

# cessda saw

*The value and economic impact of open social science data-sharing via national data services*



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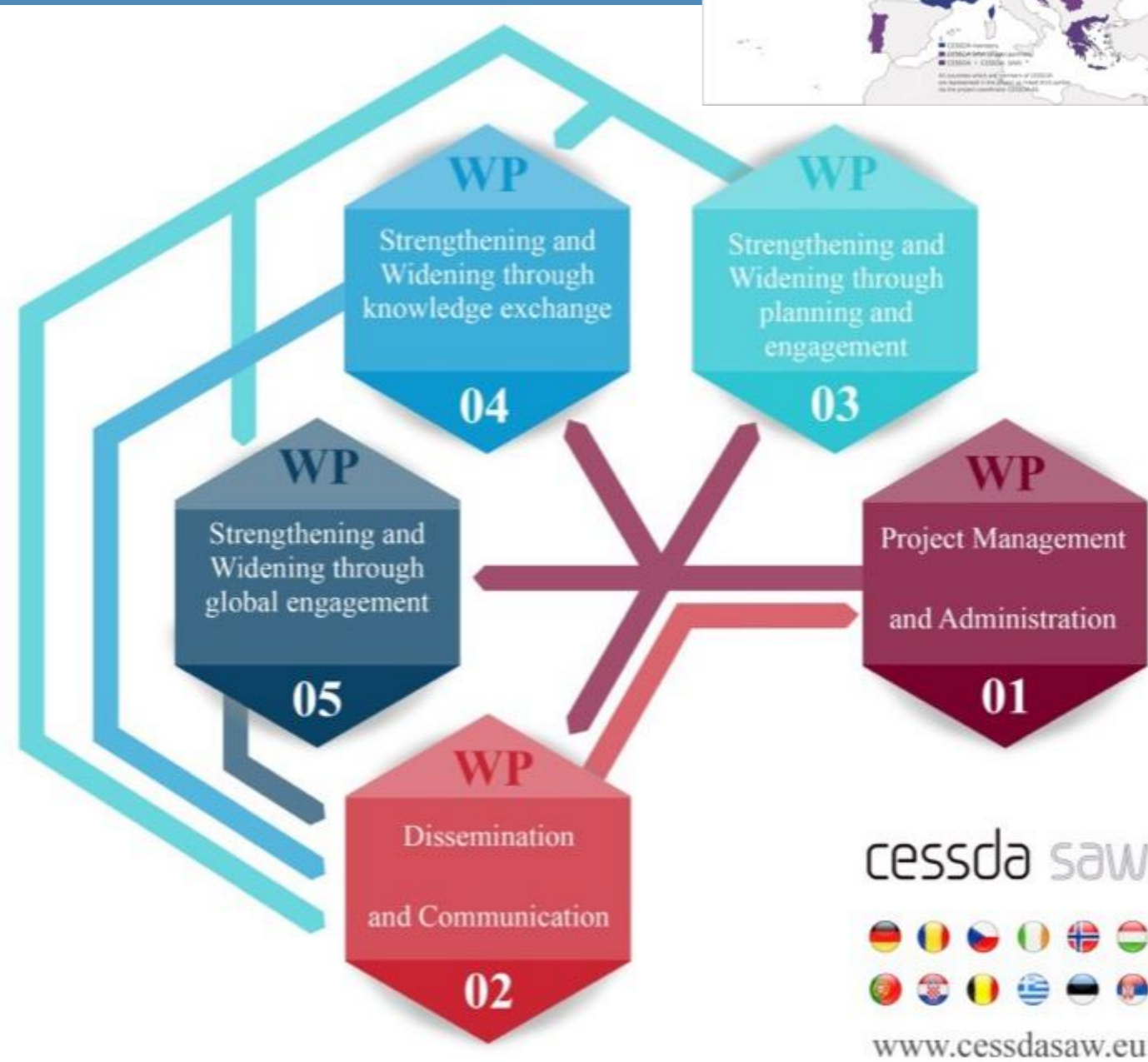
OpenAire National Seminar University of Tartu- 29 May 2018

Neil Beagrie (Charles Beagrie Ltd)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement number 674939.

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Strengthening and Widening CESSDA

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# CESSDA-SaW Task 4.6

**Capturing and communicating the value and economic impact of social science data services.** Develop a benefit/cost advocacy programme and supporting tools; assembling an evidence base to support the negotiation with ministries and funding organisations; support advocacy with other core stakeholders such as data creators and data users.

