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A Sensemaking Approach to Europe's Data Strategy

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Abstract. The use of data-driven tools provides a plethora of benefits and challenges from a data policy-making perspective. This holds implications at organizational, national, and regional levels. At regional level the development of high-quality data-driven tools, among others, involve geo-political implications as they contribute to the region's competitive advantage. In Europe, the European Commission has made attempts towards the formulation of a regional policy on data, aiming at fostering Europe's global competitiveness and data sovereignty. Despite its geo-political impact, academic research on data strategy formulation at regional level remains scarce. While existing IS scholars have largely emphasized on data strategies, the focus of these studies has been mainly at organizational level. This paper motivates the need to go beyond data policies the organizational level and deepen our understanding on how data policies are formulated at regional level. Focusing on the case of the European regional area and the European Data Act formulation, the proposed research aims to shed light on how stakeholders make sense of the forthcoming data policy in Europe. The paper reflects on existing literature on data governance and availability and discusses its relevance to data policy formulation at regional level. It proposes sensemaking as a theoretical lens for this research and describes the methodology for the proposed research.

Keywords: Data policies, Data-driven tools, European Data Act.

1 Introduction

The advancement of technology has enabled to the collection, storage, and processing of larger quantities of data across the years, providing in this way the potential for individuals, organizations, or individuals to access smarter products and services [1,2]. Along the same lines, data is regarded as an essential resource for economic growth, competitiveness as well as business innovation and societal progress [3]. Data-driven applications offer a wide spectrum of benefits. For instance, they can contribute to improving healthcare, enhance energy efficiency efforts, elevate the quality, minimize the cost of public services, create new products and services, improve transportation quality and many others [4,5]. Besides, data-driven innovation fosters the development of cost-effective products and services using data as its resource [6] and in turn leads to an increase of the volume of data produced and made available to digital products and

services. Promoting data availability and data sharing across multiple actors deliberately elevates the economy's potential at a global level. Thus, measures to boost data availability, sharing, governance and reuse can potentially assist economies to gain and sustain competitive advantage in the global arena. However, data-driven applications may not always be used in favour of humanity and thus it is important for governments to also implement measures aiming to keep individuals and companies using data in control. Several nations or regions have already acted in this direction aiming to formulate strategies which ensure the wide use of data and the development of data-driven applications while monitoring that these are used responsibly and respect the rights of the data owners.

In Europe, the European Commission (EC) has been committed to an inclusive approach which will drive how value is extracted and shared among parties using data, including businesses, consumers, and public authorities aiming to release of the union's 'Data Act' initiative. Since May 2021, the approach involved the release of a roadmap on the EC's proposed avenue for addressing the topic, the conduction of an open consultation through which stakeholders could contribute with their views leading to the preparation and adoption of a proposal for a regulation on the topic.

Existing literature on data policies has largely focused on the topic of data governance at the organizational level. This stream of research focuses on data management control and data quality assurance such that organizations can innovate and develop data-driven tools. From the data management perspective, it focuses on maximizing the value of data while minimizing cost for organizations and businesses, while the data quality assurance literature emphasizes ensuring that data is made available for data-driven tools is of adequate quality such that data-driven tools can have the desired functionality [7]. Additionally, existing research has focused on data availability aiming to address data sufficiency issues as a means of boosting innovation in organizations [8]. Some scholars also address the ethical issues arising from the production, storage and processing of data and discuss the control that needs to be applied to businesses and organizations when it comes to data handling [9].

This research project complements this stream of research and aims to shed light on the perceptions of European stakeholders on formulating the regional data policy. The objective of the research project is framed by the following research question: "How do stakeholders perceive Europe's data strategy?'. This research-in-progress paper presents the research approach framing this project. In the next Section, the paper presents existing literature on this topic as well as sensemaking as a theoretical lens for this research. Then the paper presents the research context and elaborates and data analysis approach to be employed.

