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# Sharing and reusing research data: everyone wins

Veerle Van den Eynden  
UK Data Service  
University of Essex

How to Get the Maximum from Research Data  
– Prerequisites and Outcomes  
University of Tartu Library, 29-30 May 2018

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# Overview

- Why researchers share data
- How research data are being reused



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# UK Data Service

- Curate, preserve, provide access to social science data for reuse
- Funded by ESRC
- Data management advice for data creators
- Support for users of the service
- Information about the use to which data are put



[ukdataservice.ac.uk](http://ukdataservice.ac.uk)



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# Some statistics about our UK Service

- **7,277** datasets in the collection
- **1034** qualitative and mixed methods collections
- **400** new datasets added each year
- **219** case studies of data reuse
- **25,000** registered users
- **60,000** downloads worldwide per year
- **4000+** user support queries per year



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# Research data services team

- Supporting researchers to make research data shareable
- UK Data Service helps materialise Data Policy for the Economic and Social Research Council (ESRC)
  - Data management planning advice & guidance
  - Data management guidance & training, esp. on confidentiality, security, ethics
  - Research data available for re-use to maximum extent possible, via:
    - ReShare repository
    - <http://discover.dataservice.ac.uk>



# Society benefits from data sharing

**F1000Research**  
Open for Science

Articles Collections For Authors For Referees About Blog

What is open science? New on F1000Research – 17 November 2014

## Beat Ebola with better research sharing, says discoverer of virus

POSTED BY THOMAS INGRAHAM, 12 NOVEMBER 2014

COMMENTS 0 [Share](#) 418

**Key points**

- **F1000Research: Ebola** article collection launched to enable all Ebola-related knowledge to be made available on a single platform within days of submission. All articles submitted to this collection will be prioritized and those accepted will be published free of charge.
- **F1000Research** has set up a dedicated phone line (+442071931030) to enable those working in affected areas to dictate their reports directly to our office.
- **F1000Prime** makes all existing and upcoming **Ebola and Marburg virus Article Recommendations** free to access.


**Sharing critical information faster**

Peter Piot (Director the London School of Hygiene & Tropical Medicine and co-discoverer of the Ebola virus) has published an **Editorial** in **F1000Research** appealing for everyone working on the current epidemic to publish all their findings and experiences rapidly and openly.

Since the onset of this year's West African outbreak\* there have been over 13,250 suspected cases and 4,960 deaths, the majority of these in the last two months. Depending on how effective control efforts are over the next few weeks the number of cases will likely swell to between 16,500 and 30,000 by December.

Speed is required at all levels if this epidemic is to be successfully controlled; identification and isolation of cases, clinic construction, and community action campaigns must all be carried out rapidly and on a large scale. Speed is just as vital to Ebola research; we need knowledge to spread faster than the virus if Ebola's impact is to be mitigated. For this to happen, the whole research cycle has to start spinning faster.

Some major funders have responded quickly by releasing emergency research grants, such as the NSF's **RAPID** awards and the Wellcome Trust's **Emergency Ebola Initiative**. Science publishing needs to be just as nimble, but in the current system it can take several months for findings to be made publicly available; with Ebola cases doubling every 20 days or so, such delays are unacceptable.



**BBC NEWS**

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Asia China India

## How 'crisis mapping' is helping relief efforts in Nepal

By Saira Asher  
BBC News  
© 6 May 2015 | Asia

**BEFORE** **AFTER**

Kathmandu, and nearby areas before and after mapping efforts were ramped up after the quake

Thousands of people in remote parts of Nepal are still in need of medical help and basic supplies. But with roads damaged and buildings collapsed, knowing what aid is needed and where, is a challenge. One group of Nepalis, backed by a global community, is trying to change that by "crisis mapping" Nepal.

**Nepal quake**

Unsettled Earth continues to rattle Nepal

**Nepal quake causes**

**HOT** Humanitarian OpenStreetMap Team

About Update

## Nepal 2015 Earthquake Response

The **2015 Nepal earthquake** (Wikipedia) struck on 25th April with a magnitude of 7.8, followed by many aftershocks including a large magnitude 7.3 quake on 12 May. The quake hit the city of Kathmandu and the mountainous regions to the north.

The Humanitarian OpenStreetMap Team [HOT] applies the principles of open source and open data sharing for humanitarian response and economic development.



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# WHY RESEARCHERS SHARE DATA

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# Research on incentives for data sharing

What motivates researchers to share their data?

- Qualitative study through case studies in 5 European countries: Sowing the Seed
- Quantitative study with 842 researchers funded by Wellcome Trust and ESRC: Towards Open Research
- Existing studies



Van den Eynden, V. (2018) What motivates researchers to manage and share research data. Pp. 43-52 in Kruse, F. and Thestrup, J.B. (eds). *Research Data Management - a European Perspective*. Berlin: De Gruyter.



# Qualitative study of incentives, 2014

- 5 case studies – active data sharing research groups
- 5 European countries: FI, DK, GE, UK, NL
- 5 disciplines: ethnography, media studies, biology, biosemantics, chemistry
- 22 researchers interviewed
- Q: research, data, sharing practices, motivations, optimal times, barriers, future incentives,.....

Van den Eynden, V. and Bishop, L. (2014). Sowing the seed: Incentives and Motivations for Sharing Research Data, a researcher's perspective. Knowledge Exchange.

