Institute for Scientific Information

The Future of Research Evaluation

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clarivate.com/webofsciencegroup/solutions/isi-institute-for-scientific-information/

ISI is the “University” of Clarivate - Web of Science Group

Three primary objectives

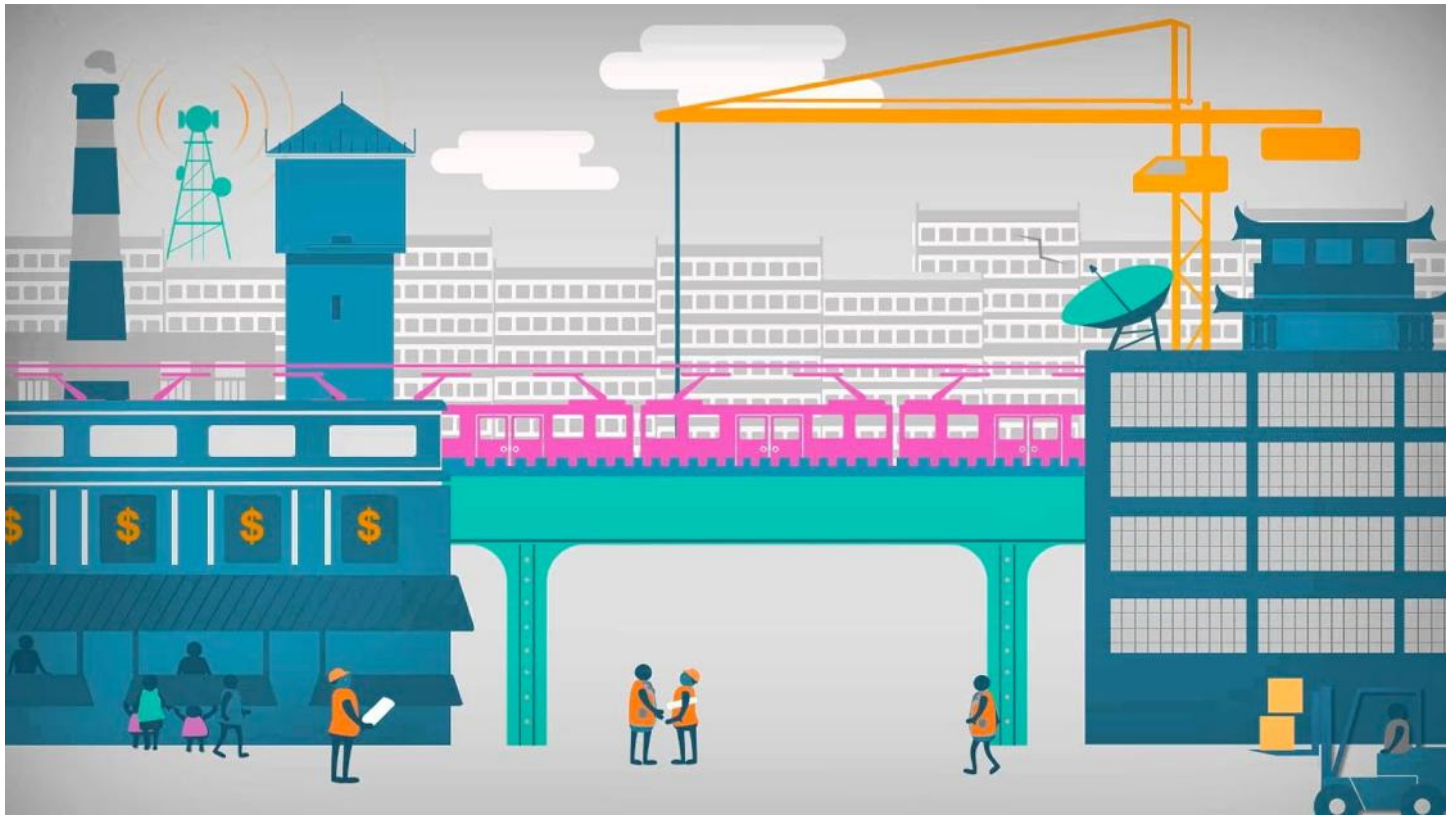
- **Knowledge repository (library)**
  - ISI staff maintain and develop the reference databases that describe
    - what we do – data, analytics, indicators
    - how we do it – processes and algorithms
    - why we do it – purpose and interpretation

