

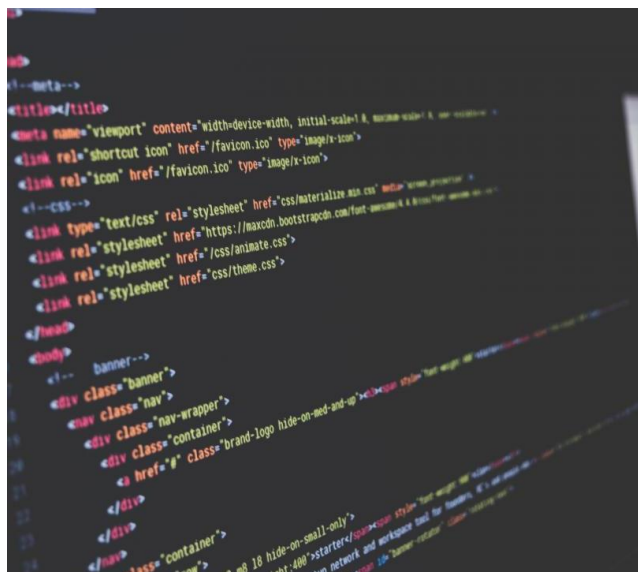


## Blueprints - Big research data transfer

**University – Industry Interaction  
Mechanisms 2.0**



## Developing sustainable business models



### PROJECT TEAM – BIG RESEARCH DATA TRANSFER

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# Open Science and Big Data

(Definitions)

*“Open Science can be defined as a movement to make scientific research, data and dissemination accessible to all levels of an inquiring society.”*<sup>1</sup>

*“Big data can be defined as an information asset characterised by high volume, velocity and variety to require specific technology and analytical methods for its transformation into value”.*<sup>2</sup>

<sup>1</sup> FOSTER (2016) About Foster. Available at: <https://www.fosteropenscience.eu/about#theproject>

<sup>2</sup> De Mauro, A., Greco, M., Grimaldi, M. (2016). A formal definition of Big Data based on its essential features, Library Review, Vol. 65 Issue: 3, pp.122-135, <https://doi.org/10.1108/LR-06-2015-0061>

## Process overview

### Generic process to research data exploitation



### STEP 1

## Opportunity identification

- In the first step, you identify the underlying opportunity associated with the big research data transfer.
- Key goals:
  - Understand who would be the potential users (academia, industry, government) for research data and what opportunities they have in relation to the data.
  - Clarify what are the specific requirements that the potential users have towards the research data and their willingness to pay for access.
  - Estimate how many users there would be and the competitiveness of the research data (value, uniqueness, imitability) and to assess the market potential.
  - Identify possible other benefits for opening research data e.g. increased visibility for the data owner.
- Outcome: Opportunity specification and the assessment of market potential.

### MAIN ACTORS

- Research organisation
- Potential/existing users

### ENABLING ELEMENTS

- Contacting potential users by survey, interview or open discussion to clarify their needs and wants

### TIMEFRAME

1-2 months

## STEP 2

### Identifying and addressing potential barriers

- In the second step, you analyse the potential barriers to open the big research data and identify ways to overcome the barriers.
- Key goals:
  - Understand what legal, confidentiality, IPR, technical issues there may be that hinder the opening of research data and how to overcome them.
  - Analyse how to fulfil the needs and criteria of potential users e.g. what additional functionalities or modifications are needed and the related costs of implementation.
  - Ensure usability (e.g. metadata, organisation) and reachability of the data.
- Outcome: Solutions to overcome the potential barriers to open the research data.

#### MAIN ACTORS

- Research organisation
- Potential/existing users

#### ENABLING ELEMENTS

- Discussing with topic experts in e.g. legal, IPR, technical aspects for data sharing

#### TIMEFRAME

1-2 months

## STEP 3

### Definition of business model

- In the last step, you defined the business model associated with your big research transfer and test it with potential users.

#### MAIN ACTORS

- Research organisation
- Potential/existing users

#### ENABLING ELEMENTS

- Collecting feedback for business model<sup>3</sup> from potential users and also third party by survey, interview or discussion.

#### TIMEFRAME

1-2 months

#### Value Proposition

- Specify target users
- Define the scope of data and targeted applications
- Define potential additional services

#### KEY RESOURCES

- Appoint access committee for handling data access requests
- Appoint a person responsible for data maintenance
- Define data sharing infrastructure & use Standard Informed Consent protocol

#### PROFIT FORMULA

- Define usage fees (in minimum to cover access costs)
- Define additional benefits coming from openness & increased collaboration

#### KEY PROCESSES

- Define how to evaluate data access and how to provide and maintain the data

- Outcome: Definition of business model for opening research data.

STEP 1

STEP 2

STEP 3

## CHALLENGES & TIPS



Insights

- There needs to be a sound business case for opening big research data to justify the cost and effort.
- Also, sufficient resources need to be allocated for data maintenance and handling user requests.
- Quality and the completeness of the data is the key factor for its attractiveness for external users to exploit.



**Best practices from GCAT case**

ISSUE	BEST PRACTICE
Openness through access control, management through a data access committee	Calls for projects to reuse data to select only the best, and therefore decreasing the need for resources to support collaboration.
Standardised Informed Consent Protocols with categorised ontologies and NDA agreements to achieve clear collaboration rules	These agreements provide an opportunity to effectively control the access to sensitive data.
Standardised access to data through near cloud infrastructures	These infrastructures may act as single entry points for those looking for research data, providing a marketplace-like functionality.
Quality of data is paramount to ensure usability	Force publicly funded projects to devote part of the budget to data management activities and access through open public infrastructures beyond the project life cycle.
Completeness of data will reinforce the confidence for collaborations	Any barriers to access sensitive data needed to proceed to further research or innovations, should be solved before opening the data.

## Learning points

- **Most important findings**
  - Open research data doesn't mean giving away everything for free - there are sustainable business models around.
  - In addition to commercial benefits, there are possibilities to increase collaboration and recognition of the research group, and thus to enhance the research output and quality.
  - Joint research can be made as a requisite for externals to access the research data.
- **Most important recommendations**
  - The funding agencies should utilise the contents of research data management plan (how widely research data is shared) as a key criteria for the funding decision.
  - Sharing research data should be used as promotion criteria for scientists (e.g. in tenure track and hiring of new professors).
  - If the research data published by a researcher is used by others, it should be equally merited as references made for peer-reviewed articles.

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