



Pathos

UNDERSTANDING & ASSESSING
THE IMPACT PATHWAYS OF
OPEN SCIENCE






Motivation:

Open Science is a major European and global policy priority that has been designated as the modus operandi for digitally intensive science, with significant funding and a vast number of resources being allocated to make it a reality.

Why it matters:

Open Science requires extensive resources: understanding their mechanisms and costs is essential for identifying best practices, designing interventions and prioritising policy actions.

What is missing:

- ⊙ Lack of a common understanding of OS impact pathways: more evidence is needed to understand academic, social and economic impacts.
 - ⊙ Lack of a systematic way to measure OS: there is an absence of universal indicators, methodology and tools to measure inputs-outputs-impact.
 - ⊙ Lack of a systematic way to measure and track outputs and impact of OS. Systematic evidence on OS impact (causal effects) is dispersed and limited concerning R&I evaluation.
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PATHOS IN A NUTSHELL

1

Collects evidence of Open Science effects, through pathways of Open Science practices.

2

Constructs and **validates** proxy indicators measuring Open Science impact on academia, society, and economy.

3

Develops tools and methods describing and measuring the causalities of R&I impacts as a result of Open Science.

4

Introduces a policy modeling approach for evidence-informed policy development.

5

Develops methods to qualify reproducibility and connect to Open Science practices.

6

Formulates a Cost Benefit Analysis (CBA) framework tailored to Open Science practices.

7

Identifies the costs and benefits associated to selected Open Science practices.

GUIDED BY SEVEN CASE STUDIES

Our seven case studies drive the modelling of the pathways and support the testing and operationalization of Open Science indicators.



How Open Science has accelerated collaborations across academia & industry in Portugal.



What are the cross-cutting effects from depositing research data in a national Repository in the Netherlands.



How Open Science in H2020 has contributed to the COVID-19 pandemic.



How Social Sciences and Humanities publications and research data have been used in nonacademic environments.



Why Open Science in H2020 has reduced / remedied structural inequalities such as gender.



How ELIXIR's Open Science bioinformatics resources contribute to innovation in life-sciences.



What is the impact of Open Science practices on climate change research.

KEY RESULTS

Handbook of Open Science
Impact Indicators

Tools and data
Operationalization Toolkit

CBA framework for
Open Science

Evidence-based policy
recommendations

Registry of Open Science
Success Stories

CONSORTIUM

PathOS brings together an interdisciplinary team of experts in Open Science policy and infrastructure, scientometrics, data science, NLP/ML, econometrics, and R&I assessment.





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