- **Knowledge innovation (research)**
  - Work with bibliometric partners, and monitoring literature
  - Exploring our assets (data, analytics) and testing systems
  - Turning ‘interesting’ discoveries into products
  - Improving our own understanding of the data and its uses

- **Knowledge dissemination (teaching)**
  - Educate internally and externally on our assets and their value
  - Attend conferences and publish papers
  - Work with key clients and national agencies

The changing research evaluation agenda

- The research evaluation agenda is shifting
  - Evaluation has been focussed on academic impact and ‘excellence’
  - Excellence is important but selectivity alone can result in concentration that reduces research diversity
  - Stakeholder focus has shifted from research quality (academic impact) to research delivery (socio-economic impact)



Global trend to assess research excellence AND impact

Complex array of options with various pathways to impact

Types of Impact	Political, Economic, Societal, Technological, Legal, Environmental, Health, Cultural …
Outcomes	Changes in behaviour and attitudes, health benefits, increased economic activity …
Beneficiary Groups	Students, Patients, Schools, Communities, Women, Policymakers, Citizens …
Evidence	Patents awarded, spin-out companies started, citations from grey literature documents such as clinical guidelines, testimonials, media coverage …
Reporting Mechanisms	Case studies, Funder reporting, Institutional collection (e.g. press-office, research-office, consultancy groups)

Many countries are now including impact in the assessment process

- UK National Research Excellence Framework (REF)
  - REF2014 20% based on impact (25% in REF2021), reported via case studies
- Excellence in Research for Australia (ERA)
  - Introduced in 2018, similar model to UK but distinguish engagement and impact
- European Commission
  - A focus on defining objectives and assessment for each program, assessed for each project
  - Open Access, Open Data and Open Science are import aspects to the research setup
- Canada
  - Embedded impact assessment, strong heritage in health and education research
- New Zealand
  - Subject-based, cyclical, similar indicators to REF and ERA
  - Policy language now strongly focussed on socio-economic and cultural impact
- Also developments in China, Japan, Singapore, South Korea and others

Evolution of Research Assessment in the UK

ISI has a long history of working with the Government, Research Councils and Institutions on Research Assessment

1990

- Advisory Board for the Research Councils
- UK science budget funding and output data

RAE1992

- Research Assessment Exercise

RAE1996

- How to make fair funding decisions?
- Benchmarking international research

RAE2001

- How to check submitted output is correct?
- Is selective funding too concentrated?

RAE2008

- Can metrics replace peer review?

REF2014

- Research Excellence Framework
- Introduction of case studies of socio-economic impact

REF2021

- Balanced approach to peer review and metrics
- Change to submission system

1991

- Work with ISI on National Science Indicators

1997

- Mapping and indexing UK research.

1998

- Adams J. Nature, 396, 615-618.

2001

- Validation of RASE database
- Fundamental review of selectivity and concentration
- Subject reviews
- Maintaining research diversity

2007-8

- Research assessment systems in UK universities
- Pilot project to test metrics across universities
- Strategically important subject review

2014

- Development of impact case study database
- Report on impact diversity with King's College, London

2018

- Data supply
- Advice to REF panels on correct use of metrics
- Verification of submitted outputs