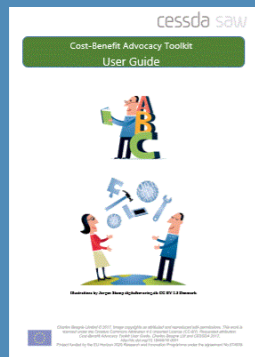
Timetable		
Milestone number	Milestone name	Due date
MS26	Survey to gather and validate requirements	April 2016
MS27	Draft Toolset and testing	Oct 2016
MS28	Focus groups and case studies	March 2017



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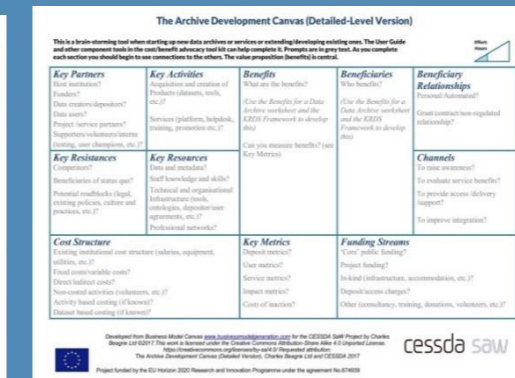
# CESSDA-SaW Cost-Benefit Advocacy Toolkit



User Guide Studies



Factsheets



Archive Development Canvas



Benefits Worksheet



Case

- Toolkit released April 2017 - CC-BY licensed
- Toolkit has 10 components – I will focus on one (the ROI Factsheet)
- Toolkit cover both qualitative and quantitative benefits – I will focus on just the cost-benefit economic analysis



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# Presentation Overview

- Our 4 studies measuring Value and Impact of Research Data Infrastructure (focussing on cost-benefit)
- Economic and Social Data Service (ESDS/UKDA) Impact Study
- Key evidence from ROI Factsheet in the Cost-Benefit Advocacy Toolkit



# Value + Impact Analysis of Data Services

Neil Beagrie + Prof John Houghton (economist). 4 joint studies to date. Methods applied to:



Economic & Social Data Service (ESDS/UKDA)



