

Legal, Technical, and Social Limitations of Data Portability

through Decentralized Applications

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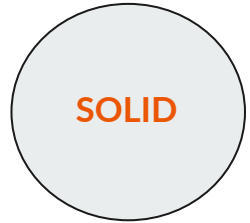
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Introduction

Centralized data storage models
(e.g., Meta, Microsoft, Alphabet, holding large amounts of personal data)



lock-in effects, data monopoly,
not conducive data sharing and reuse



The right of data portability



break down

EU's policymaker proposed to break down the information silos by putting in place regulations (e.g., Data Act, DMA, Digital Governance Act, and GDPR)

2. Right to Data Portability and Practical Hurdles

The Right of Data Portability — The legislative history of Art. 20 GDPR

Conditions	A comprehensive approach (22/06/2011)	Proposal (25/01/2022)	EP First reading (12/03/2014)	EC First reading (06/04/2016)	GDPR (27/04/2016)
Subject	User-controller	Data subject-controller	Data subject-controller	Data subject-controller	Data subject-controller
Position	Recital 2.1.3	Article 18 Right of data portability	Article 15 Right to to obtain data for the data subject	Article 20 Right to data portability	Article 20 Right to data portability
Objective	Enhancing control over one's own data	As a precondition and in order to further improve access of individuals to their personal data	To further strengthen the control over their own data and their right of access	To further strengthen the control over his or her own data	To further strengthen the control over his or her own data
Scope	His/her own data	A copy of personal data	A copy of the provided personal data	Receive the personal data concerning him or her	Receive the personal data concerning him or her
Format	/	An electronic and structured format	An electronic and interoperable format	Structured, commonly, machine-readable	Structured, commonly, machine-readable

Goal and requirements

➤ Recalling the main legislative purposes for establishing the RtDP in GDPR

This was aimed at decentralizing data control from centralized platforms to individuals, enabling the data subject, instead of a few platforms, to decide to whom access is to be granted.

➤ The requirements of RtDP

- (1) **Subject:** data subject make a request to data controller
- (2) **Data format:** structured, commonly, machine-readable
- (3) **Data scope:** personal data concerning him or her
- (4) **Transfer time:** real-time

Practical Hurdles

➔ Automated data portability:

Use case of **Facebook to Koofr**. Facebook introduced an option that “transfer a copy of your information”, which allows users to transfer notes and posts to Google Docs, Blogger, and WordPress.com, and port photos and videos to Backblaze, Dropbox, Google Photos, and Koof. **Can only be transferred to specific platforms. And the range of data transmitted is also limited.**

➔ Manual data portability:

Drawbacks:

- (1) increased burden on users to manage their data. This data, whether stored in the cloud or on hard drives, can become overwhelming for users when large volumes of personal information are accumulated.
- (2) it does not support the real-time transmission required by Art. 20 GDPR, falling short of true data portability.

3. Decentralized Technical Support and Social Limitations

Decentralized Technical Support

Decentralized applications can empower users with enhanced control of their data. We can see that these technologies and legal norms are aligned to empower control of data to the users and data sharing.

- ◆ Firstly, Solid enables decoupling user's data from the platform
- ◆ Moreover, Solid and Interoperability issue among different pods.
- ◆ Finally, Solid fulfills the legal requirement of real-time data updates.