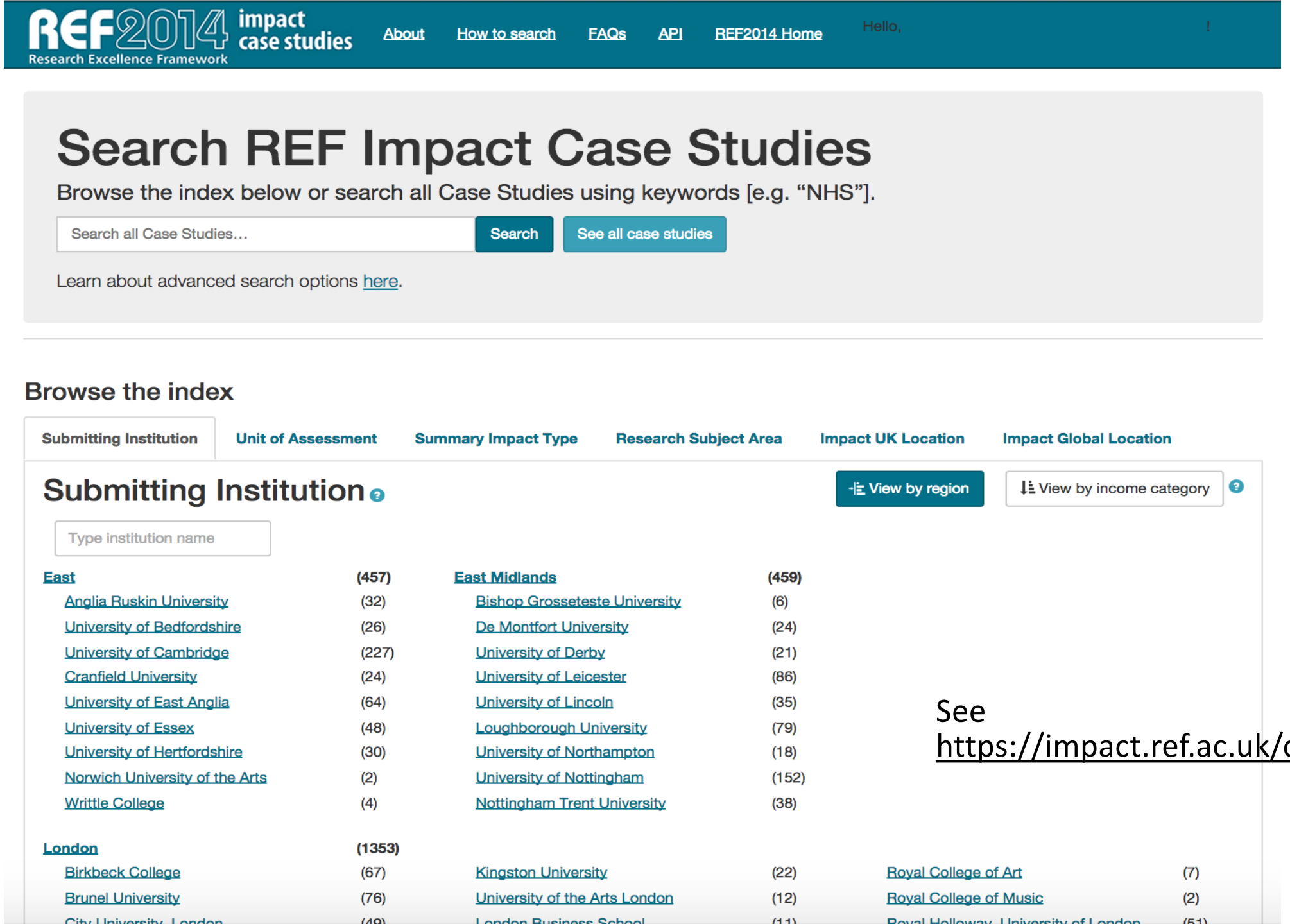
Example Case Study from REF 2014

Four page document containing the following sections:

- Summary of the impact
- Underpinning research
- References to the research
- Details of the impact
- Sources to corroborate the impact

Impact case study (REF3b)

