From Regulation to Implementation: Challenges in the European Data Economy

Nejc Čelik,[1] Matevž Pesek,[2] Klara Žnideršič,[2] Jure Juvan,[2] Staša Blatnik,[1] Gregor Lenart,[1] Mirjana Kljajić Borštnar[1]

[1] University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia
nejc.celik1@um.si, stasa.blatnik1@ um.si; gregor.lenart@ um.si; mirjana.kljajic@um.si

[2] University of Ljubljana, Faculty of Computer and Information Science, Ljubljana, Slovenia
matevz.pesek@fri.uni-lj.si; klara.znidersic@fri.uni-lj.si; jure.juvan@fri.uni-lj.si

Over the past two decades, open data sharing, reuse and data-driven innovation have become essential components of the digital economy in Slovenia and across Europe. The European Strategy for Data and the Data Act aim to create a single data market and promote common European data spaces that support data accessibility, interoperability, and sovereignty. Despite regulatory progress, challenges remain in terms of companies' ability to implement data sharing regulations, integrate into data ecosystems, and develop sustainable business models. For this purpose, we conducted a systematic literature review to identify research gaps in the field of data economy integration, using the PRISMA model. Preliminary findings indicate a lack of practical implementations and maturity of data spaces, highlighting the need for further research on regulatory compliance, technology readiness and value creation strategies. The findings contribute to a deeper understanding of how enterprises can effectively navigate the evolving data economy and leverage data sharing frameworks for innovation and growth.

DOI
https://doi.org/10.18690/um.fov.2.2025.13

ISBN
978-961-286-963-2

Keywords:
data economy,
data sharing,
data act,
data spaces,
business models

University of Maribor Press

1 Introduction

Over the past two decades, the sharing of open data, its reuse, and the new possibilities for product development have become a commonplace concept in Slovenia and more broadly across Europe and broader, worldwide. In Slovenia, the initiative was taken over by the Ministry of Public Administration and in recent years by the Ministry of Digital Transformation which, since 2012 through the NIO portal and since 2015 with the Open Data Slovenia (OPSI) portal, has set standards for data collection through a single access point, data sharing, and the publication of reuse examples. According to the Open Data Maturity Report, Slovenia has ranked above the European average in recent years, indicating a high level of engagement from both the public sector and private stakeholders who use the data. Both Slovenia and Europe recognize the importance of data reuse and, based on the types of impact (e.g., economic, social, environmental), the influence of conditions (e.g., policies, data quality), and the cause-and-effect relationships between data use and outcomes, they analyze the data and adopt new data sharing policies.

In 2020, the European Commission introduced the European Strategy for Data, aimed at establishing a single data market to strengthen Europe's global competitiveness and data sovereignty. The strategy emphasizes the development of Common European Data Spaces which facilitate the availability of data from diverse sources across the economy and society while ensuring that data providers (such as hospitals and researchers) retain control over data access (A European Strategy for Data, 2020).

As a natural continuation of data sharing in recent years the European Union has focused its attention on user-generated data—data that users consciously or unconsciously share with service providers, typically through cloud services. This may occur within the infrastructure of a provider of a physical product that generates data or within the framework of a software service.

With the new Data Act, the European Commission aims to standardize the regulation of the relationship between users and service providers while introducing new guidelines for data processing and, most importantly, data sharing with third parties. Consequently, the nature of regulation also addresses the creation of new value, innovation, and business models with a particular emphasis on data with a

high impact on the development of new products. In a press release, the Commission estimates that approximately 80% of European industrial data remains unused and that the regulation will generate an additional €270 billion in GDP by 2028.

It is particularly important to mention that the Data Act establishes an environment for the operation of data spaces, thereby fostering the further development of the data economy by establishing clear rules for data access, sharing and portability. By ensuring fairer data sharing between businesses, consumers and public institutions, it promotes interoperability and trust in data ecosystems. The regulation lowers the barriers for companies to access and use data, thereby promoting innovation, competition and new business models. By supporting sector-specific data spaces, e.g., in health, energy and manufacturing, the Data Act also promotes cross-industry collaboration, unlocking the potential of data-driven growth and strengthening Europe's position in the global data economy.

