of the circulation of legal models, a theme cherished—though debated—among comparatists.

Building on these considerations, the workshop aimed to explore the role of the EU in regulating digital technologies—past, present, and future—through the methodological tools of comparative law. As could be anticipated, most of the contributions address data protection, Artificial Intelligence (AI), or a combination of the two. From a comparative perspective, alongside the classical EU–US juxtaposition, some contributions focus on China. The interest in this system shows how younger scholars are well aware of the

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<sup>1</sup> The papers were selected through a Call for Abstracts with a peer-review process that took place in the spring of 2025, and the drafts were discussed during the aforementioned workshop under the guidance of experienced scholars. The suggestions and comments received were then incorporated into the final versions of the papers, published here after a double-blind peer-review process. Given the excellent quality of the submitted abstracts, in addition to the papers selected for the event, other papers were accepted solely for publication in this issue.

I would like to express my gratitude to those who deserve it. The organization of the workshop could not have been possible without the support received by the University of Udine that funded the project “*Tecnologie digitali e legislazione europea*” (“Digital technologies and European law” - PSD WP2 2022-2025). The support of the administrative staff of the Department of Legal Sciences was invaluable before, during and after the workshop.

I take the chance to thank once again the brilliant colleagues who accepted to act as discussants for the papers presented during the workshop. To *Federico Costantini* (University of Udine), *Ivana Kunda* (University of Rijeka), *Rossana Ducato* (University of Aberdeen) and *Sophie Weerts* (University of Lausanne) goes my gratitude.

A big “thank you” also to the attendees of the workshop: it was a real pleasure to meet them and to see their passion for research!

<sup>2</sup> A. Bradford, *The Brussels Effect*, 107 *Northwestern University Law Review* 1 (2012); the Author later developed her study in a monograph: *The Brussels Effect: How the European Union Rules the World*, Oxford, 2019.

potential of studying a framework that is poised to become a leader not only in technological advancements but also in their regulation.

Data protection is the focus of the contribution by *Alessandro Catano*, titled “*Data protection at the gate: personal data of third-country nationals in the EU Entry/Exit System*”. The paper examines the relationship between the Entry/Exit System and the most significant and impactful EU regulations on digital technologies, such as the General Data Protection Regulation (EU) 2016/679 (GDPR), the Law Enforcement Directive (EU) 2016/680 (LED), and the Artificial Intelligence Regulation (EU) 2024/1689 (AI Act). It also provides an analysis of the systems currently in use and highlights the risks that the introduction of the EES poses to the fundamental rights of third-country nationals, particularly with regard to privacy and equal treatment.

*Sara Garsia* and *Bilgesu Sumer*’s article, “*The European digital identity wallet as a tool to increase individual autonomy: from theory to critical reality*”, questions digital identity management systems from the perspective of individual autonomy as a core objective of privacy and data protection, particularly in light of the GDPR and the EU Charter of Fundamental Rights. The contribution examines Self-Sovereign Identity (SSI) models and the EU’s regulatory response through eIDAS 2.0, which requires Member States to issue European Digital Identity (EUDI) wallets. In concluding their analysis, the Authors highlight the risks of disproportionate data processing and surveillance in increasingly digitalised societies.

The paper “*Transatlantic debate on AI-powered facial recognition technologies: EU and US regulatory models*” by *Giulia Formici* examines the risk-based approach adopted by EU legislators in both the GDPR and the AI Act with regard to biometric surveillance technologies. It also analyzes the US framework, where biometric technologies have largely been regulated at the local or state level in the absence of comprehensive federal rules. By comparing the two scenarios, the paper highlights the main differences and similarities between the two regulatory models and assesses their ability to safeguard human identity and emotions from private and public interferences enabled by AI.

In the paper “*Affective computing-based attention monitoring in AI education: a comparative analysis of children’s biometric data protection in China and the EU*”, *Xiatong Bing* and *Anne Oloo* also examine biometric data protection. The study focuses on the use of AI in children’s education, comparing the approaches of the EU and China and highlighting how the differences between them reflect distinct social, political, and economic contexts. At the same time, the two approaches share similarities, as both require heightened protection. Nonetheless, the Authors conclude that neither regulatory framework provides sufficient safeguards for children’s fundamental rights.

The Chinese context is also examined by *Sonia Sforza* in the article “*Central bank digital currencies and privacy: a comparative analysis of regulatory approaches in the EU and China*”. The Author explores the complex issues arising from the introduction of the digital euro and the e-Chinese yuan at the intersection of individual data protection, public interest, and state oversight. The paper compares the privacy frameworks of the EU and China, reflecting their different legal traditions, sociocultural contexts, and societal priorities.