Institution: University of Southampton
Unit of Assessment: 11 Computer Science and Informatics
Title of case study: 11-08 Leading the open data revolution
1. Summary of the impact Open Data has lowered barriers to data access, increased government transparency and delivered significant economic, social and environmental benefits. Southampton research and leadership has led to the UK Public Data Principles, which were enshrined in the UK Government Open Data White Paper, and has led to *data.gov.uk*, which provides access to 10,000 government datasets. The open datasets are proving means for strong citizen engagement and are delivering economic benefit through the £10 million Open Data Institute. These in turn have placed the UK at the forefront of the global data revolution: the UK experience has informed open data initiatives in the USA, EU and G8.
2. Underpinning research Data is generated by many crucial social processes, yet the potential of vast swathes of information remains untapped. Successive UK governments have recognised that greater openness about spending can cut waste and increase value for the taxpayer, particularly in times of austerity. Research at the University of Southampton has driven the development of the open data movement, showing how transparency of data can revolutionise the delivery of public services, how business is conducted and how communities work together.



See https://impact.ref.ac.uk/casestudies/

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Headline findings from analysis of REF2014 case studies

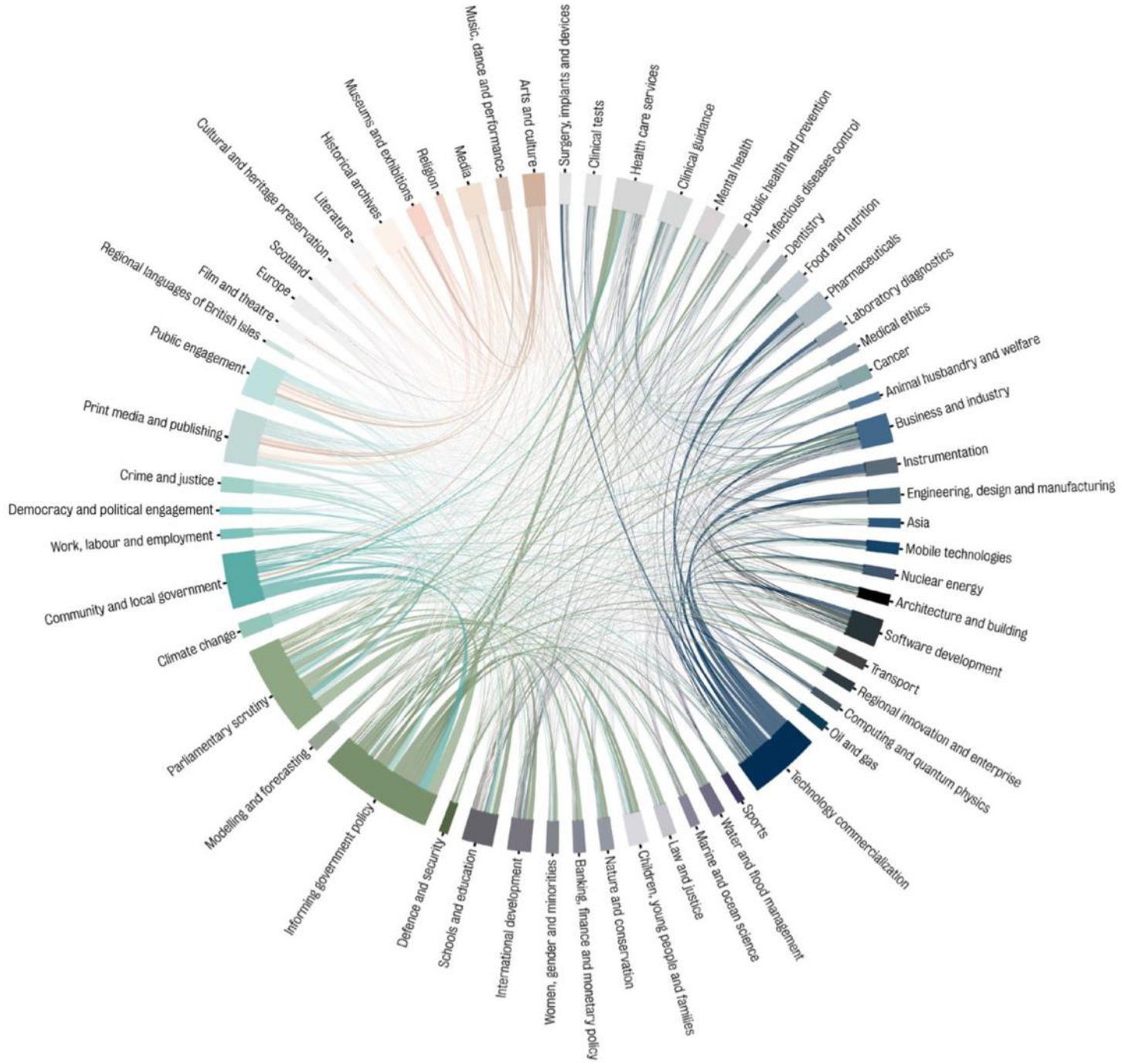
1. The societal impact of research from UK HEIs is considerable, diverse and fascinating
2. The research underpinning impact is cross-disciplinary, and the benefit arising from research has multiple impacts
3. UK HEIs have a global impact
4. The quantitative evidence supporting claims for impact is diverse but *inconsistent*, suggesting that the development of robust impact metrics is unlikely
5. The impact case studies provide a rich resource for analysis, but the information was built (by researchers) for *assessment* purposes and may need to be restructured for *analysis* purposes
6. The *interpretation* of impact will continue to evolve
7. Socio-economic impact is no more certain or predictable than other research outcomes