Archaeology Data Service



British Atmospheric Data Centre



European Bioinformatics Institute

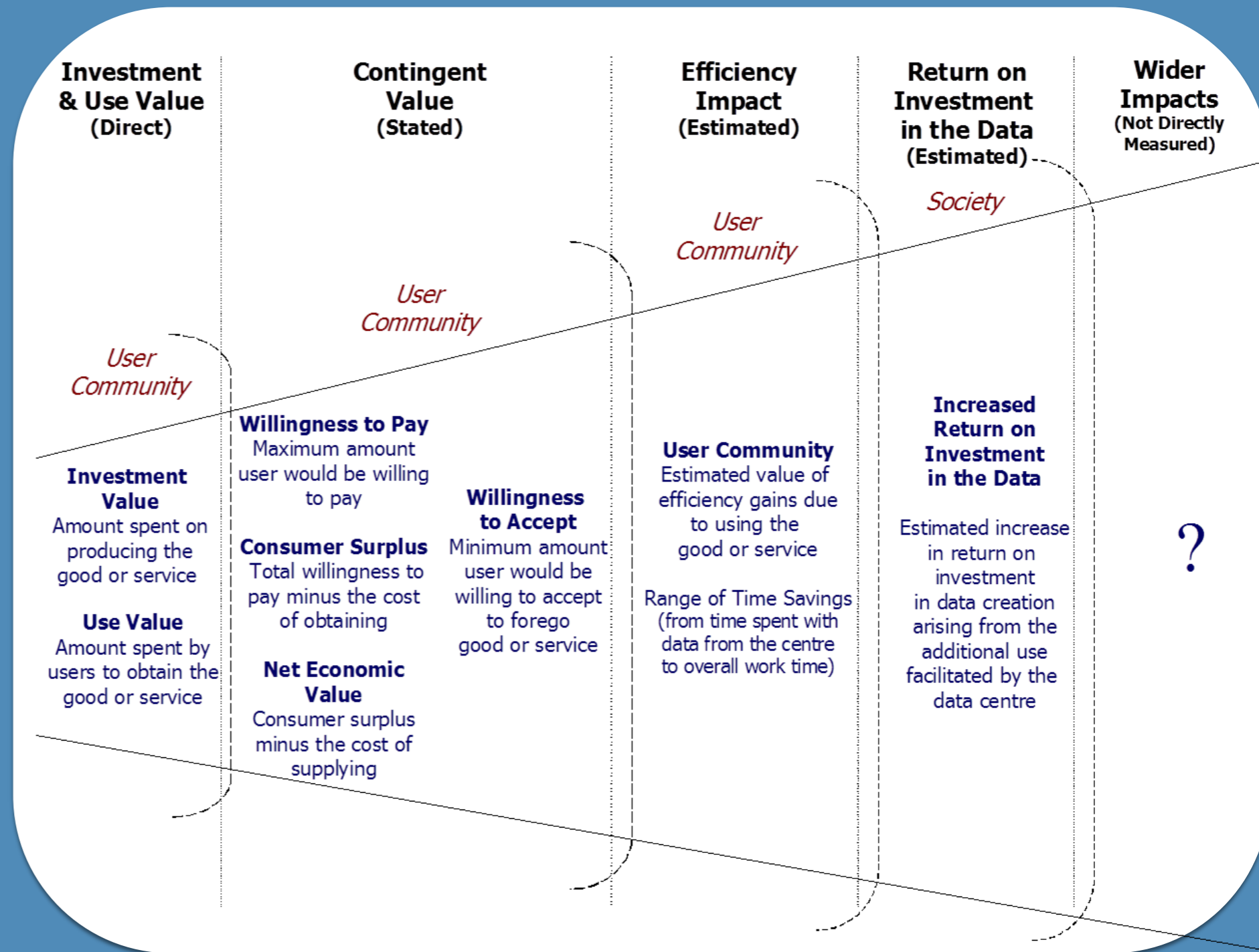


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# Best Practice from ESDS study

- Applies range of methods;
- Includes counter-factual;
- Data collection tailored to different stakeholders: depositors, users, research, teaching;
- Data weighting - survey value responses weighted to reflect the overall pattern of use from weblogs;
- Case studies/ KRDS benefits illustrate benefits and impact pathways.



# Key evidence in the ROI Factsheet



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# High returns on investment (ROI) for funders from funding in two areas:

- national Social Science Data Service (ESDS);
- in depositors preparing research data for sharing via national data service.



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CESSDA SAW

# ESDS Study: Return on Investment (ROI)

(ROI - service) Benefit/cost ratio of net economic value to ESDS operational costs



5.4 to 1

(ROI - research data creation) scenarios -Increase in returns on investment in data creation arising from additional use facilitated by ESDS -counterfactual



up to 10 to 1



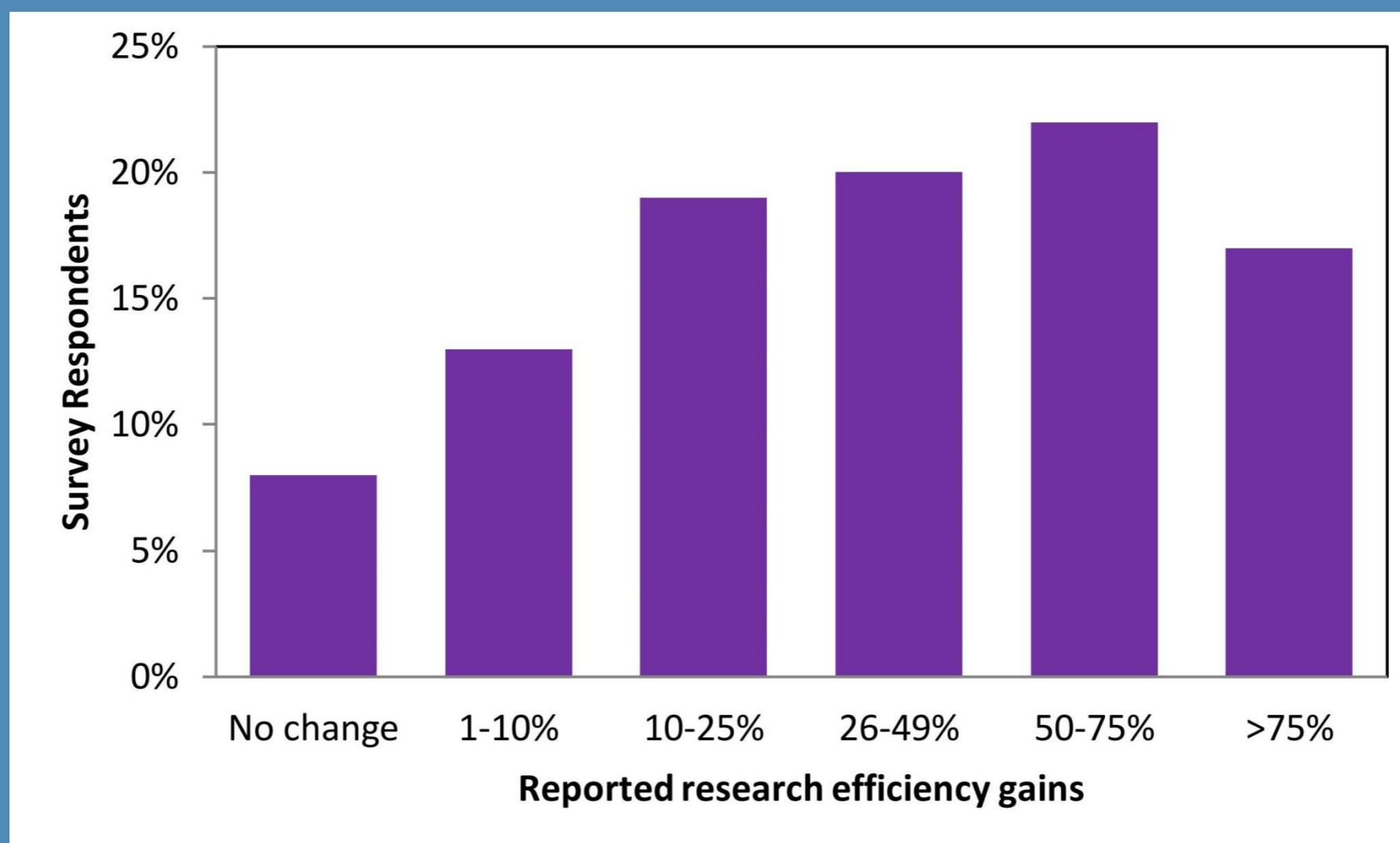
# Data Archives have high efficiency gains for research, teaching and learning