Social Limitations

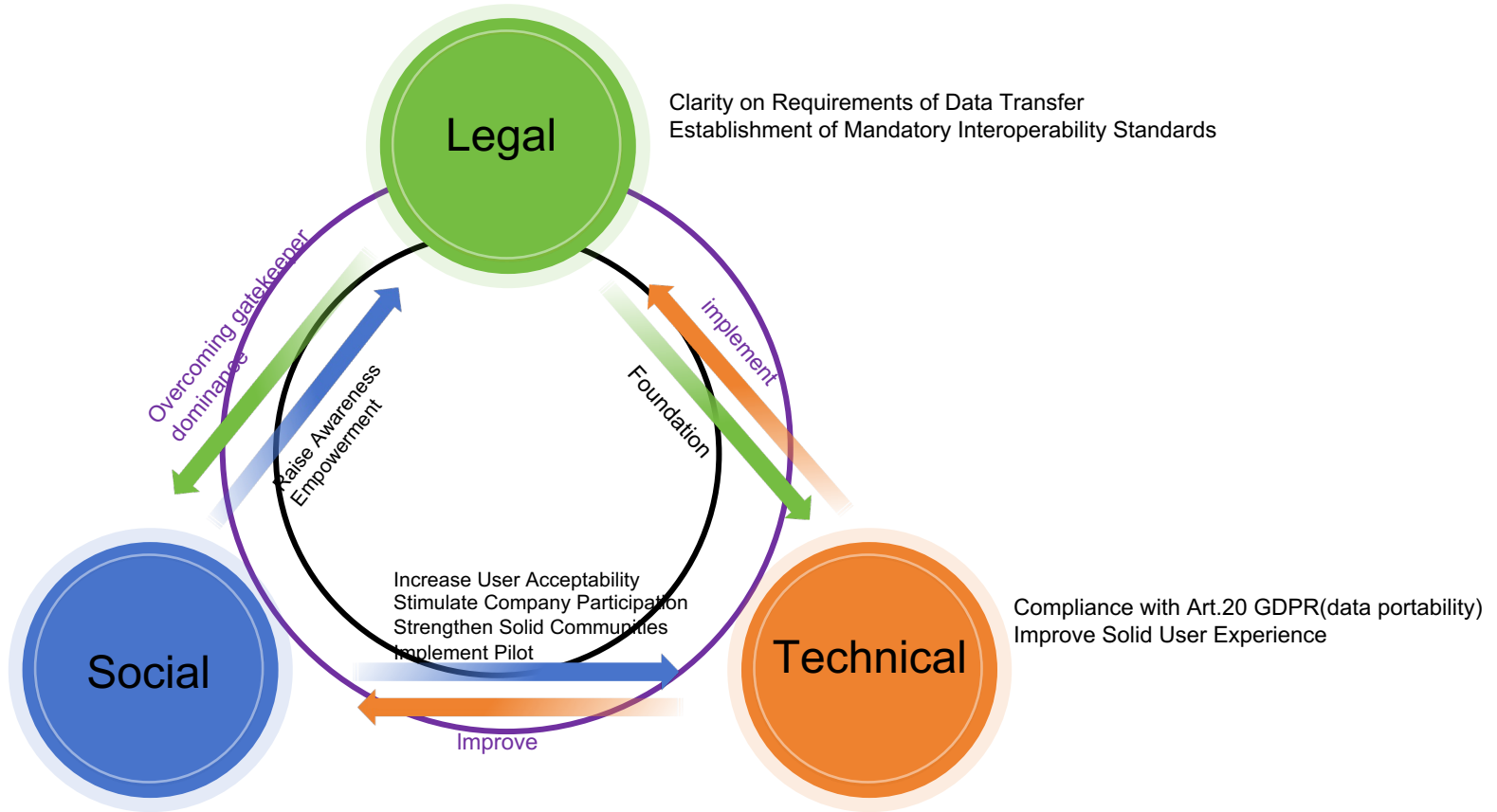
Firstly, decentralized applications do not address data formats' interoperability (compatibility) across applications. (What extent potential is there to promote data interoperability under the data act?)

Secondly, Solid applications are still in development. Thus, they lack maintenance and ease of usage for general users. The functionalities of the application are hard to understand.

Thirdly, the Solid protocol has yet to achieve mainstream recognition and remains largely unknown to both individuals and platforms.

4. A Framework: Combining Regulatory, Technical, and Social Measures

Building a more responsible data economy, and helping legal compliance



Propose a framework that divides and integrates regulatory, technical, and social measures into inner and outer circle measures for decentralization

- (1) **Legal:** is the foundation for decentralized application and simultaneously represents the goals that need to be achieved.
- (2) **Technical:** a tool for implementing data portability and improving social welfare.
- (3) **Social:** guide and motivate stakeholders to perform better in participation and development, e.g. through education or assessment.

Inner circle measures

Legal and Technical:

Article 20 GDPR: Right of Data Portability

Recital 68 GDPR mentions interoperability as an additional non-mandatory requirement adding to the description of the format in Article 20.

Data Act :

Article 5 : Right of user to share data with third parties Article 30 : Technical aspects of switching

Article 33: Essential requirements regarding interoperability of data, of data sharing mechanisms and services, as well as of common European data spaces

Article 34: Interoperability for the purposes of in-parallel use of data processing services

Article 35: Interoperability of data processing services

Inner circle measures

Technical and Social:

To measure user acceptance, we propose a mixed-method approach that combines a survey and focus groups. The survey will employ the Unified Theory of Acceptance and Use of Technology (UTAUT), which has been used to study the adoption of various technology.

Legal and Social :

Data literacy: Recital(19) and Article 5(a) of Data Act

Outer circle measures

Von Hippel (2006) introduced and validated the **concept of democratizing innovation**, demonstrating that user-centered innovation becomes more innovative than traditional manufacturer innovation when users have access to the same data and resources as manufacturers.

Data portability and decentralization technologies provide a level playing field for a few entities and data-poor users (both individuals and businesses) that originally held abundant resources. **In theory, their approach aligns with the principles of democratizing innovation, similarly fostering the development of user-centric innovations.**

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Thank you for your attention!