Despite the established regulations and high expectations for the data economy, its actual development depends on how effectively companies can implement existing regulations into their operations. Several studies have been conducted in the broader field of data-driven business, data economy, and inter-organizational data sharing. However, the field remains underresearched, particularly in terms of companies' ability to implement regulations, integrate into data ecosystems, and develop business models, value creation strategies, and innovations based on data sharing.

To address this problem, we will conduct a literature review to identify research gaps, theoretical foundations, and key factors influencing enterprises' integration in data economy.

2 Methodology

The research question addressed in this study is:

"What are the key research gaps in existing literature regarding companies' ability to implement data-sharing regulations, integrate into data ecosystems, and develop business models and value creation strategies within the evolving data economy?"

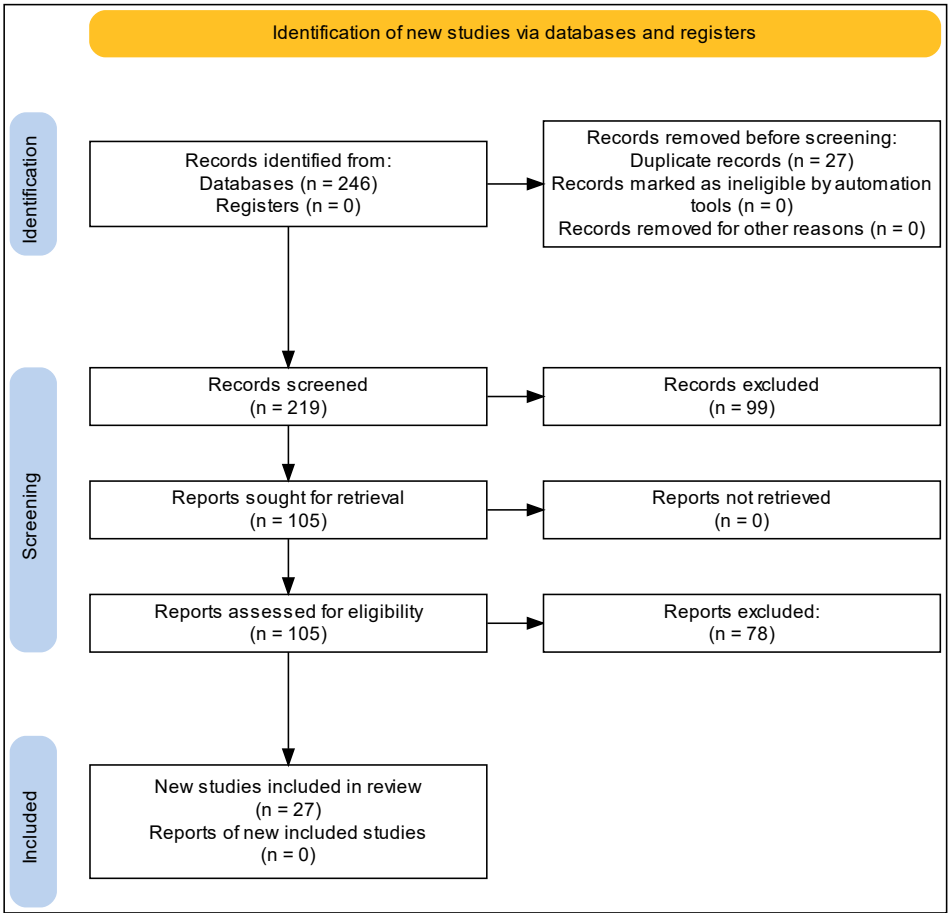

Figure 1: Identification of studies (Diagram made with PRISMA Flow Diagram tool (Haddaway et al., 2022))

Source: Own

We followed the PRISMA (Page et al., 2021) model guidelines which involve a systematic search for relevant sources in bibliographic databases and other sources through the following steps: 1) Identification, 2) Screening, 3) Inclusion.

Figure 1 presents a schematic overview of the source identification process in the Web of Science and Scopus databases based on the specified keywords, as well as the procedure for including or excluding specific sources and the final set of sources selected for analysis.

We have searched for the keywords and phrases: "data space" OR "data spaces" and "International Data Space" OR "European data space" OR "Dataspace Protocol", limiting the search to document types »article«, »paper« and »conference paper«, omitting the texts that were not in English. The search yielded a total of 227 results (Scopus and Web of Science), which we further analyzed by scanning titles and abstracts. The search for keywords "data space" and "data act" yielded 19 additional results (Scopus and Web of Science).