https://www.kcl.ac.uk/policy-institute/research-analysis/nature-scale-beneficiaries-research-impact

Impact Topics

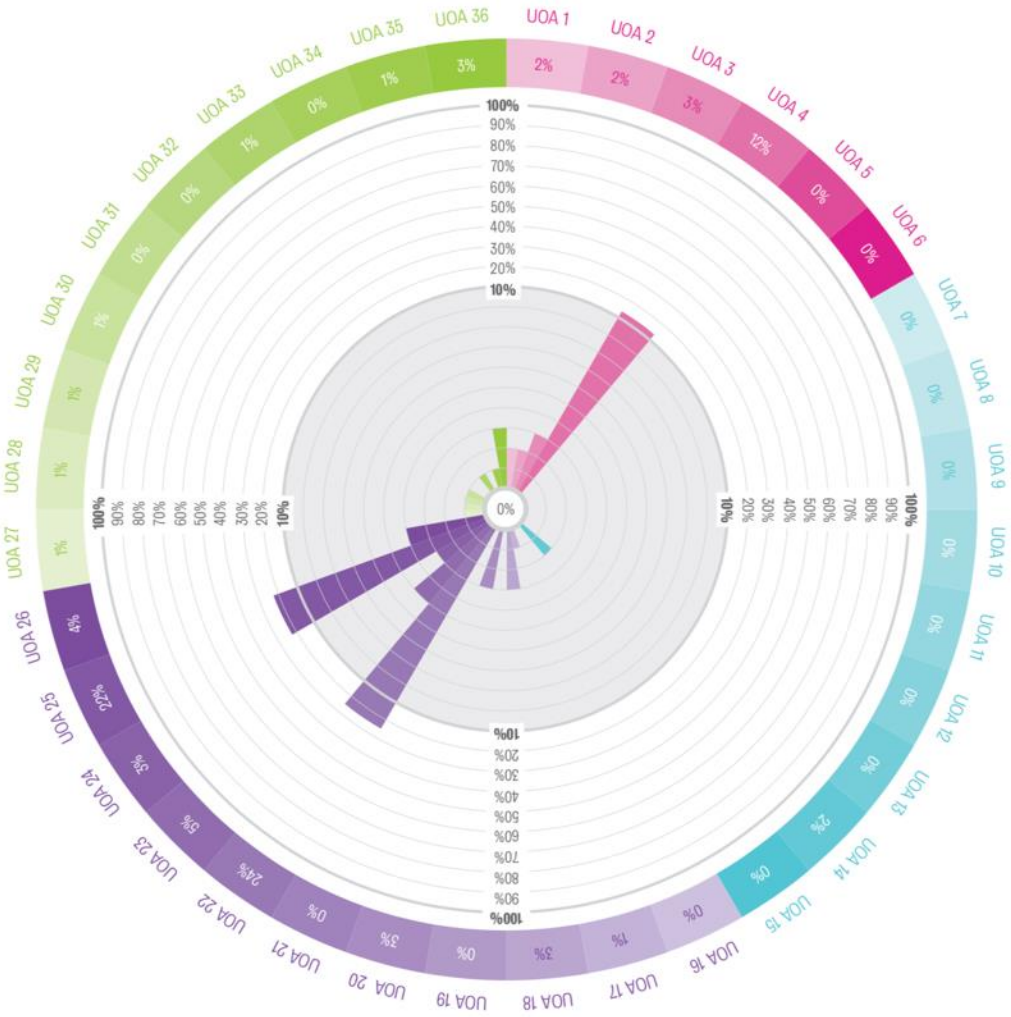
Topic modelling used to extract salient concepts in the body of the impact case study text

