esade

REFRAMING ADOPTION CHALLENGES IN FAIR DATA INFRASTRUCTURES: SCIENCE MESH AS A SOURCE OF RESEARCH ADVANTAGE

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ESADE Business School in Science Mesh

CERN | Science Mesh

Project Management	Federated Infrastructure	Technology and Foundation

Users and Applications	Dissemination & exploitation

•Business impact assessment and roadmap for effective management

•Report on challenges and guidelines for collaborative user communities

ESADE's Current Progress

- Conceptual review on Open Science and FAIR data and role of the mesh to address fragmentation. Presented at 2021 European Conference on Information Systems
- Interviews with the academic community to understand challenges in data sharing
- Interviews with the project team to explore opportunities and challenges in the mesh
- Engagement meeting with Horizon Booster Results to define key exploitable results and guide business plan development
- Research in progress on the bridging role of Science Mesh in FAIR data. Submitted to 2022 European Conference on Information Systems

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Research questions:
Q1. What is the role of digital infrastructures in FAIR?
Q2. How can FAIR digital infrastructures grant scientists a unique advantage in their research?

Data inventory

Group 1 – Science Mesh Project Partners			
Organizations	**Area**	**Application**	**Interviewees**
CERN	High energy physics	Remote Data Analysis	2
SURF	Cloud service provider	Large data transfers	2
Aarnet	Cloud service provider	Data FAIRness	2
University of Muenster	Cloud service provider	Collaborative editing	2
Group 2 – Science Mesh Early Adopters			
JRC	Earth Observation	Remote data analysis	2
CERN	High energy physics	Remote Data Analysis	1
University of Duisburg Essen	Information Management	Sciebo	1
LOFAR	Astrophysics	Large data transfers	1
Group 3 – Scientific Community (General)			
SusPhos	Organic Chemistry	NA	1
FMP Berlin	Chemistry	NA	1
TU Bergakademie Freiberg	Geology / Env. Sciences	NA	3
ETH Zurich	High energy physics	NA	1
University of Humboldt	Geography	NA	1
University of Bonn	Numerical Simulation	NA	1
UCLouvain	Organic Chemistry	NA	1

Method

The data structure was formed by using the **Gioia methodology.**

Gioia Methodology aims similarities among the different categories to decrease the number of categories to be able to analyze the data more easily.

Three columns:
•the 1st order the Concept
•the 2nd order the Themes
•the 3rd order the Aggregate Dimension