Understanding these frameworks is essential for developing common standards that will enable cross-border payments and support the success of central bank digital currencies. Raffaele Ambrosino’s article addresses the “*Governance profiles of the secondary use of health data in the EHDS*”. The Author focuses on the European Health Data Space, approved in 2024, and its provisions concerning the secondary use of health data for research, innovation, policymaking, regulatory purposes, and personalised medicine. This secondary use may prove particularly challenging not only in light of the GDPR’s application but also because healthcare is largely regulated at the national—and in some cases regional—level. The paper therefore examines the frameworks of selected Member States to clarify whether, and to what extent, the classification of health data may hinder the functioning of the EHDS.

Gioia Codognotto’s paper, “*Contradictions of Twin Transitions: The Environmental Impact of AI Systems from the European Union Perspective*”, focuses on the tension between two major objectives pursued by the EU. The article outlines the environmental impact of AI—one of the most significant digital innovations—and explains how such impact could jeopardise the green transition. It analyses the existing legal tools available at the European level that could help mitigate the negative effects of the twin transitions, while also considering the potential of AI to address the very problems it creates.

The contribution “*Through the Artificial Intelligence Act: cross-sectional study on a pro-innovation law*” by Gabriele Franco offers an in-depth examination of the AI Act to determine whether it supports or, conversely, hinders innovation. While it is often argued that the AI Act constrains digital development, the Author identifies several tools within the Act that are instead designed to foster innovation in both business and workplace contexts. To this end, the Author classifies these tools as “explicit innovation measures” and “implicit innovation measures” and evaluates the effectiveness of both categories.

“*AI regulatory sandboxes as legal transplants: governance, regulatory learning and legal-technical interaction*” by Fabio Seferi provides a detailed analysis of the regulatory sandboxes introduced by the AI Act. The article adopts an innovative perspective by conceptualising sandboxes as legal transplants and identifying three key factors for their successful implementation: governance, regulatory learning, and legal-technical interaction. Sandboxes can function as learning tools, enabling regulators to adapt rules and best practices through experimentation, thereby acting as vectors of legal transplantation.

The use of AI by public administrations is examined in Giulia Fantoni’s “*The Right to Good Administration and Foundation Models: A European Governance Perspective and Best Practices*”. The paper investigates how the Right to Good Administration, guaranteed by the EU Charter of Fundamental Rights, is—or may be—affected by the adoption of Generative AI within public administrations. How are key principles such as transparency, fairness, and impartiality influenced by GenAI, and to what extent? The analysis considers not only the EU legal framework but also the practical implementation of these principles in national guidelines issued by several Member States. The ultimate aim is to outline how policymakers can develop robust, rights-aligned regulatory frameworks for the use of GenAI.

Giovanni Chicco’s contribution, “*AI in the Legal Market: Addressing Legal Ambiguity Through a Consumer-Centric Lens*”, examines the use of AI in the legal field. The Author seeks to clarify

whether LegalTech tools should be classified as products or services, given that the applicable regulatory framework—and consequently the liability regime and consumer protection rules—would differ. The article argues that a use-based, consumer-oriented approach offers the most coherent and protective framework. Despite the absence of a clear categorisation and a sector-specific regulatory regime, the paper proposes an approach that enhances legal certainty and consumer protection.

*Beatrice Marone's* contribution, “*Escaping the regulatory lasagna: how the AI liability legislation must molt to survive*”, addresses the complex issue of AI liability. The withdrawal of the proposal for the so-called “AI Liability Directive” in February 2025 has further fueled debates on how to regulate liability in the context of AI. The Author attempts to untangle this puzzle by calling the AI Act into play, while also questioning the EU’s increasing reliance on regulations that, in practice, resemble directives.

In their paper “*Tokenising property*”, *Veronica Zerba* and *Edoardo David Martino* focus on blockchain technologies, non-fungible tokens, and real-world asset tokenisation. The Authors show that blockchain effectively creates property rights despite—and in contrast with—traditional legal requirements. Through an economic analysis of law, the paper demonstrates that blockchain technology should be regulated to ensure consistency between tokenised property and the broader legal system.

All in all, this Special Issue brings together excellent papers addressing highly topical issues and examining technologies that, despite their side effects, are here to stay and have the potential to considerably improve our lives.