2 Background

2.1 Related literature

Existing research on formulating data policies has largely emphasized data governance at the organizational level. On the one hand, this stream of research regards data governance as a means for controlling the management of data and balancing between maximizing data value and minimizing data-related costs and risk. This direction encapsulates approaches for data governance as a pathway for guiding decision-making and assigning accountability for decisions in the data governance domain to specific roles in charge of ensuring alignment with organizational goals [10]. Such organizational goals may be relevant to reaching greater efficiencies, increasing market share etc. [11]. In [12], the authors introduce the building blocks of data governance in organizations and provide a conceptual framework for data governance which includes an interplay between governance mechanisms, organizational scope, data scope, domain scope, antecedents, and consequences of data governance. Data governance from this perspective provides insights on how data can be utilized to reach the organizational goals and assign roles which will be held accountable [13].

On the other hand, data governance addresses poor data quality issues and thus investigates this topic from a data quality management perspective [14,15]. In this respect, data quality is defined in the form of "data fitness" referring to the suitability of the data to the intended purpose in a specific data context highlighting that data is not about one-size-fits-all in organizations [16,17]. Beyond data quality management, data governance from this perspective also addresses the need to ensure that the data available are aligned with the legal frameworks in place [8]. This also imposes the need to define data quality concerning the type of user who will be using the data and thus, this might also provide direction for assigning responsibility [13]. This body of research focuses on the organizational level. However, it offers valuable knowledge for data policies that regard regional/national levels as organizations is one of the key stakeholders encapsulated by such policies.

Additional streams of research focus on data availability and open data. The increasing availability of open data and their potential to be combined increases their potential to be utilized by products and services to address problems [18]. As highlighted in [19] that open data initiatives positively impact society. In particular, the authors focus on the availability of data that has been assisting innovation, noting that these have been highly contributing to the efficiency and effectiveness of services in the smart city-related domains (e.g., parking and traffic management, environmental awareness etc.). Others also combined various open data and demonstrate their potential for social good. For example, in [20] the authors combined various open data sources as a means of predicting epidemic fever. Organizations are already looking into formulating synergies as a means for accessing and co-processing data. For example, in [21] the authors stress the growing population of data ecosystems as a means for inter-organisational

collaborations for accessing and exploiting data assets. This stream of research complements knowledge on data policies at the regional level, as it provides insights on the relevance of data availability and access to product or service innovation.

While data governance and availability are critical for ensuring data-driven value creation, there are also ethical implications arising from the use of data. Literature has focused on the ethical perspective of the data mining approaches highlighting the need for ensuring that data production, use, storage and processing are ethical. In [22] the authors identify five distinct ethical principles including transparency, justice and fairness, non-maleficence, responsibility, and privacy. In their work, the authors also highlight that there is notable divergence on how each of these principles is interpreted and how they should be implemented. Similarly, in their review of ethical AI, the authors of [9], note that most ethical considerations are relevant to aspects of accountability, privacy, or fairness. Others also discuss ethics washing as a means for avoiding or escaping governmental regulations [23]. Ethical implications associated with data, highlight the need to ensure that individuals or organizations using data are controlled.

The work proposed by this paper aims to complement existing literature and knowledge on public perceptions on data policies by shedding light on the perception of stakeholders when it comes to a regional data policy. Additionally, it adds to this stream of work highlighting the considerations of European stakeholders on formulating a data policy at European level. The next subsection presents the theoretical lens to be employed by this research project.

2.2 Theoretical lens

Coming across a new situation, the stakeholders in charge of making sense of the new phenomenon in an organization, attempt to understand it in more depth to formulate an opinion and take action. This involves ongoing information retrieval and comprehension of the community's organizing vision to reach the technology's 'translation' at the local level. While information retrieval and processing move forward, the interpretations of the new technology change and become more specific to the context of use. This enables stakeholders to resolve upcoming issues (e.g., organizational transformation, strategic repositioning) and approximate an interpretation that attempts to fully consider the fit of the new technology to the circumstances of the real setting [24].