We applied the following **exclusion criteria**:

- Removed duplicate sources.
- Removed the workshop proceedings.
- Does not relate to the Data Act.
- Does not relate to data spaces.
- Does not focus on European studies.

The final set of sources selected for further analysis consists of 27 sources that we have read and synthesized in the results section.

3 Results

In the bibliographic databases examined, we identified 246 articles, from which we selected 27 articles for further analysis. As expected, there were fewer contributions on the topic of legislation, particularly the Data Act (19 articles), while significantly more were found on the topic of data spaces (227 articles).

In the following sections, we first present the Data Act, its importance, and its role in the data economy, specifically in interorganizational data sharing. We then introduce the concept of data spaces and related terms, such as data economy, data ecosystem, and interorganizational data sharing, along with the opportunities they create for the economy.

3.1 Data Act

Regulation (EU) 2023/2854 on harmonised rules on fair access to and use of data and amending Regulation (EU) 2017/2394 and Directive (EU) 2020/1828 ((EU) 2023/2854 - Data Act), which aims to facilitate and promote the exchange and use of data within the European Economic Area Data Act, 2023).

The regulation focuses on machine-generated "data" which is intentionally or unintentionally collected by a "connected product" (often referred to as an Internet of Things (IoT) device) or "connected services" following a user's action. Under the regulation, users have the right to access their own data, such as the data generated by their car during operation. Additionally, data holders must establish a contractual agreement with users for the use of non-personal data, such as environmental temperature data. If a user decides to share personal data with a third party, the data holder is obligated to provide access to the data under predefined conditions. All participants must ensure appropriate technical protection measures and in cases of detected misuse, data holders or users can demand that recipients delete the data or cease its use.

While previous regulations have already enabled the voluntary exchange of data with public institutions, the Data Act mandates that data holders provide necessary data to authorities in exceptional situations, such as responding to public emergencies, mitigating their impact or facilitating recovery. If data is required to respond to a general hazard, access must be provided free of charge. However, under certain conditions, the public sector may also request data to fulfill a legally mandated public interest task, such as statistical reporting. In such cases, data holders are entitled to compensation.

In addition to defining data-sharing processes, the legislation will also impact data processing service providers, such as cloud service providers, as it outlines contractual and technical aspects for switching between providers. This ensures greater flexibility for customers but presents challenges for existing providers, as it prohibits practices that create obstacles preventing customers from migrating to competitors. The regulation promotes a more competitive market with lower entry barriers for new providers.

Such an approach reduces vendor lock-in, a situation where businesses become dependent on a specific service provider. Additionally, data service providers are also affected by the data protection mechanisms introduced by the regulation. Providers must implement measures to prevent access to and the transfer of non-personal data stored in the EU to third-country authorities.

Data service providers are also affected by the data protection mechanisms introduced by the regulation. They must implement measures to prevent access to and the transfer of non-personal data stored in the EU to third-country authorities.

An important innovation introduced by the regulation is the establishment of formal frameworks for the operation of the so-called data spaces.

Although the specific market implications of the new regulation have been discussed in numerous articles and online publications, scientific literature and practice have yet to introduce methodologies and models that comprehensively assess the maturity of companies for implementing the Data Act, as it is a novelty in the field of regulation.

Therefore, the development of a new model will need to leverage existing systems and approaches to regulatory compliance verification.

3.2 Data Spaces

The concept of data spaces first emerged in 2005 (Franklin et al., 2005), predating its inclusion in the Data Act, which provides it with a legal framework for operation—ensuring secure and trusted data sharing among stakeholders. To further clarify, the needs of emerging data spaces played a key role in shaping the development of legislation (Otero, 2019). One of the fundamental definitions of a data space is provided by Hutterer et al. (2023, pp. 6): "A data space is a system of physical and/or logical nature consisting of elements and functions for providing a certain utility while at the same time relying on appropriate governance."

Data spaces are a technical solution that enables data sharing between two organizations. They provide the capability to publish data catalogues, which contain metadata about datasets (data) that an organization wishes to share with others. Data

spaces address technical challenges, such as access control and monitoring, establishing agreements for data sharing (or access), and facilitating data discovery.