[http://repository.jisc.ac.uk/5662/1/KE\\_report-incentives-for-sharing-researchdata.pdf](http://repository.jisc.ac.uk/5662/1/KE_report-incentives-for-sharing-researchdata.pdf)



# Incentives for data sharing

Direct benefits	Norms	External factors
For research: collaborative analysis of complex data, methods learning, data mining, suppl. data as evidence, research = creating data resources	Sharing = default in research domain, research group, institution	Funders directly fund data sharing projects
For research career: Visibility of researcher / research group, reciprocity, reassurance, e.g. invited to share	Hierarchical sharing throughout research career	Journals expects suppl. data
For discipline and better science	Challenge conservative non-sharing culture	Learned societies develop infrastructure & resources
	Openness benefits research, but individual researchers reluctant to take lead	Data support services
		Publisher and funder policies and expectations: change attitudes, practices, norms

# Quantitative study on Open Research, 2016

- Study practices, experiences, barriers and motivations for
  - open access publishing
  - sharing and reuse of data
  - sharing and reuse of code
- Researchers funded by Wellcome Trust and ESRC: biomedical, clinical, population health, humanities, social sciences
- Survey (N=842)



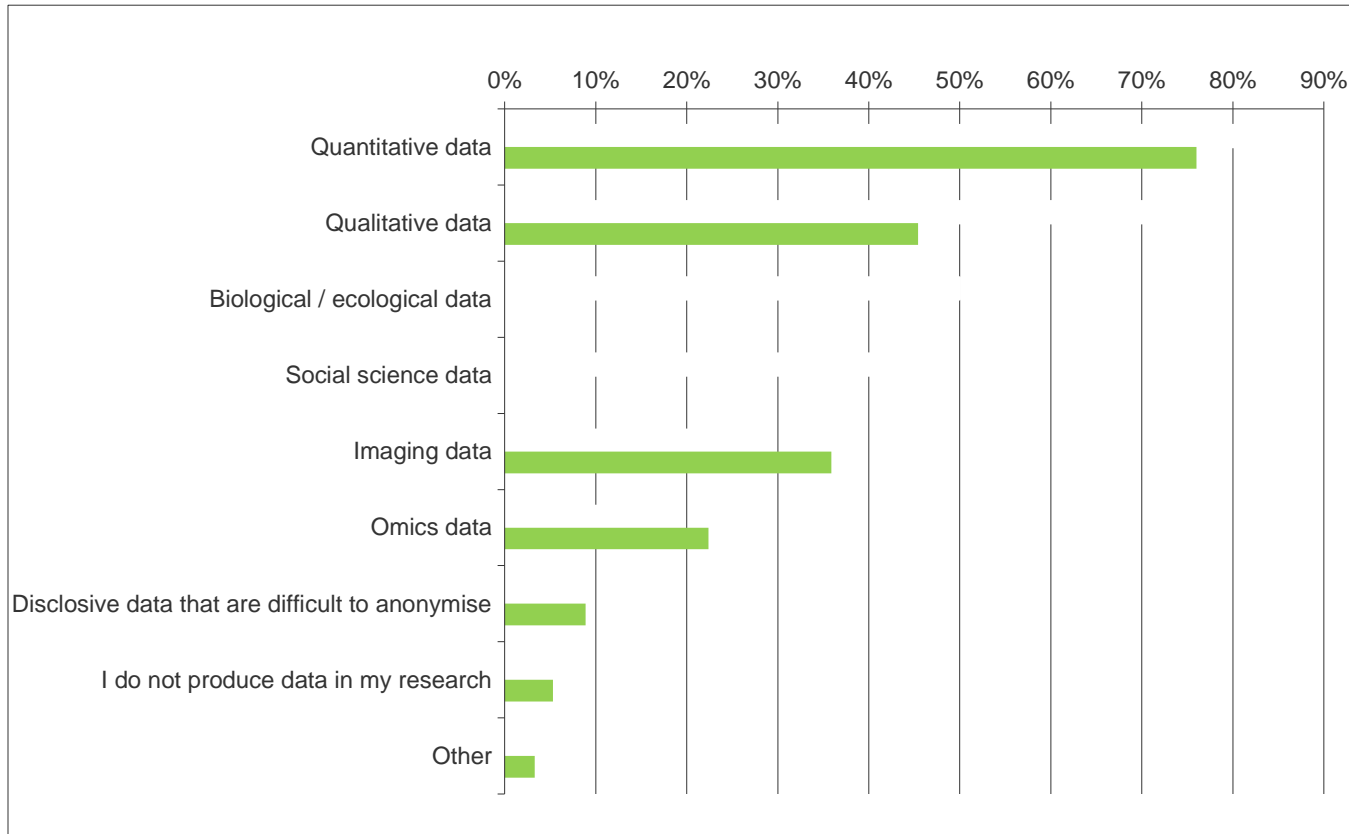
Van den Eynden, Veerle et al. (2016) Towards Open Research: Practices, experiences, barriers and Opportunities. Wellcome Trust.

<https://dx.doi.org/10.6084/m9.figshare.4055448>

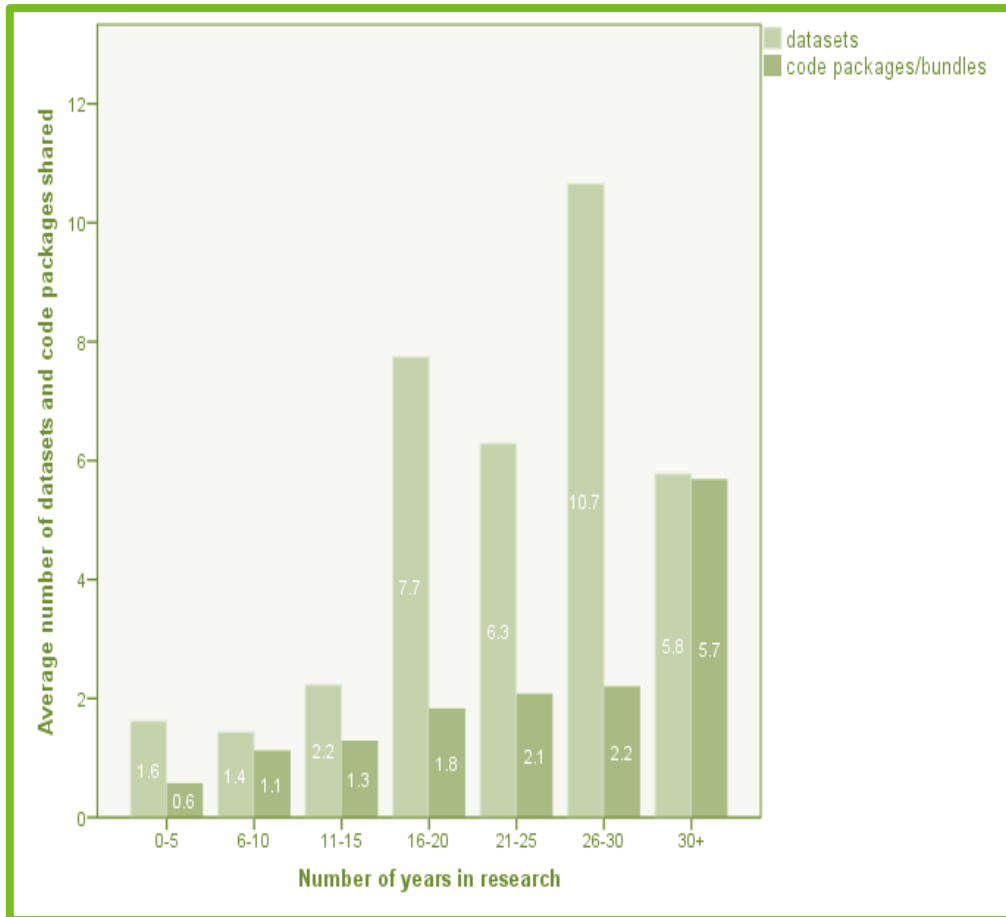
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# Your research data