Sensemaking occurs when individuals come across problems within unfamiliar situations for which their understanding or knowledge is inadequate [25]. In such situations of inadequate knowledge, sensemaking refers to how organization members (or community members) attempt to bridge the gap of information shortage about the new technology, such that they can make sense of a phenomenon [26]. Thus, sensemaking takes the form of activity or process of retrieving information about a problem and using mechanisms to place it in frameworks and build cognitive maps or mental models about it [27]. In this way, information comprehension and meaning ascription enable the individuals to build arguments for or against the new phenomenon. The generation of

arguments is supported by a series of justifications, requisite evidence, logic and criticism and is being constructed, to reach mutual understanding between the members of the organization and take action [28,29,30].

Sensemaking is not directly related to learning the truth or getting something right, but rather it is a process of an ongoing redrafting of an emerging phenomenon to make it more comprehensive (i.e., by interpolating additional observed data) and more resilient to criticism [30]. Sensemaking theory has been widely used in the information systems discipline as means of understanding technological implications. For instance, it has been employed for researching IT outsourcing relationships [31], technology value [32], virtual worlds [33] and user accommodation practices [34]. It has also been employed for exploring strategy formulation including social responsibility [35], creativity [36], strategic change [37] and identity formulation [38].

In the context of this research project, we consider the stakeholders contributing to the open consultation as part of the European data community, holding a deep interest in making sense of the upcoming Data Act and contributing to its formulation. To this end, we employ sensemaking as the appropriate lens for this research project.

3 Towards Europe's data vision

The European Commission (EC) has derived a vision aiming to guide the region's data economy. As a first step in this process, the EC has derived a roadmap aiming to inform relevant stakeholders and to invite them to provide feedback on the proposed imitative and actively participate in the process of shaping the region's regulation on data through an open consultation. The roadmap was released in May 2021 and it was open to stakeholder initial feedback between May 2021 and June 2021.

Stakeholders were then invited to contribute to the open consultation between June 2021 and September 2021. Through the open consultation, stakeholders were invited to share their views on the EU's understanding of the data regulation problem and suggest potential solutions while sharing views on expected impacts.

This process led to the Data Act, released in February 2022 which is a horizontal proposal for a Regulation on harmonized rules on fair access to and use of data [39]. This complements the pre-existing proposal for a regulation on data governance adopted in November 2020 [40]. The Data Act aims to generate a fair data economy, fostering access and use of data by businesses, citizens and public administration while respecting the legislation on data protection [39]. It includes:

1) Measures to increase legal certainty for entities or individuals who generate data, clarifying who can use such data and how

2) Measures to prevent abuse of contractual imbalances to ensure fair data sharing (e.g., protecting SMEs against unfair contractual terms)

3) Means which will enable public administrations to access and use data available by the private sector in the light of public interest.

4) New rules to enable customers to effectively switch providers of data-processing services and effective data interoperability to foster the further development of the EU cloud market.

After the EC adopted the Data Act, stakeholders were also invited to share their feedback on it, in the light of the suggestions provided earlier throughout the consultation process. The approach followed by the EC is also depicted in Fig. 1. This research project focuses on Step 2, aiming to analyze the letters submitted by the stakeholders during the open consultation process. More information on the dataset to be employed and the proposed analysis approach are included in the following Section.

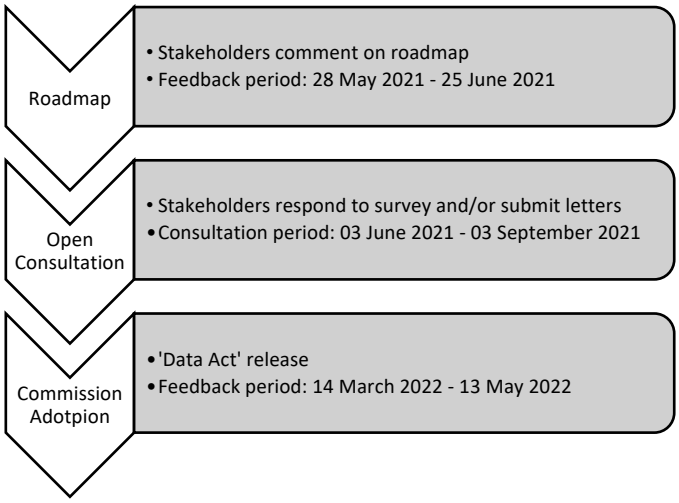

Fig. 1. European Commission's approach to formulating the European Data Act.