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# ESDS Study: Researcher Efficiency Gains



**Impact of using ESDS data and services on research efficiency**

(after Beagrie et al 2012, p77, Figure 15)

Economic and Social Research Council © 2012 CC-BY licensed



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# Benefits Factsheet

## Reported Efficiency Gains from Value and Impact Studies

	Research	Teaching	Study	Source
<b>Economic &amp; Social Data Service</b>	<b>46%</b>	<b>23%</b>	<b>N/A</b>	Beagrie et al 2012
<b>Archaeology Data Service</b>	<b>44%</b>	<b>32%</b>	<b>44%</b>	Beagrie and Houghton 2013a
<b>British Atmospheric Data Centre</b>	<b>28%</b>	<b>15%</b>	<b>34%</b>	Beagrie and Houghton 2013b
<b>European Bioinformatics Institute</b>	<b>46%</b>	<b>N/A</b>	<b>N/A</b>	Beagrie and Houghton 2016

**Reported efficiencies for research, teaching, and learning.**

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# Counter-factuals – “the cost of inaction”



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# Counter-factuals

“Ideally, economic impact assessments should estimate the counterfactual – i.e. what would occur in the absence of the facility...However, counterfactuals are rarely addressed in the [c.100] studies reviewed due to lack of data. We found two exceptions that address this issue partially. One is the evaluation of the economic impacts of ESDS (2012) which partially explores the counterfactual through a users’ survey...Another exception is a review of economic impacts of large-scale science facilities in the UK (SQW, 2008) ... however, this estimation is not done rigorously and relies mostly on the estimation of the local benefits.”

*Big Science and Innovation - Report to BIS - Technopolis 2013*



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# ROI Factsheet – costs of inaction

## Costs of Inaction: reported metrics for archiving via individual researchers

<b>Absolute loss</b>	Rate of loss of research data sets	17% per annum	(Vines et al 2014)
<b>Partial information loss</b>	Rate of loss of working contact emails	7% per annum	(Vines et al 2014)
	Rate of loss for web-links to data on personal websites	c.5.5% per annum	(Pepe et al 2014)
<b>Access</b>	Data requests fulfilled	25.7%	(Wicherts et al 2006)
		44%	(Krawczyk and Reuben 2012)
		59%	(Vines et al 2013)
<b>Delay</b>	Elapsed time to fulfill data requests	Up to 6 months	(Wicherts et al 2006)
		Within 1-3 weeks	(Vines et al 2013)
		(mean 7.7 days)	

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Cost-benefit advocacy toolkit

<http://dx.doi.org/10.18448/16.0013>

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