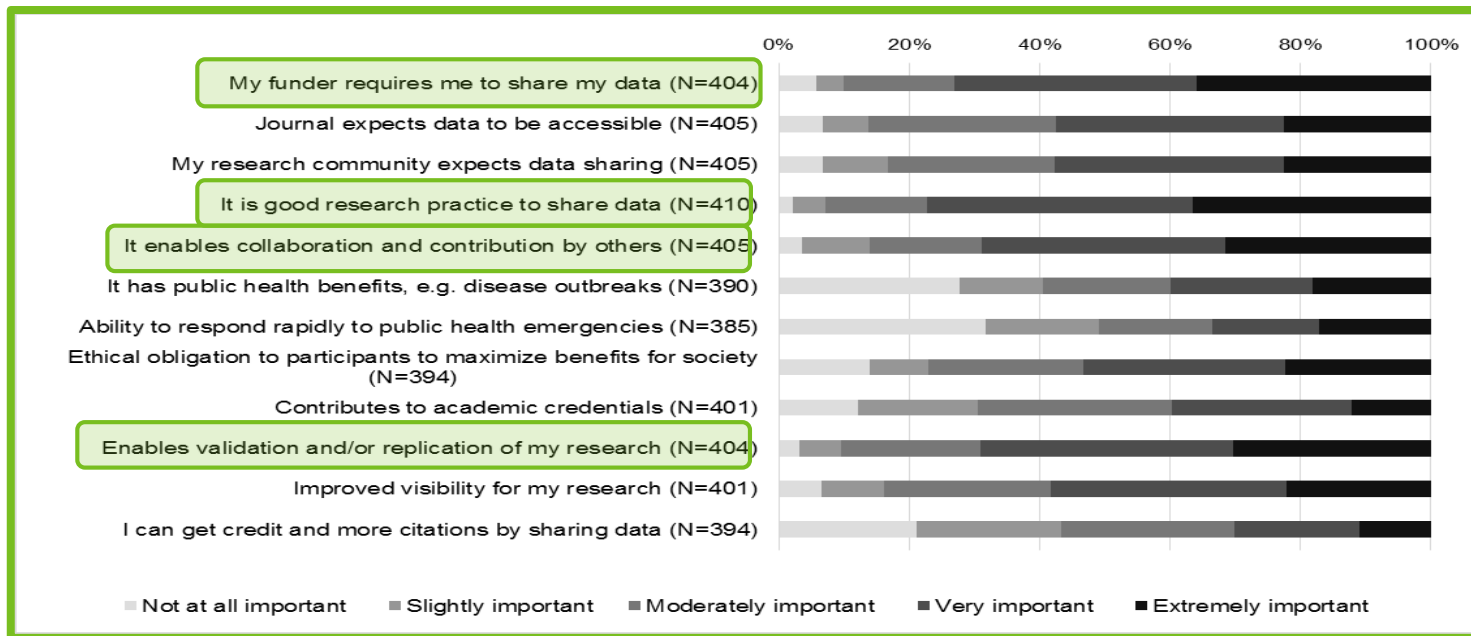


# Data / code sharing

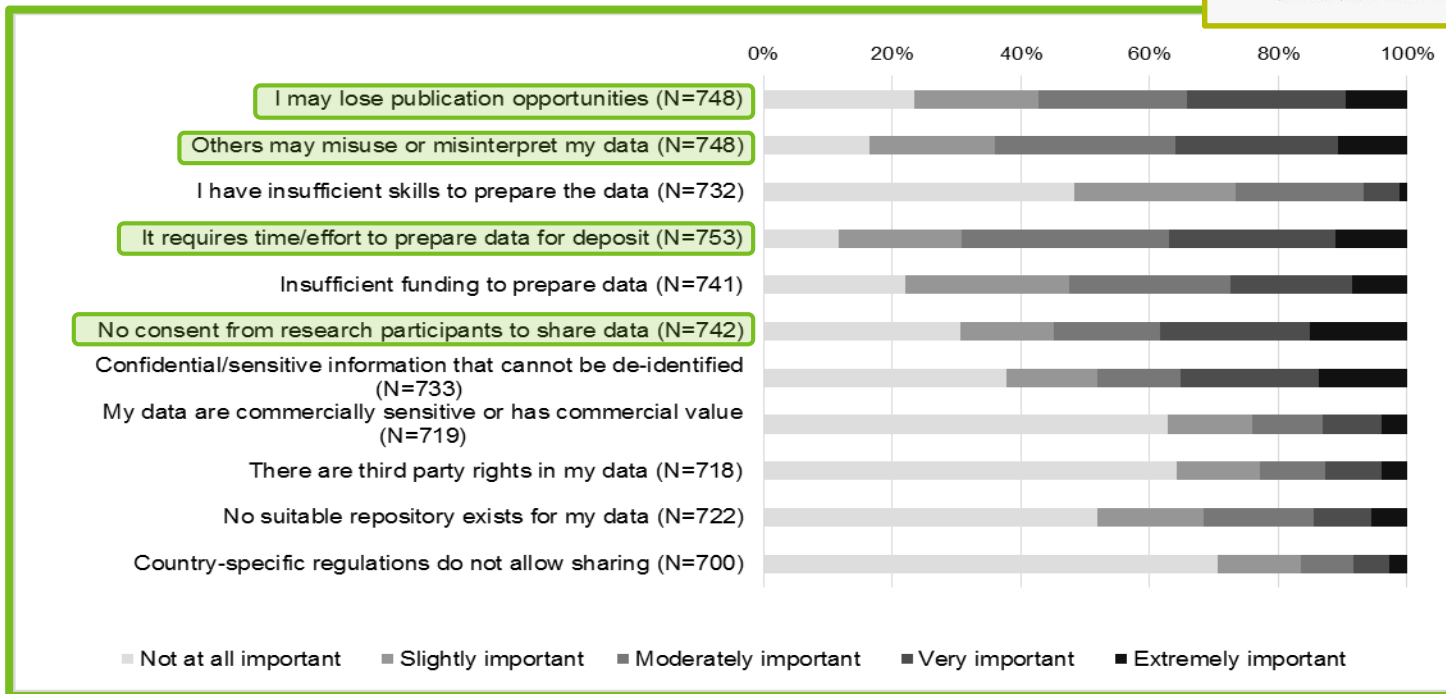
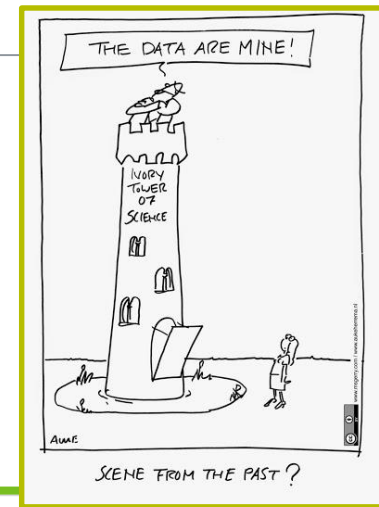


- 95% of respondents generate research data
  - 52 % shared research data last 5 years
  - 3.4 (6.5) datasets on average
  - sharing increases with career length
- 40% of respondents generate code
  - 43% shared code last 5 years
  - 2 (4) code packages on average
  - sharing increases with career length