3.1 Dataset

Aiming to explore the stakeholders' perceptions of Europe's data policy, a qualitative inquiry is employed for the purposes of this project. The project draws on secondary qualitative data (letters) arising from the open consultation. The letters have been provided by stakeholders who have contributed throughout the EC's open consultation call (these letters were provided during Step 2 of Fig. 2). In total, the dataset encapsulates 449 stakeholders who have participated in the consultation. The EC called for contributions to collect the viewpoints of all interested or relevant stakeholders, stakeholders from Europe as well as third countries were able to contribute. In particular, stakeholders from 32 countries participated including 25 Member States as well as third countries such as Argentina, Brazil, Canada, Japan, Switzerland, the United Kingdom, and the

United States. Stakeholders have contributed as citizens or as representatives of businesses or associations. Table 1 depicts the number of stakeholders per category of representation[1].

Table 1. Number of contributors per category

Category of contributor	Number of contributors
Business associations	122
Businesses/companies	105
Public authority representatives	100
Citizens	58
Non-governmental organizations (NGO)	21
Non-governmental organizations 2 (NGO)	17
Academic/research Institution	6

In their letters, contributors shared their positions on the European strategy for data. Depending on their role and interests, the letters covered a plethora of viewpoints on several aspects of the consultation. Indicative topics included: the stakeholder's sense-making of the proposed data strategy, their opinions on the provisioning of access to and re-use of data in Europe and on data governance (e.g., standardization, secondary use of data, data donation and data intermediaries), their views on the formulation of a legal framework and their perceptions of data as high-value datasets for Europe.

3.2 Data analysis approach

The analysis of the letters will involve a thematic analysis approach in an effort to identify the perceptions of the stakeholders for a European data policy. The data analysis will follow a thematic analysis approach. We suggest this approach as it offers a flexible as well as rigorous approach for identifying and organizing patterns within the empirical material [41]. We aim at following the data analysis approach suggested in [42], illustrated in Fig. 2. In particular, we plan to begin our analysis by familiarizing ourselves with the relevant material to derive the necessary understanding to support the coding process. This may include an initial coding phase where a preliminary coding scheme will be extracted. Then, we will proceed with a theme identification approach where codes will also be compared to earlier literature and any additional sub-codes will be developed. The themes will also be reviewed across the team members against the dataset to identify any counterexamples for codes. The coding of the data will also encapsulate an iterative process including reading, coding, and questioning the validity of the codes. This will lead to a list of high-level thematic codes, which we then write

[1] 18 participants did not declare the category of organization which they represented.

up in our analysis as the major six dimensions. All steps will include a consultation process among all team members to ensure that all authors will overcome potential personal biases in the interpretation of the findings and support the validity of the study.

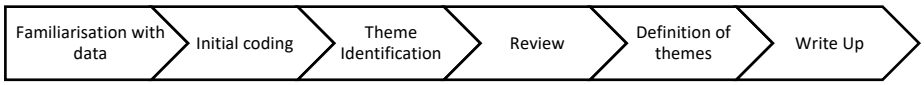

Fig. 2. Proposed data analysis approach.

5. Conclusion

This paper motivates the need to shed light on stakeholder perceptions regarding data policies at the regional level. The ongoing research project described will draw on the case of the European regional area and the European Data Act, focusing on the letters submitted by the stakeholder community throughout an open consultation call released by the European Commission. This research will take an interpretive stance on this topic aiming to contribute to information systems literature focusing on data governance at the regional level.

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