Chords connect co-occurring topics with width proportional to the number of case studies that reported them

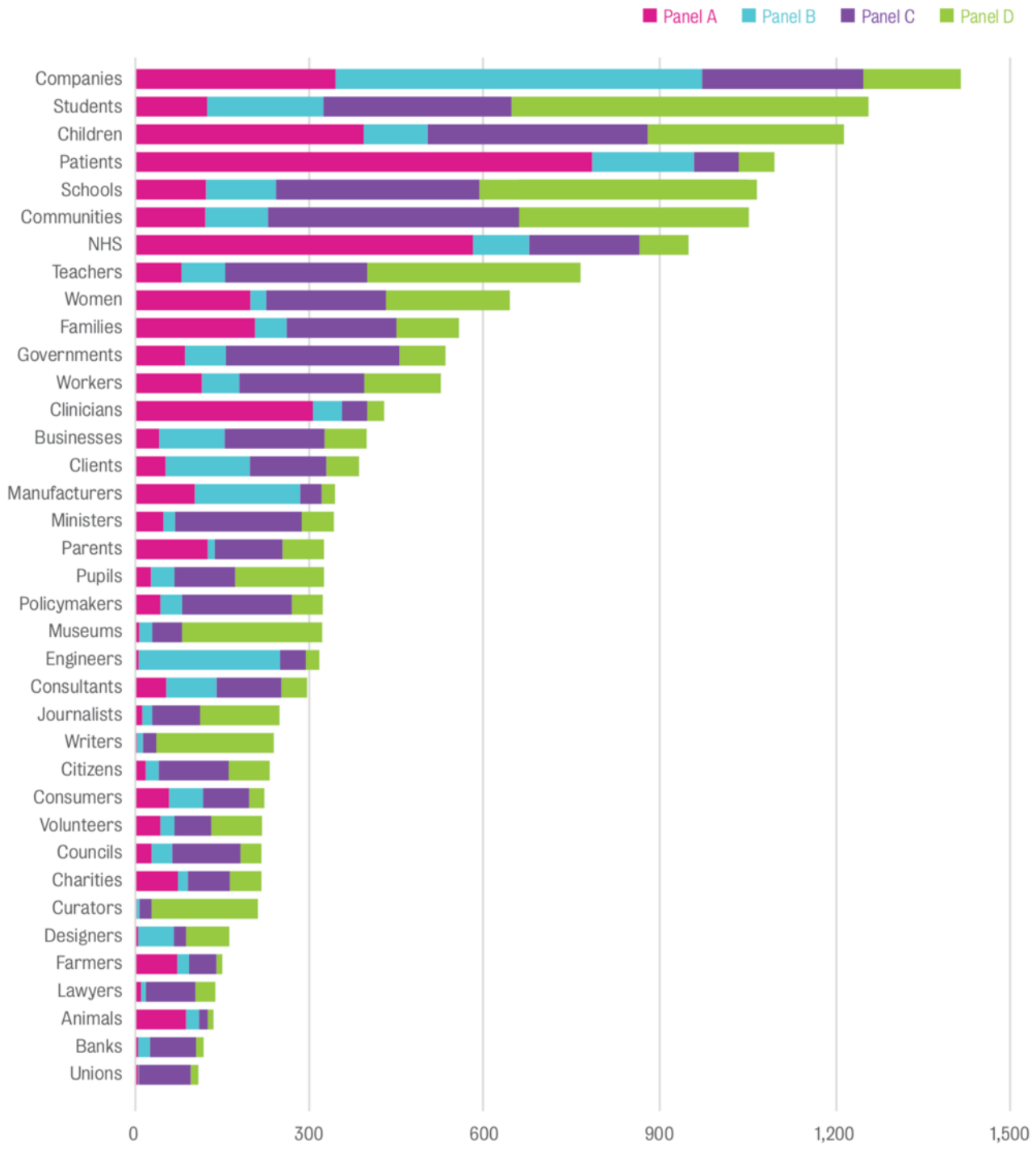


Impact is Global

Beneficiaries of the impact