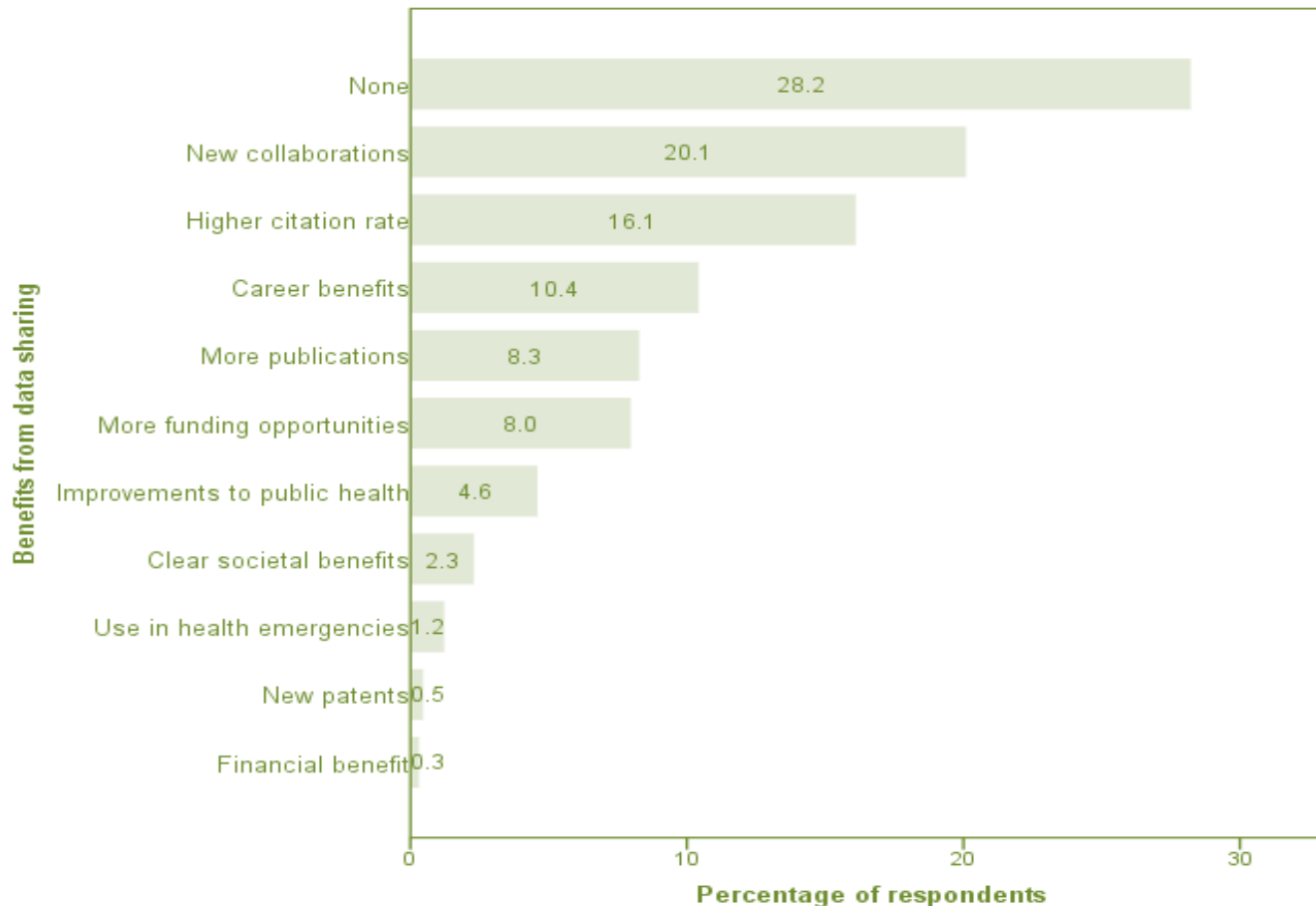
# Reasons to share data



# Barriers to data sharing



# Benefits from data sharing

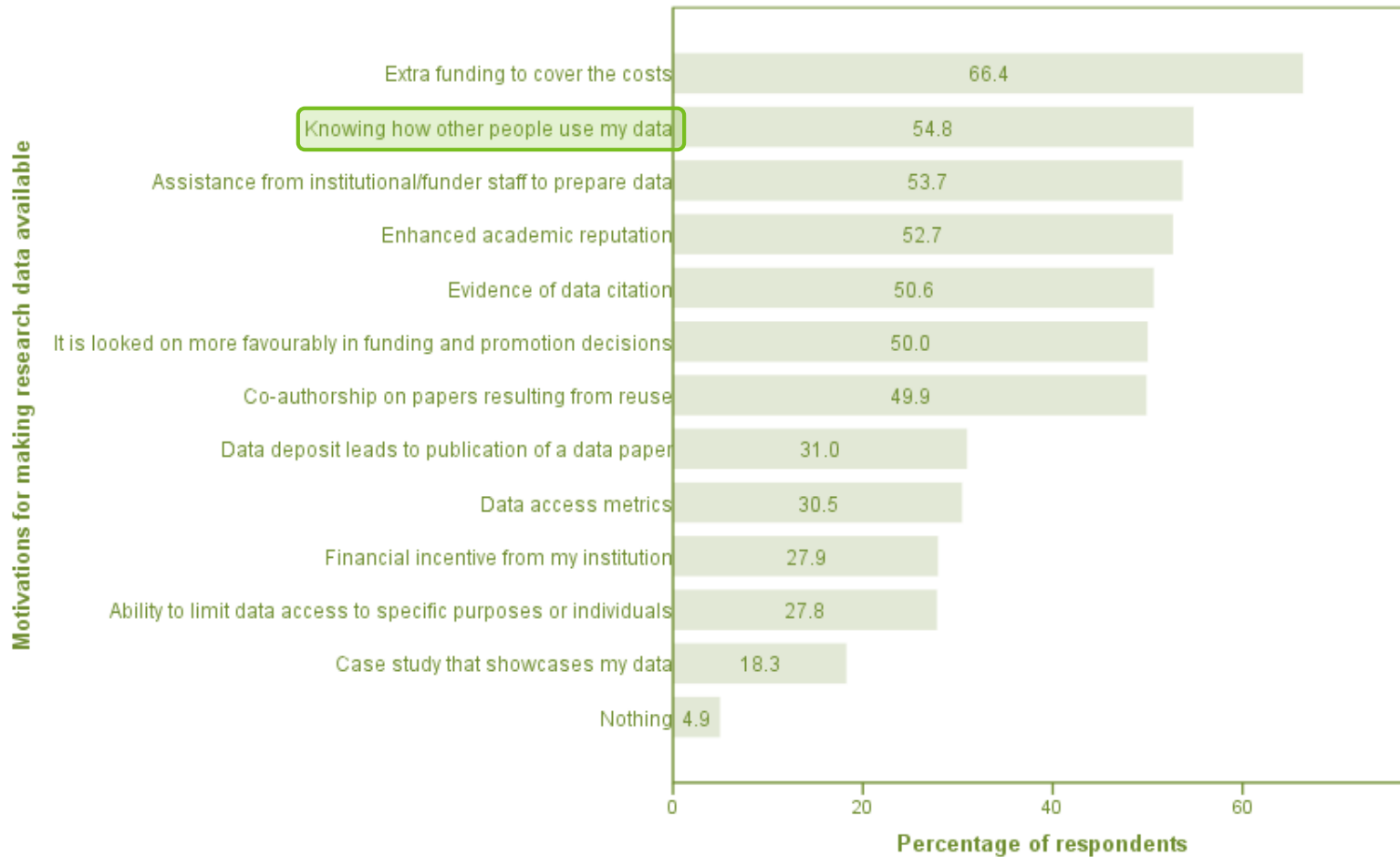


Only 13% report bad experiences: being scooped to publication, incorrect or inappropriate reuse of their data, criticism from data re-users, time required to support re-users of data, receiving no acknowledgement from reuse and the effort required to draw up confidentiality agreements





# Motivations for more data sharing



# Factors that motivate researchers to share data

Study	Individual factors	Institutional factors
Van den Eynden and Bishop (2014) (N=22, interviews 5 case studies)	Direct research benefits Career benefits	Norms of research circle and/or discipline Funder and journal policies Data infrastructure and support services Funding for data sharing
Van den Eynden et al. (2016): all disciplines (N=842, survey)	Research benefits Knowledge of reuse Career benefits: enhanced academic reputation	Norms: good research practice Funding for data management and sharing Assistance for data management and sharing
Van den Eynden et al. (2016): humanities and social science	Case studies showcasing data	Funding for data management and sharing Assistance for data management and sharing Funder
Van den Eynden et al. (2016): early career researchers	<ul style="list-style-type: none"> <li>• Direct career benefits</li> <li>• Rewards: citation, acknowledgement</li> <li>• Direct research benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Norms</li> <li>• Support: funding, hands-on, training</li> </ul>
Youngseek and Stanton (2012): STEM researchers (N=1153, survey)	Career benefits Scholarly altruism	Norms Journal requirements
Youngseek and Adler (2015): social scientists (N=361, survey)	Career benefits Attitude to data sharing	Norms
Sayogo and Pardo (2013) (N=555)	Data management skills Rewards: citation, acknowledgement	Institutional data management support Legal/policy framework to guarantee good reuse and acknowledgement

