Data spaces and data ecosystems: different names, same purpose?

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Abstract

The concept of data space has gained traction within the European data strategy, but its distinction from data ecosystems remains ambiguous. Both terms are often used interchangeably despite differing in scope and function. In a digital government context, this distinction is crucial, as public data spaces, such as those emerging in the EU Green Deal, are viewed as promising instruments for data collaboration. However, the lack of conceptual clarity between data spaces and data ecosystems can lead to governance misalignment and hinder effective implementation. This paper aims to clarify this conceptual ambiguity by identifying and comparing the defining characteristics of data spaces and data ecosystems.

Keywords

Data space, Data ecosystem, Conceptual framework, Public data space

1. Introduction

Since the launch of the European Data Strategy in 2020, the term data space has gained visibility in the literature, often in close association with the term data ecosystem.[1] While recent studies - often in specific industrial or technical contexts - have acknowledged their conceptual proximity [1], the relationship between the two remains under-theorized. As noted by Curry et al. [2], the boundaries between data spaces and data ecosystems are still blurred, particularly beyond infrastructure-oriented considerations. This calls for a more systematic and nuanced conceptual framework to distinguish their respective characteristics. With the emergence of public data spaces as a promising new form within broader data ecosystems,[3] it becomes important for the digital government research to clarify the distinction between the two. Conceptual clarity is key to supporting more responsible data practices in public sector governance and future research. Through this poster, we aim to open a discussion with experts to gather insights and critical feedback that will inform the development of a conceptual framework distinguishing data spaces from data ecosystems. To support this effort, we begin with a preliminary co-occurrence analysis of their usage in the literature.

2. Motivation & Research objective

Based on a structured bibliometric approach, a co-occurrence network was constructed using the 100 most relevant publications related to data spaces retrieved from Scopus with the

following query: `TITLE-ABS-KEY("data space") AND PUBYEAR > 2019 AND PUBYEAR < 2026 AND (LIMIT-TO(SUBJAREA, "COMP") OR LIMIT-TO(SUBJAREA, "SOCI")) AND (LIMIT-TO(DOCTYPE, "cp") OR LIMIT-TO(DOCTYPE, "ar") OR LIMIT-TO(DOCTYPE, "ch")) AND (LIMIT-TO(LANGUAGE, "English"))`.The records were processed in VOSviewer to extract key terms and generate a co-occurrence network, where edge thickness reflects term frequency. A strong link between data space and data ecosystem suggests that they are often associated and may be seen as conceptually related [4].
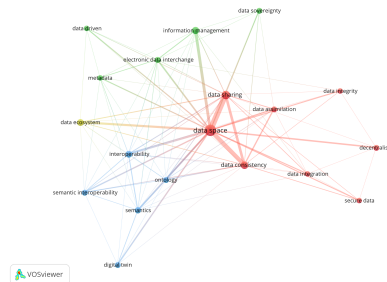

Figure 1: Key words Co-occurrence Network Based on Academic Abstracts from Scopus.

Although data space and data ecosystem often co-occur in the literature, their presence in different clusters points to different conceptual uses [4]. The literature and co-occurrence analysis show that the conceptual link between data spaces and data ecosystems remains unclear, with existing distinctions fragmented and mostly technical or sector-specific. This highlights the need for a unified conceptual framework, as confusion between terms can cause governance gaps, legal uncertainty, and misguided policies [3]. Future work could examine how researchers and practitioners interpret and use these terms. Approaches such as Q-methodology could help capture stakeholder perspectives, while comparative case studies could shed light on their implementation in practice.

Declaration on Generative AI

The author(s) have not employed any Generative AI tools.

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