The data space, as defined by the Data Act, provides both a technical and legal framework for data sharing among stakeholders (e.g., data ownership and rights). It ensures data ownership, thereby creating opportunities for cross-organizational collaboration (Beverungen et al., 2022). Additionally, the regulation is expected to boost the data economy and data-driven innovation by enhancing trust among stakeholders and increasing legal certainty within data spaces (Hutterer & Krumay, 2024; Erion, 2024).

Stakeholders within data spaces operate through the so-called connectors (IDS Connector), which offer a set of technical solutions for functioning within a data space, similar to how a web browser facilitates internet access (Möller et al., 2024; Otto & Jarke, 2019; Noardo et al., 2024). Searching through data catalogues partially replaces the role of data intermediaries and portals, as users can search for specific data within a data space and receive multiple providers, enabling automated data integration and redundancy.

There is no universally accepted definition of a data space as various overlapping terms are used, which can lead to confusion. Authors agree that data plays a vital role in the data economy, becoming a strategic asset for business operations and value creation (Otto & Jarke, 2019; Hutterer et al., 2023). Data also plays a crucial role in the digital transformation of companies (Beverungen et al., 2022; Hupperz & Gieß, 2024). However, the role of data in interorganizational digital transformation remains less explored, particularly in the context of co-innovation, the development of sustainable solutions, and addressing complex societal challenges (Beverungen et al., 2022). This represents a transformation of the business ecosystem, extending beyond the boundaries of a single organization or company. As a result, it introduces additional challenges, as it falls outside the control of any single actor (Beverungen et al., 2022). In the context of data spaces, the term data ecosystem emerges, which differs from a business ecosystem. While a business ecosystem refers to stakeholders within a specific business environment (e.g., a company with its suppliers, subcontractors, customers, banks, and competitors), a data ecosystem involves stakeholders whose shared interest is data (Gelhaar & Otto, 2020). There is no universally accepted definition of data ecosystem either. Some define data ecosystem

as network of actors that use, create, and provide data to generate added value (Gelhaar & Otto, 2020) while others (Möller et al., 2024) define data ecosystem as network of organizations (actors) that share data based on dataspace technology.

In any case, data has become an asset with intrinsic value. Data sharing between businesses (B2B) and between businesses and the public sector (B2G) is driven by legislative requirements (e.g., PSI directive, open data, COVID-19), supply chain management (Steiner & Münch, 2024), industry needs (Möller et al., 2024), and the need for competitiveness. In recent years, various initiatives have led to the establishment of the Common European Data Space, along with 14 sector-specific data spaces and related standards.

Data spaces are already being used, but only to a limited extent. There are use cases from the automobile industry such as Catena-X (Catena-X Your Automotive Network | Catena-X, n.d.), mostly including large organizations. Adoption challenges and sector-specific issues hinder their adoption in many industries and for SME. In healthcare, for example, problems arise considering personal data (e.g., GDPR restricts data sharing) and there is a lack of data interoperability between institutions (Yousefi, 2022; Terzis & Santamaria Echeverria, 2023; Hajduk, 2024). In the field of agriculture, Atik (2022) highlights the need for additional or separate legislation on data as large agricultural conglomerates hold advantage over farmers (vendor lock-in) and farmers show distrust in big companies and government in context of data sharing.

Hutterer & Krumay (2024) identified 12 factors that influence the adoption of data spaces among organizations, namely: Complexity of using data spaces; Clarity of initial (entry) costs for using data spaces; Data sovereignty (self-management of own data); Control over ecosystems; Ecosystem readiness; Data interoperability; Technology maturity; Clarity regarding legal regulations; Security; Technological maturity of the organization; Technology transparency; Trust among stakeholders.

The novelty of the technology, the complexity of implementation, and the technological maturity of organizations create significant barriers for small and medium-sized enterprises (SMEs) (Hutterer & Krumay, 2024; Olmedo-Peralta, 2024; Jurmu et al., 2023) leveraging data sharing for value creation. The Data Act aims to provide additional protection and support to SMEs. To further assist SMEs,

the EU plans to establish European Digital Innovation Hubs (EDIHs) (EU Commission, 2024). These hubs will serve as local systems, providing infrastructure and digital services to ease SMEs' integration into data spaces. Additionally, EDIHs will act as data intermediaries, facilitating access and use of data for SMEs.