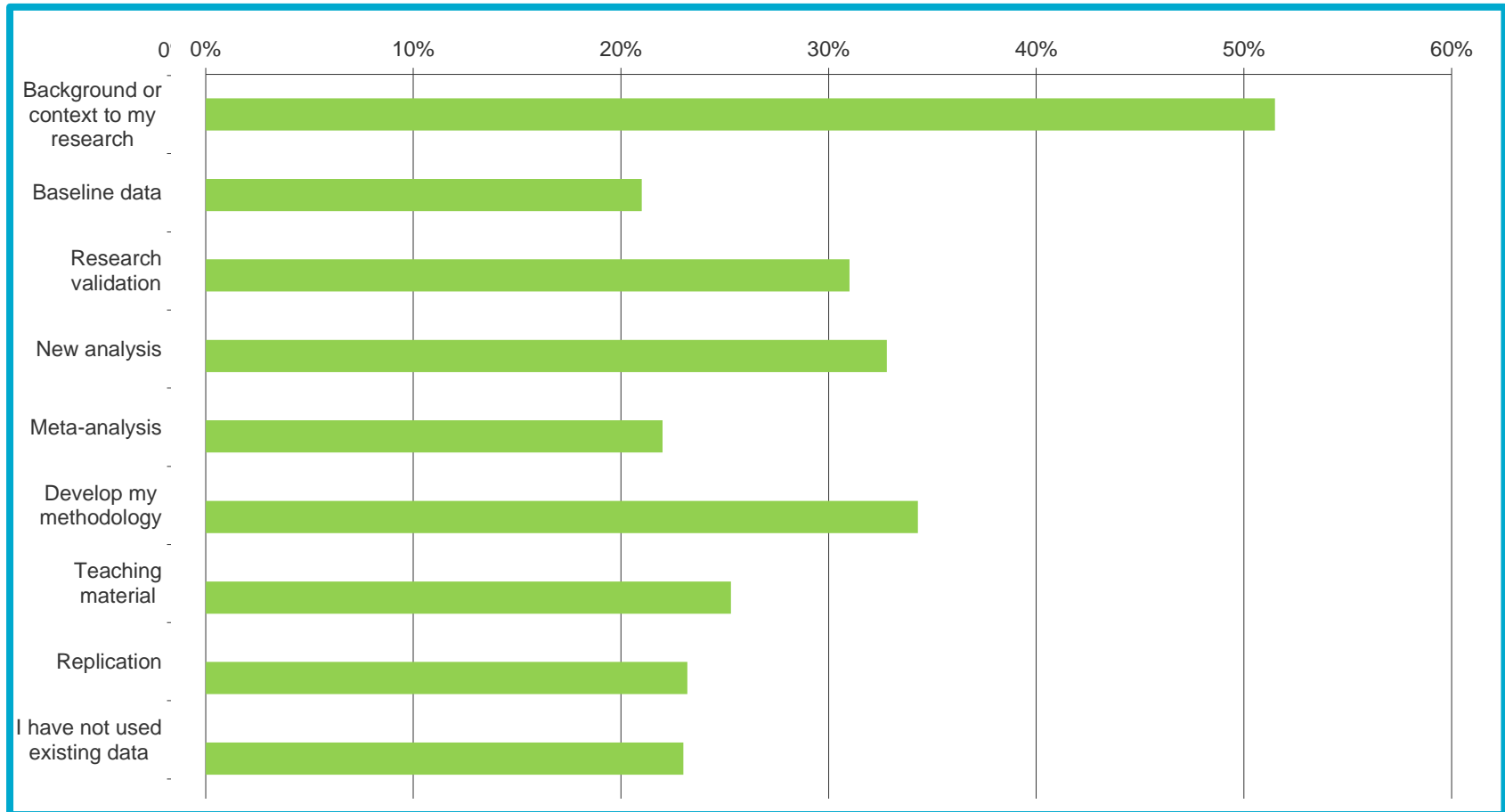
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# HOW RESEARCH DATA ARE REUSED

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# Reuse of data (N=842)



Van den Eynden, Veerle et al. (2016) Towards Open Research: Practices, experiences, barriers and Opportunities. Wellcome Trust. <https://dx.doi.org/10.6084/m9.figshare.4055448>

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# Re-using data for cancer research

The screenshot displays the UK Data Service Discover interface. The top navigation bar includes links for 'About us', 'Get data', 'Use data', 'Manage data', 'Deposit data', and 'News and events'. The main search area features a search bar with 'cancer' entered, a 'GO' button, and options for 'Reset filters', 'Clear search', 'Auto-complete', 'Advanced search', and 'Help'. Below the search bar, there are filters for 'Case study', 'Data collection', 'Series record', 'ESRC output', 'Support guide', and 'Guide to icons'. The results section shows 'Results per page: 10' and 'Sorted by: Relevance'. Three search results are displayed, each with a title, author, institution, and date, along with a link to 'Related studies and guides'.

UK Data Service Discover

About us Get data Use data Manage data Deposit data News and events

Discover

Discover

Search and browse our data collections, support guides, case studies, and related publications.

Search: cancer GO

Reset filters Clear search  Auto-complete Advanced search Help

Case study Data collection Series record ESRC output Support guide Guide to icons

Results per page: 10 Sorted by: Relevance

Displaying 1-8 of 8 results

**Cancer awareness among frontline staff**  
Author: Neil Cook  
Institution: University of Central Lancashire  
Date: 13 October 2011  
[Related studies and guides](#)

**Patient survey data opens new avenues for cancer diagnosis research**  
Author: Georgios Lyratzopoulos  
Institution: University of Cambridge  
Date: 28 March 2012  
[Related studies and guides](#)

**The relationship between occupation and cancer: Evidence from Britain**  
Author: Lesley Rushton  
Institution: Imperial College London  
Date: 12 April 2013  
[Related studies and guides](#)

Refine

Subject +

Date +

Case study type +

Data type +





Improved survival from teenage and young adult cancer in Northern England

**Author:** Richard McNally

**Institution:** Newcastle University

**Date:** 23 June 2014

[Related studies and guides](#)



Health effects of industrial incinerators in England

**Author:** Nicola Reeve

**Institution:** Lancaster University

**Date:** 23 June 2014

[Related studies and guides](#)



