Introduction to the Mini-Track on Designing Data Ecosystems: Values, Impacts, and Fundamentals

Frederik Möller
TU Dortmund University & Fraunhofer ISST
Frederik.Moeller@tu-dortmund.de

Gero Strobel
University of Duisburg-Essen
Gero.Strobel@paluno.uni-due.de

Thorsten Schoormann
University of Hildesheim
thorsten.schoormann@uni-hildesheim.de

Boris Otto
TU Dortmund University & Fraunhofer ISST
Boris.Otto@tu-dortmund.de

Abstract

Data ecosystems are a novel approach to enable data sharing on an organizational and personal level. The track 'Designing Data Ecosystems: Values, Impacts, and Fundamentals' invited papers on various issues exploring the phenomenon of data ecosystems from multiple angles. Themes included the fundamentals of data sharing, incentives, and barriers to data sharing, as well as data space design.

Keywords: Data Ecosystems, Data Sharing, Data Spaces, Data Marketplaces

1. Introduction

Data ecosystems are a novel perspective on leveraging the potential of data drawing from the ecosystem analogy originating in biology (Oliveira et al., 2019). The fundamental activity enabling data ecosystems is sharing data between different stakeholders, such as individuals, companies, or governmental agencies (Prieelle & Reuver, 2020). Sharing data between organizations is a powerful motor to generate new business value and optimize internal processes. Also, having an appropriate set of data enables the application of emerging technologies that, for instance, can make valuable contributions to grand societal challenges (Schoormann et al., 2021).

A variety of research streams explored data-driven business models from a primarily internal perspective (e.g., Schüritz et al., 2017), which we extend in this track through a broader ecosystem perspective. The track looked for papers investigating data ecosystems from multiple angles. For example, papers elaborating on the peculiarities of data sharing, broadening the mere technical view of transmitting data from a data provider to a data receiver. Explicitly, we looked for conceptualizations of data ecosystems, as well as incentive mechanisms and barriers to data sharing (Gelhaar et al., 2021). In this, we did not focus on data sharing in either an industry or personal setting but instead left it to the authors to propose interesting papers on either or both. We also left it to the authors to report on specific elements of data ecosystems, be it more technical (e.g., in data spaces) or organizational (e.g., in barriers to data sharing). We invited studies with diverse methodological backgrounds.

2. Designing Data Ecosystems: Values, Impacts, and Fundamentals

The track had a total of 13 submissions with six accepted papers, resulting in an acceptance rate of 46,15%. The mini-track chair paper was handled by the track chairs of the *Internet and the Digital Economy* track. Papers with institutional overlap to the mini-track chairs were handled exclusively by those chairs that did not have a potential conflict of interest.

The six accepted papers cover broad themes in data ecosystems, such as data sharing, data marketplaces, and open platforms. They report on various methods, including literature reviews and interview studies. Next, we provide an overview of the accepted papers from our mini-track.

The first paper **(1)** by Jussen et al. (2023) investigates the fundamentals of data sharing and contrasts them with data exchange. Their findings suggest that data exchange mainly refers to the technical exchange of data (e.g., through data exchange formats), while data sharing embodies the social-technical construct that is also riddled with many organizational decisions and characteristics. In their work, the authors propose a definition and defining characteristics of data sharing.

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The second paper **(2)** by Fassnacht et al. (2023) proposes a set of barriers to sharing data in private organizations. They extract these barriers from an interview study with 14 experts from different industries. These barriers include fear of data misuse, legal concerns, or the lack of technical capabilities.

The third paper **(3)** by Gelhaar et al. (2023) reports on a single case study in the *Catena-X Automotive Network* project extracting a set of incentives for sharing data. The authors analyze the case by interviewing experts and generating results through the lens of the *Motive-Incentive-Activation-Behaviour Model*. They propose eight incentives matched with seven motives.

The fourth paper **(4)** by Scheider et al. (2023) proposes a set of design principles for human-centric B2C data ecosystems. Their work builds on an interview study with six informants, as well as a systematic literature review. The design principles cover data sovereignty, legal compliance, economic rationale, ethical correctness, and technical implementation.

The fifth paper **(5)** by Abbas et al. (2023) investigates issues in meta-platforms with the example of data marketplaces. The authors report on an interview study with 20 informants engaging in data sharing for their organizations. They propose three value creation archetypes: discovery aggregator, brokerage, and one-stop-shop.

The sixth paper **(6)** by Rudmark & Lindgren (2023) on an ADR study builds on a large-scale interview and workshop study. The result is the codification of design knowledge for open platforms in a design theory.

3. Conclusion

The six accepted papers show a broad spectrum of topics and issues regarding data ecosystems. They allow discussing the nature of data sharing in various domains. From this starting point, we find a promising indication of where data ecosystem research is headed: exploring the interplay of different actors in data ecosystems on multiple levels, such as technical, economic, and organizational.

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