3.3 Research gap

Table 1: Research gap by categories and sub-categories

Dimension	Sub-dimensions	Reference
Organizational & Management Aspects	Governance	(Stienmetz & Kolomoyets, 2024; Ordóñez-Martínez et al., 2024; Falcão et al., 2023; Schleimer et al., 2023; Otto & Jarke, 2019)
	Business models	(Stienmetz & Kolomoyets, 2024; Falcão et al., 2023; Klug & Prinz, 2023; Gieß et al., 2025)
	Value creation	(Jurmu et al., 2023; Ordóñez-Martínez et al., 2024; Hutterer, 2023; Gieß et al., 2025)
	Innovation	(Jurmu et al., 2023; Ordóñez-Martínez et al., 2024; Hutterer, 2023; Gieß et al., 2025)
	Sustainability governance	(Schleimer et al., 2023; Möller et al., 2024)
Methods	Quantitative methods/testing/experiments	(Steiner & Münch, 2024; Noardo et al., 2024; Steinert & Altendeitering, 2024)
	Qualitative (in depth case studies, multiple case studies)	(Gelhaar & Otto, 2020; Gieß et al., 2025; Steinert & Altendeitering, 2024)
Maturity	Implementations	(Klug & Prinz, 2023; Möller et al., 2024; Noardo et al., 2024; Otto & Jarke, 2019; Hutterer et al., 2023), (Gieß et al., 2025)
	Capabilities	(Steiner & Münch, 2024; Hupperz & Gieß, 2024)
	Business models	(Hupperz & Gieß, 2024; Klug & Prinz, 2023)
Ecosystems – holistic approach	Public authorities' role/ actors' roles	(Falcão et al., 2023; Beverungen et al., **2022)**
	technology, organizations, people, legal	(Möller et al., 2024; Hutterer & Krumay, 2024; Atik, 2022; Otto & Jarke, 2019; Schleimer et al., 2023),
	Sustainable development /green deal	(Lush et al., 2024; Otsu & Maso, 2024)

Source: Own

Areas: organizational and management aspects, methodological approaches, data space maturity, and a holistic or ecosystem-based perspective. Table 1 outlines these research gaps, highlighting key areas in the literature that require further exploration and offering opportunities for future research.

Existing research primarily focuses on the development and analysis of legislation that facilitates efficient data sharing, as well as on technical and conceptual studies of data space implementations. However, a notable gap remains in the practical application of these frameworks, particularly regarding the maturity of implemented data spaces and their long-term value creation for all stakeholders. Most studies emphasize the lack of real-world implementations, highlighting the need for deeper insights into how data spaces evolve and generate sustainable value over time.

Given that the new regulatory framework aims to empower small and medium-sized enterprises (SMEs) in their transition into the data economy, there is a critical need for research that identifies key factors influencing companies' readiness to implement the Data Act. Furthermore, future studies should explore how these maturity factors can be systematically assessed using existing regulatory compliance methodologies, ensuring a structured approach to evaluating and enhancing companies' data-sharing capabilities.

4 Conclusion

This study addresses the challenges of Data Act implementation, emphasizing the role of data sharing, reuse, and data-driven innovation in shaping the digital economy, particularly within data spaces. While the European Strategy for Data and the Data Act establish a regulatory framework for common European data spaces, SMEs face significant barriers to effective implementation.

Using a systematic literature review (PRISMA model), we identified key research gaps in organizational and management aspects, methodological approaches, data space maturity, and a holistic ecosystem perspective. Existing studies focus primarily on technical and regulatory dimensions, yet there is a lack of practical implementations, particularly regarding data space maturity and long-term value creation.

Future research should prioritize identifying key factors influencing companies' readiness to implement the Data Act and explore assessment methodologies based on regulatory compliance frameworks. While market implications have been widely discussed, scientific literature still lacks comprehensive models for evaluating companies' maturity for Data Act implementation. Developing such a model will require leveraging existing compliance verification approaches to support a structured transition into the data economy.

Acknowledgement

This research was supported by the project V2-24066 - Development of a model of indicators for measuring the effectiveness of the implementation of the Data Act in data spaces (Slovenian Research Agency and Ministry of Digital Transformation of Republic of Slovenia) and the program P5-0018 - Decision Support Systems in Digital Business.