Enjoying life and living longer

**Author:** Andrew Steptoe

**Institution:** University College London

**Date:** 06 March 2012

[Related studies and guides](#)



The impact of social isolation and loneliness on mortality in older people

**Author:** Andrew Steptoe

**Institution:** University College London

**Date:** 02 June 2014

[Related studies and guides](#)



Nearly a third of Welsh adults struggling to cope with the pain of chronic conditions

**Author:** Ivy Shiu

**Institution:** School of the Built Environment, Heriot-Watt University

**Date:** 11 March 2016

[Related studies and guides](#)



# Patient survey data opens new avenues for cancer diagnosis research

- Based on [National Cancer Patient Experience Survey, 2010](#) (Dept. of Health): adult cancer patients treated in any of 158 NHS trusts in England in early 2010; 67,113 postal survey responses tracing the patients' experiences along their diagnosis and treatment journeys in various care settings
- Findings are of relevance to the [National Awareness and Early Diagnosis Initiative](#) that aims to improve cancer outcomes by detecting cancer earlier.



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# Analysing reuse of qualitative data

- UK: 444 datasets archived by UK Data Service (UKDS)
  - reuse metrics 2002-2016
- Finland: 177 datasets archived by Finnish Social Science Data Archive (FSD)
  - reuse metrics 2014-2016
- Majority of reusers: postgraduates, undergraduates
- Much reuse for learning and teaching
- 11-15% reuse in research

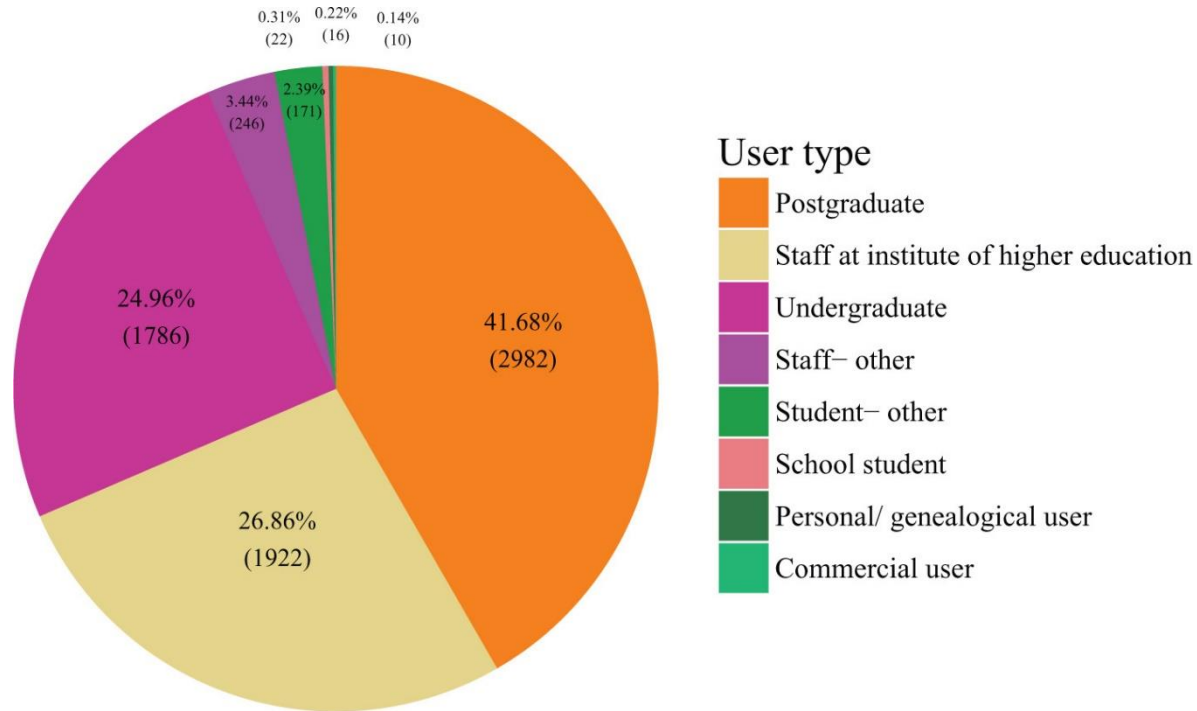
Bishop & Kuula-Luumi (2017) Revisiting Qualitative Data Reuse: A Decade On. SAGE  
Open 7 (1). <https://doi.org/10.1177/2158244016685136>

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# Who reuses qualitative data



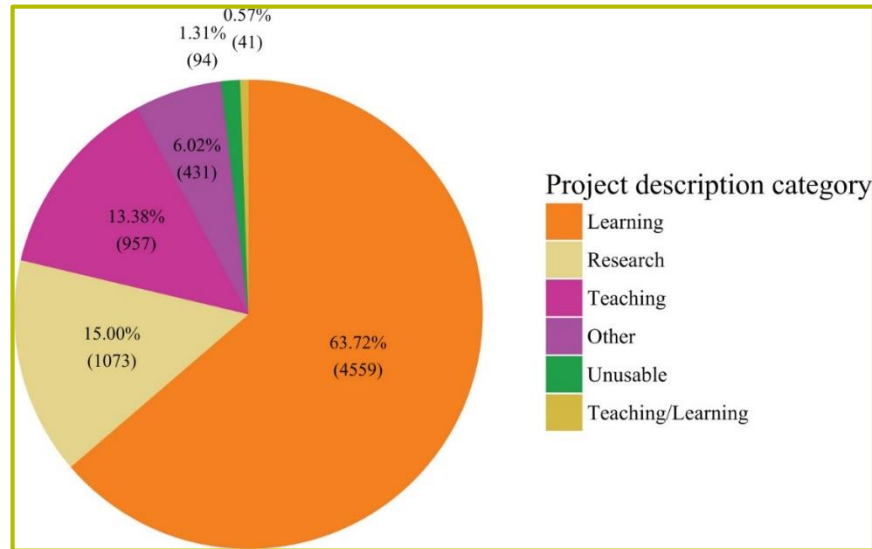
Downloaded data by type of user, 2002-2016, UK Data Service

