

Transparency and Involvement of the Energy-Related Industry in a Data Sharing Platform

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Abstract: The integration of renewable energy sources, the decentralization of the energy system, and the increasing digitization of energy-related processes require the integration of a wide range of energy-related data. In this context, a data sharing platform can serve as a hub for exchanging energy-related data and developing innovative solutions to improve the efficiency and sustainability of the energy system. However, especially because of the involvement of the energy-related industry in such a platform poses several challenges related to data protection, intellectual property, and business interests. This paper presents a framework for ensuring transparency and involvement of the energy-related industry in a data sharing platform, based on the FAIR data principles and a co-creation approach involving industry partners.

Keywords: Data sharing platform, FAIR principles, energy industry

Introduction

The transformation of the energy system towards a low-carbon and decentralized model requires the integration of a wide range of energy-related data, including electricity production and consumption, weather conditions, energy storage, and grid infrastructure. However, much of this data is currently dispersed across different stakeholders, such as utilities, grid operators, regulators, and consumers, and is subject to various legal, technical, and economic barriers to sharing. To overcome these challenges, a data sharing platform can provide a common space for collecting, processing, and sharing energy-related data among different actors, thus enabling the development of new services, applications, and business models based on data-driven insights.

However, the involvement of the energy-related industry in a data sharing platform requires a careful balance between the interests of different stakeholders, such as data providers, data users, and platform operators. On the one hand, data providers may have concerns about data protection, intellectual property, and privacy, as well as about the potential competitive advantage that their data may provide to other actors. On the other hand, data users may have requirements for data quality, interoperability, and

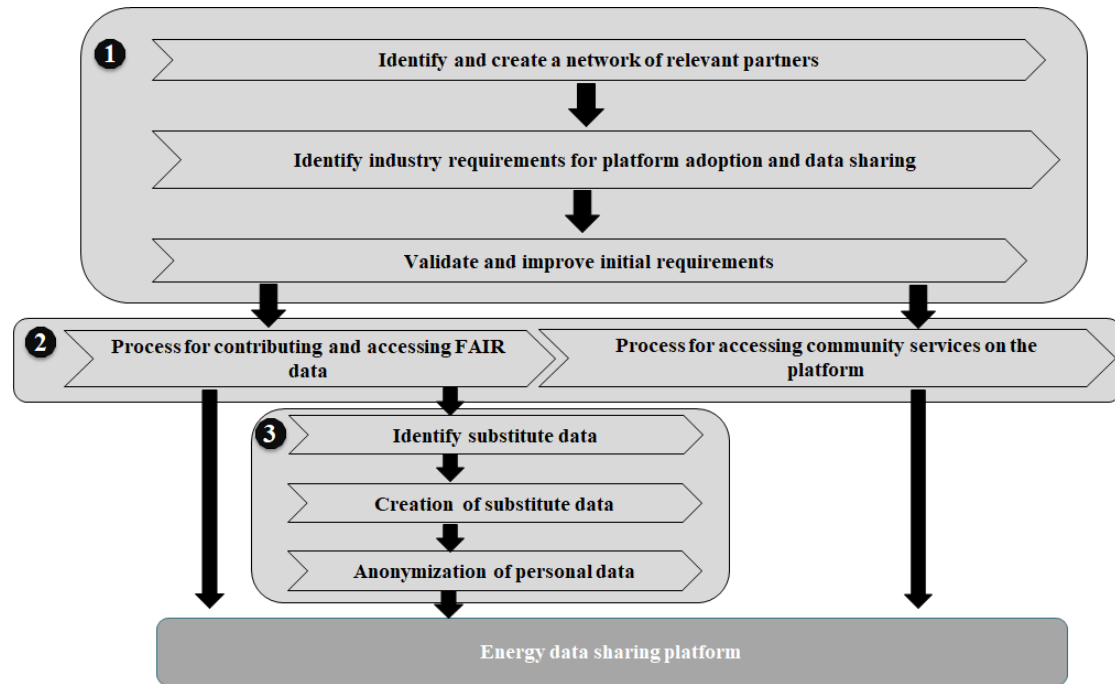


Figure 1. Framework for ensuring transparency and involvement of the energy-related industry in a data sharing platform

availability, as well as for fair and transparent conditions for accessing and using the data. In addition, platform operators need to ensure the sustainability, scalability, and security of the platform, while also fostering a collaborative and inclusive environment for data sharing and innovation. This is crucial for establishing trust among industry partners, promoting long-term engagement, and ensuring that the platform is capable of meeting the evolving needs of the energy sector. To address these challenges, this paper proposes a framework for ensuring transparency and involvement of the energy-related industry in a data sharing platform, based on the FAIR data principles [1].

1 Methodology

The proposed framework in Figure 1 consists of three main parts: (1) the definition of technical and organizational requirements for data sharing, (2) the involvement of industry partners in the co-creation of the platform, and (3) the collection and creation of substitute data.

In the first part, the relevant partners for the energy domain should be identified. The technical and organizational requirements for data sharing are based on the FAIR data principles, which provide guidelines for making data Findable, Accessible, Interoperable, and Reusable. This includes the use of standardized data formats, metadata, and vocabularies, as well as the provision of appropriate documentation, licenses, and identifiers. In addition, the platform should support data quality control, data enrichment, and data integration services, to ensure that the data is relevant, accurate, and consistent across different sources. To facilitate this process, the platform provides collaborative and participatory tools, such as forums, workshops, and hackathons, that allows industry partners to exchange ideas and feedback.

The involvement of industry partners in the co-creation of the platform is essential to ensure that the platform meets the needs and expectations of the energy-related industry. This includes the identification of data sources, data use cases, and data sharing

agreements, as well as the development of new services, applications, and business models based on the data. Besides data, the industry requirement for accessing and using the related services is also part of the framework.

The last part of the framework is the collection and creation of substitute data. The industry partners may not always be able to provide complete data sets due to privacy concerns or other reasons. Therefore, synthetic data will be created where necessary to ensure that the platform has the data required for analysis. Tools for the anonymization of personal data are integrated to ensure that the privacy of individuals is protected.

2 Conclusion

In conclusion, the framework developed addresses the need for transparency and involvement of the energy-related industry by creating a collaborative environment where industry partners can contribute and access FAIR data, access community services, and provide feedback for continuous improvement. Additionally, the framework addresses the issue of missing or personal data through the development of tools for the creation of synthetic data and the anonymization of personal data. By incorporating industry needs and concerns, the framework facilitates collaboration between industry partners and researchers, resulting in more effective and efficient energy systems.

Data availability statement

Not applicable.

Underlying and related material

Not applicable.

Author contributions

Conceptualization, Z.P., G.G., C.S., P.J., M.N.; methodology, Z.P. writing—original draft preparation, Z.P.; writing—review and editing, Z.P., G.G., C.S., P.J., M.N.; supervision, A.M..

Competing interests

The authors declare that they have no competing interests.

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