('Children, young people and families', n=198)



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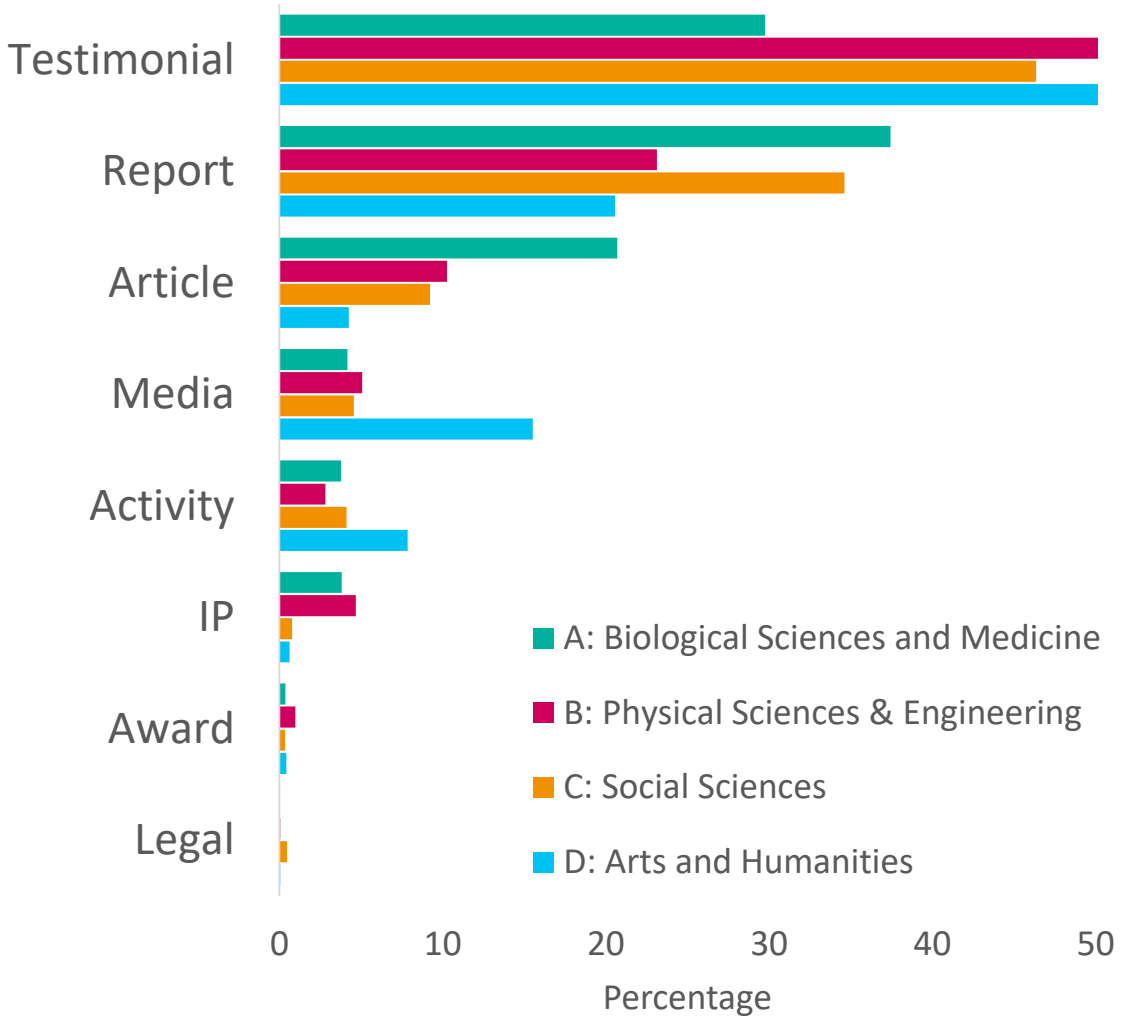
Many different forms of evidence used