Published in: Libby Bishop; Arja Kuula-Luumi; *SAGE Open* 7,  
DOI: 10.1177/2158244016685136  
Copyright © 2017 SAGE Publications

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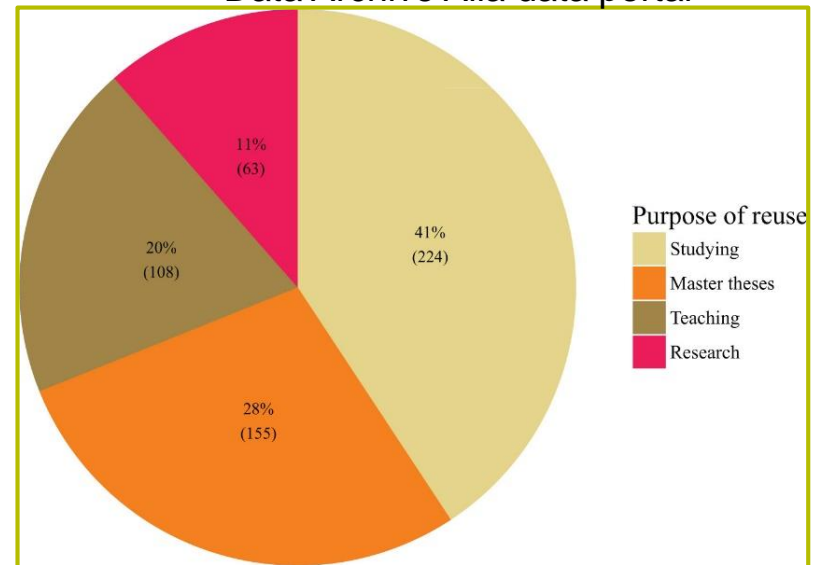


# How qualitative data are reused



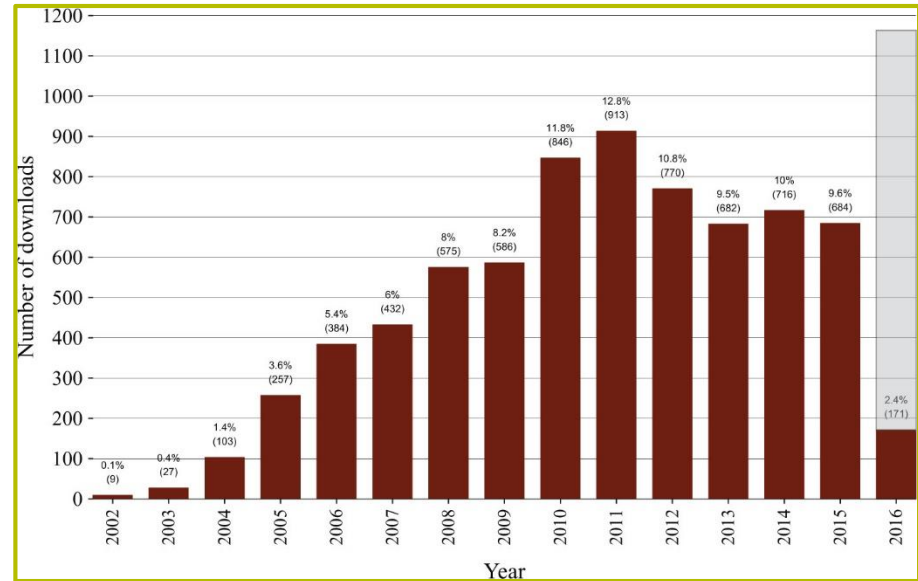
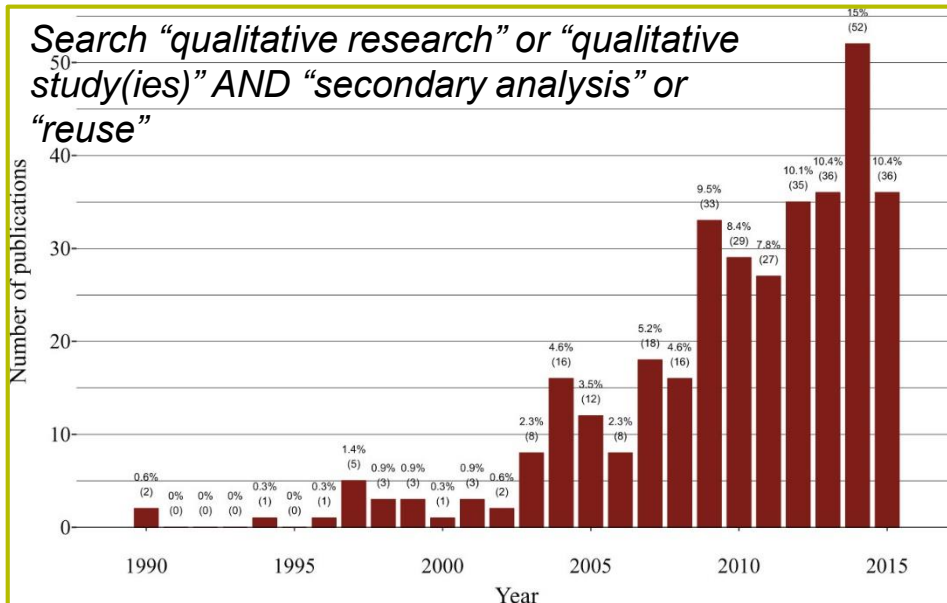
Reuse purposes of qualitative data, 2002-2016, UK Data Service

Reuse purposes of qualitative data, 2014-2016, Finnish Social Science Data Archive Aila data portal



# Reuse trends

Publications likely to have used qualitative data for secondary analysis—Web of Science, 1990-2015



Number of data downloads per year, 2002-2016, UK Data Service

Published in: Libby Bishop; Arja Kuula-Luumi;  
*SAGE Open* 7, DOI: 10.1177/2158244016685136  
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# Spectrum of data reuse

- Description – literature review with data
- Research design and methodology
- Re-analysis – new questions of existing data
- Repurposing – e.g. keyword analysis of illness narratives
- Learning and teaching



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# Questions



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