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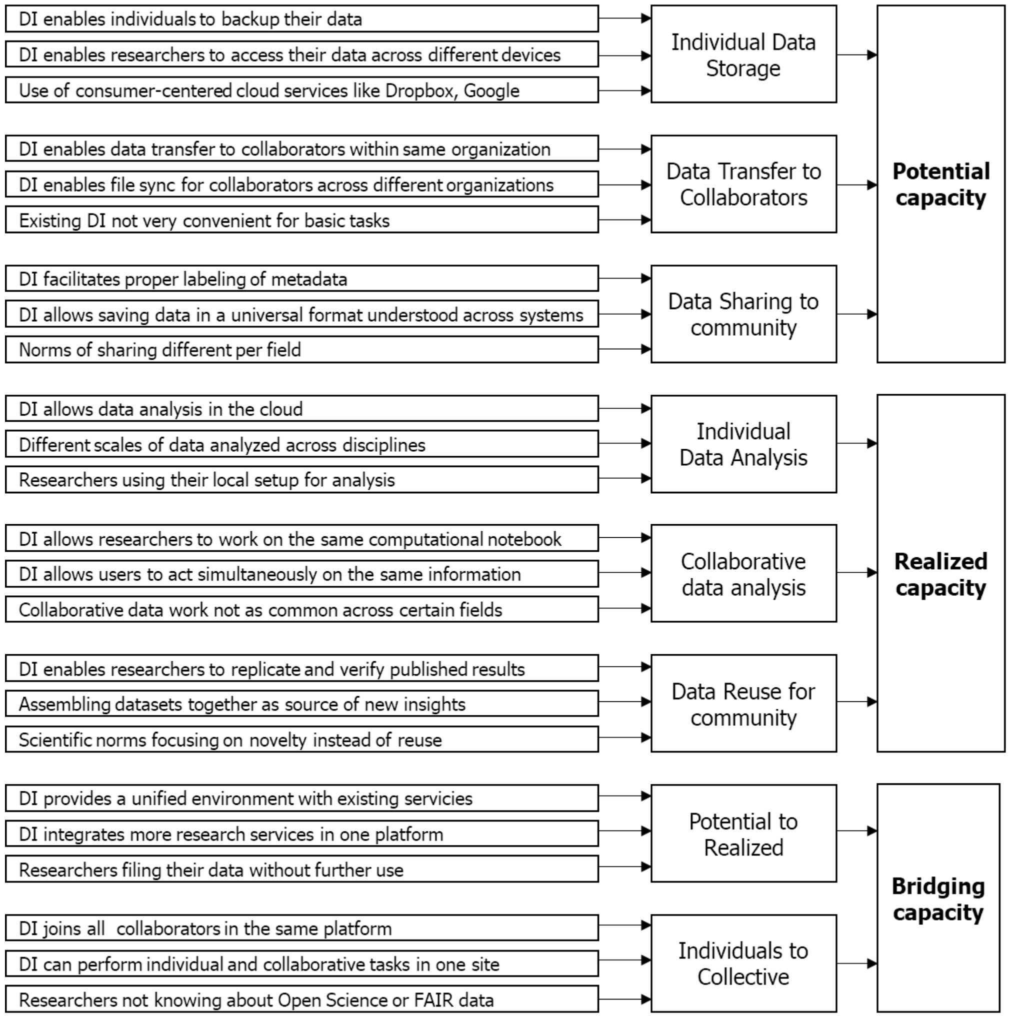
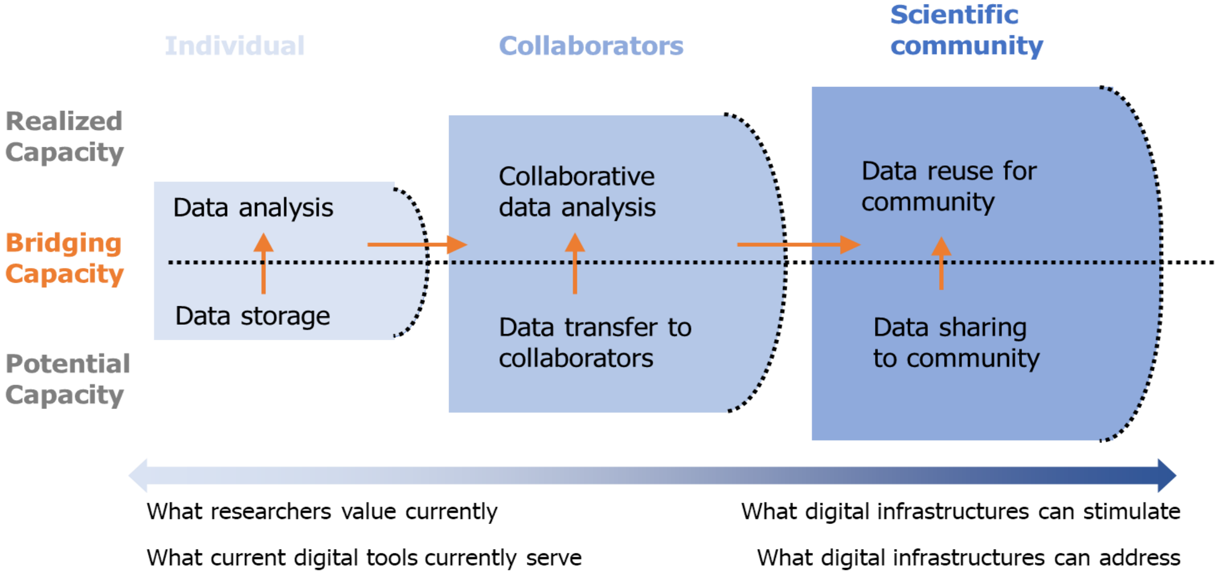
Findings



Framework



Capacities granted by digital infrastructures to researchers

Conclusions

On a basic level, we find that these infrastructures enable researchers the ability to collect and integrate data from disparate sources. Second, we also show that digital infrastructures are crucial in transforming knowledge to uncover new scientific insights. However, these two capacities are generally disjointed and so digital infrastructures play a critical role by performing a bridging function.

Next steps

Part I: Measuring readiness and ability to harness FAIR data by Qualitive and Quantitative approaches

Part II: Evaluating impacts of FAIR data in academia (more interviews)

Part III: Evaluating impacts of FAIR data in the industry

Part IV: Differences between academia and industry in data sharing*:* Comparison of engagement with FAIR data across the industry (GAIA-X partners like BMW, Siemens) and academic institutions (CERN, ASTRON, etc.).

Part V: Business plan development for sustained operation of the Science Mesh esade

CERN

Science Mesh

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