References

Atik, C. (2022). Towards Comprehensive European Agricultural Data Governance: Moving Beyond the "Data Ownership" Debate. *IIC - International Review of Intellectual Property and Competition Law*, *53*(5), 701–742. https://doi.org/10.1007/s40319-022-01191-w

Beverungen, D., Hess, T., Köster, A., & Lehrer, C. (2022). From private digital platforms to public data spaces: Implications for the digital transformation. *Electronic Markets*, *32*(2), 493–501. https://doi.org/10.1007/s12525-022-00553-z

Biasin, E., Yasar, B., & Kamenjasevic, E. (2023). New Cybersecurity Requirements for Medical Devices in the EU: The Forthcoming European Health Data Space, Data Act, and Artificial Intelligence Act Symposium: Regulatory Futures and Medical Devices. *Law, Technology and Humans*, *5*(2), 43–58.

Catena-X Your Automotive Network | Catena-X. (n.d.). Retrieved February 18, 2025, from https://catena-x.net/en/1

European Digital Innovation Hubs | Shaping Europe's digital future. (n.d.). Retrieved February 18, 2025, from https://digital-strategy.ec.europa.eu/en/activities/edihs

Erion, M. (2024). Overlooking digital collusion risks in the EU's agenda for a single European data space(s), European Competition Journal, DOI: 10.1080/17441056.2024.2379137

Falcão, R., Matar, R., Rauch, B., Elberzhager, F., & Koch, M. (2023). A Reference Architecture for Enabling Interoperability and Data Sovereignty in the Agricultural Data Space. *Information*, *14*(3), Article 3. https://doi.org/10.3390/info14030197

Forte, S., Gast, F., Dickopf, T., Sturmer, C., & Weber, M. (2024). Gaia-X based Data Ecosystem Offerings in the Context of Data Management Systems. *2024 IEEE 29th International Conference on Emerging Technologies and Factory Automation (ETFA)*, 1–6. https://doi.org/10.1109/ETFA61755.2024.10710761

Franklin, M., Halevy, A., & Maier, D. (2005). From databases to dataspaces: A new abstraction for information management. *SIGMOD Rec.*, *34*(4), 27–33. https://doi.org/10.1145/1107499.1107502

Gelhaar, J., & Otto, B. (2020). Challenges in the Emergence of Data Ecosystems. *PACIS 2020 Proceedings*. https://aisel.aisnet.org/pacis2020/175

Gieß, A., Schoormann, T., Möller, F., & Gür, I. (2025). Discovering data spaces: A classification of design options. *Computers in Industry*, *164*, 104212. https://doi.org/10.1016/j.compind.2024.104212

Haddaway, N. R., Page, M. J., Pritchard, C. C., & McGuinness, L. A. (2022). PRISMA2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. *Campbell Systematic Reviews*, *18*(2), e1230. https://doi.org/10.1002/cl2.1230

Hajduk, P. (2024). A Walk in the Labyrinth. Evolving EU Regulatory Framework for Secondary Use of Electronic Personal Health Data for Scientific Research. In F. Bieker, S. de Conca, N. Gruschka, M. Jensen, & I. Schiering (Eds.), *Privacy and Identity Management. Sharing in a Digital World* (pp. 127–142). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-57978-3_9

Hupperz, M., & Gieß, A. (2024). *The Interplay of Data-Driven Organizations and Data Spaces: Unlocking Capabilities for Transforming Organizations in the Era of Data Spaces*. https://hdl.handle.net/10125/106925

Hutterer, A. (2023). Introduction of data spaces – Status and recommendations for action. ICEB 2023 Proceedings (Chiayi, Taiwan). https://aisel.aisnet.org/iceb2023/44

Hutterer, A., & Krumay, B. (2024). *The adoption of data spaces: Drivers toward federated data sharing*. https://hdl.handle.net/10125/106926

Hutterer, A., Krumay, B., & Muehlburger, M. (2023). What Constitutes a Dataspace? Conceptual Clarity beyond Technical Aspects. *AMCIS 2023 Proceedings*. https://aisel.aisnet.org/amcis2023/eco_systems/eco_systems/5

Jurmu, M., Niskanen, I., Kinnula, A., Kääriäinen, J., Ylikerälä, M., Räsänen, P., & Tuikka, T. (2023). Exploring the Role of Federated Data Spaces in Implementing Twin Transition within Manufacturing Ecosystems. *Sensors*, *23*(9), Article 9. https://doi.org/10.3390/s23094315