Top evidence types included in REF2014 Impact Case Studies according to Main Panel



- Testimonials are the most widely used type of evidence
- The Arts and Humanities disciplines relied much more on Media (tv programmes, online videos, news articles, etc) and Activities (social events, exhibitions, workshops) that the other 3 panels
- Patents were mentioned in 632 / 6637 case studies
- A diverse range of grey literature was mentioned across the panels (Report)

Loach, Tamar; Adams, Jonathan; Szomszor, Martin (2016): Digital Research Report: The Societal and Economic Impacts of Academic Research - International perspectives on good practice and managing evidence.

Predictions for the Future of Research Evaluation

- Increased focus on research impact in national assessment programmes and funder initiatives
  - Peer review will remain a crucial component, supplemented by bibliometrics
- More structured capture of engagement types
  - As we discover more about the evidence types used, cataloguing and tracking systems can be improved. Free-text capture requires extensive data-mining for post-evaluation analysis
- Development of ontologies for capturing impact
  - These will be domain specific, already quite advanced in medicine
  - Opportunity to mobilise academic societies and professional bodies to establish their own view
- Increased researcher awareness of the need to track impact
- Improved platforms for researchers to evidence various engagement and impact activities
  - Funding awarded, editorial and peer-review duties, speaking engagements, news and media coverage, awards, consultancy activity, industrial collaboration
- Better understanding of how academic research is used outside of established scholarly channels such as grey literature citations

Find out more from ISI

Global Research Report Series

clarivate.com/webofsciencegroup/solutions/isi-reports/

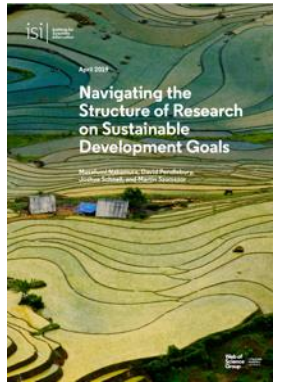
GRR1 – Profiles, not metrics

GRR2 – The Plan S footprint: Implications for the scholarly publishing landscape

GRR3 – Navigating the Structure of Research on Sustainable Development Goals

GRR4 – The Annual G20 Scorecard – Research Performance 2019

GRR5 – South & East Asia to be published early October 2019



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Thanks for your attention

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