Klug, L., & Prinz, W. (2023). Fair prices for sustainability in agriculture and food. Requirements and design options for a data-based transparency system. *Proceedings of the 24th Annual International Conference on Digital Government Research*, 496–507. https://doi.org/10.1145/3598469.3598525

Lush, V., Bastin, L., Otsu, K., & Masó, J. (2024). Assessing FAIRness of citizen science data in the context of the Green Deal Data Space. *International Journal of Digital Earth*, *17*(1), 2344587. https://doi.org/10.1080/17538947.2024.2344587

Möller, F., Jussen, I., Springer, V., Gieß, A., Schweihoff, J. C., Gelhaar, J., Guggenberger, T., & Otto, B. (2024). Industrial data ecosystems and data spaces. *Electronic Markets*, *34*(1), 41. https://doi.org/10.1007/s12525-024-00724-0

Noardo, F., Atkinson, R., Bastin, L., Maso, J., Simonis, I., Villar, A., Voidrot, M.-F., & Zaborowski, P. (2024). Standards for Data Space Building Blocks. *Remote Sensing*, *16*(20). https://doi.org/10.3390/rs16203824

Olmedo-Peralta, E. (2024). The Creation of Data Pools as Information Exchanges: Antitrust Concerns. *Yearbook of Antitrust and Regulatory Studies (YARS)*, *17*(29), 49–88.

Ordóñez-Martínez, D., Seguí-Pons, J. M., & Ruiz-Pérez, M. (2024). Conceptual Framework and Prospective Analysis of EU Tourism Data Spaces. *Sustainability*, *16*(1), Article 1. https://doi.org/10.3390/su16010371

Otero, B. G. (2019). Evaluating the EC private data sharing principles: setting mantra for artificial intelligence nirvana. Journal of Intellectual Property, Information Technology and Electronic Commerce Law, 10(1), 65-83.

Otsu, K., & Maso, J. (2024). Digital Twins for Research and Innovation in Support of the European Green Deal Data Space: A Systematic Review. *Remote Sensing*, *16*(19), Article 19. https://doi.org/10.3390/rs16193672

Otto, B., & Jarke, M. (2019). Designing a multi-sided data platform: Findings from the International Data Spaces case. *Electronic Markets*, *29*(4), 561–580. https://doi.org/10.1007/s12525-019-00362-x

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, *372*, n71. https://doi.org/10.1136/bmj.n71

Schleimer, A. M., Jahnke, N., & Otto, B. (2023). Architecture Design Options for Federated Data Spaces. *Hawaii International Conference on System Sciences 2023 (HICSS-56)*. https://aisel.aisnet.org/hicss-56/in/data_spaces/2

Steiner, B., & Münch, C. (2024). Leveraging digital data spaces in purchasing and supply management: Paving the way to the circular economy exemplified by Catena-X. *Journal of Purchasing and Supply Management*, *30*(4), 100951. https://doi.org/10.1016/j.pursup.2024.100951

Steinert, M., & Altendeitering, M. (2024). Data Trustees: A Whitelisting Approach for Trusted Data Sharing. *Proceedings of the 4th Eclipse Security, AI, Architecture and Modelling Conference on Data Space*, 86–92. https://doi.org/10.1145/3685651.3685656

Stienmetz, J., & Kolomoyets, Y. (2024). Stakeholder Requirements and Governance for the European Data Space for Tourism. In K. Berezina, L. Nixon, & A. Tuomi (Eds.), *Information and Communication Technologies in Tourism 2024* (pp. 278–283). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-58839-6_30

Terzis, P., & Santamaria Echeverria, (Enrique) OE. (2023). Interoperability and governance in the European Health Data Space regulation. *Medical Law International*, *23*(4), 368–376. https://doi.org/10.1177/09685332231165692

Terzis, P., & Santamaria Echeverria, (Enrique) OE. (2023). Interoperability and governance in the European Health Data Space regulation. *Medical Law International*, *23*(4), 368–376. https://doi.org/10.1177/09685332231165692

Yousefi, Y. (2022). Data Sharing as a Debiasing Measure for AI Systems in Healthcare: New Legal Basis. *Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance*, 50–58. https://doi.org/10.1145/3560107.3560116