Responsible & Alternative Metrics for Impact
James Wilsdon

Director, Research on Research Institute (RoRI), Sheffield University, United Kingdom
Metrics for impact: aligning indicators & incentives.
AESIS Impact of Science, 23 June 2022.

James Wilsdon, RoRI & University of Sheffield
@RoRIInstitute @jameswilsdon
Rich evidence in REF case studies now published

Publication of submissions made to the Research Excellence Framework (REF) 2021 provides rich source of evidence on university research and its wider impact.

157 UK universities made submissions to REF 2021, the UK's framework for assessing the quality of higher education research. In total, they submitted over 185,000 outputs from research and over 6,000 impact case studies detailing where their research had benefitted wider society, across 34 subject-based units of assessment.

This latest publication includes the REF impact case study database, a searchable tool which will support wide-ranging analysis of the manifold contributions made by UK university research to the economy and society, in the UK and worldwide.

Preliminary analysis of the impact case studies highlights the diversity of areas in which research has made a key difference – from advancements in health and technology, to legislative and political change, societal, economic and cultural benefits, and environmental impact – and their global reach, with UK research making a contribution in every country worldwide. The database offers the potential for ‘deep dives’ into key topics
RoRI Working Paper No.3
The changing role of funders in responsible research assessment:
progress, obstacles and the way ahead

Stephen Curry, Sarah de Rijke, Anna Hatch, Dorsamy (Gansen) Pillay, Inge van der Weijden and James Wilsdon

November 2020

As part of FRAP, an expert panel has been invited to lead a review of the role of metrics in research management and assessment.
Shanthi Ramanthan
Health Research Economics Impact Assessment Specialist, Hunter Medical Research Institute, Australia
Starting with the End in Mind: how prospectively planning for impact assessments can optimise societal impact

Dr Shanthi Ramanathan
Research Impact Specialist, Hunter Medical Research Institute
AESIS International Impact of Science Conference, Leiden, The Netherlands
22-24 June 2022
Key definitions (Australian)

Research impact

…The verifiable outcomes that research makes to knowledge, the economy and/or society. *(i.e. a societal perspective)* Impact is the effect of the research after it has been adopted, adapted for use, or used to inform further research.

NHMRC, 2018

Research translation is a precursor to impact. Without translation there is no impact.

This presentation takes a health and medical research perspective
Why the focus on translation and impact?

- Research does not magically translate to policy and practice. Even flow of knowledge across the research pipeline does not just happen.

- Around 43% of adults and 40% of children in Australia receive less than appropriate care in clinical encounters. We can do better (Runciman, Braithwaite).

- Suboptimal translation = suboptimal impact = poor returns on research investment = waste (Chalmers & Glasziou, 2009).

- Research not benefitting society.
Other good reasons for a focus on translation and impact

ANALYSIS
build understanding of the reasons for the success or failure of research impact

ACCELERATION
increase the speed & efficiency of the application of research

ACCOUNTABILITY
demonstrate responsible & effective use of funding

ACCESS
increase the accessibility of research

ADVOCACY
increase awareness & demonstrate the value of research

ALLOCATION
monitor progress & inform the future allocation of resources

Adapted from Guthrie et al., 2013 and borrowed from Ken Knight’s AAMRI presentation, 5 April 2022
What are key challenges with impact assessment?

• Lag to final impacts
  — An average of 17 years to move 14% of research into policy or practice (Morris, Wooding, Grant, 2011)

• Attribution versus contribution
  — Research does not occur in a vacuum, how do we “accurately” claim and evidence impact of our research?

• Resource intensive
  — Requires time, resources and skill. What do researchers forego to invest in this activity? How do they develop these additional skills? Are we expecting too much from them? Are these activities adequately resourced and rewarded? Who should shoulder the burden?

• Value judgement
  — What does societal benefit even mean? Benefit from whose perspective? How do we balance the needs of various stakeholders? What about cost-effectiveness? Not everything that is worthwhile is affordable. Every decision is a tradeoff. What is good for one group may not be good for another…what about equity, social justice?

• What are we trading – independence, value of negative findings, jumping the gun?
  — Does a focus on impact cause researchers to oversell the results and outcomes from their research? When co-creating research – are we losing independence? Are we missing the value of negative findings that tell us “what not to do”? Are we causing researchers to jump the gun just to achieve “impact”?
HMRI’s response to the challenge
What we already knew

End user engagement
- Engaging end users all the way through the research process optimises translation and impact

Prospective orientation
- Assessing impact at the end is problematic and costly
  - Planning for impact upfront is the way forward

Focus needed
- Need to, adequately resource translation and incentivise impact
Guiding principles

— Wanted a way of capturing impacts across the spectrum of from discovery science to applied science;

— Encourage research translation

— Work alongside researchers, not just assess them

— Enable the implementation of improvement processes when research translation fails;

— Utilise cost-effective data collection techniques;

— Facilitate communication on research impact.
Framework to Assess the Impact from Translational health research (FAIT)

- Payback methodology
- Domains of benefit
  - Contributions to:
    - knowledge generation
    - clinical care
    - policies & programs
    - economy
    - community & health
    - capability building

Narrative of translation

Economic analysis

Metrics (Modified Payback model)

- Used to provide a story of the pathway from need to impact
- Presents qualitative evidence of translation and impact

- Used to measure ROI
- Range of possible economic techniques

Underpinned by a program logic model
• Expressed as metrics
• Domains include
  • Knowledge generation
  • Capacity building
  • Clinical Implementation
  • Policy & Legislation
  • Economic Impact
  • Societal Benefit
• Can also include output metrics and intermediate impacts (on the pathway to impact)
• Favours cost-benefit analysis to understand the return on research investment
• Takes a societal perspective
• Can be based on actual data &/or ‘projected’ future values
• Favoured by treasuries & research funders
• Good for non-quantifiable impacts – expressed in the words of the beneficiaries
• Can explain complex and lengthy translation pathways and unexpected outcomes and impacts
• Brings together quantitative and monetary results and explains them in context
A logic model underpins these methods
(and by completing early, facilitates prospective data collection for all three methods)
# Modified Program Logic Model

## Engagement of end users across the path to impact

<table>
<thead>
<tr>
<th>NEED</th>
<th>AIMS</th>
<th>ACTIVITIES</th>
<th>KEY OUTPUTS</th>
<th>END USERS</th>
<th>PATHWAY TO ADOPT</th>
<th>IMPACTS</th>
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Where has/is FAIT being used?

• **Centres for Research Excellence**
  – Stroke rehabilitation and Indigenous primary healthcare
  – Aphasia, Treatable Traits (resp), Implementation Science, Digestive Health

• **Projects/Programs**
  – Salt reduction in the Pacific, Cardiovascular care in Indonesia, Lessons from the Best, Breathing for Life, SENSE Connect & SENSE Partnership, Medical Practice Assistance, Calcium channels, ASPREE Trial, Valid BP devices, Heart transplant using DCD hearts

• **Organisations/Groups**
  – NSW Regional Health Partners, Hunter Cancer Research Alliance, Agency for Clinical Innovation

• **Funding schemes**
  – NSW Health – MRSP, PRSP, TRGS, MDF, COVID-19 and a range of OHMR Schemes (e.g. Cardiovascular Grants, Biobanking Grants)
FAIT Resources: where to find them

FAIT Seminal paper

FAIT Resources to apply the Framework
https://hmrihre.thinkific.com/

FAIT website containing other impact assessment resources
https://hmri.org.au/FAIT
Questions?

Contact: the HRE FAIT team
E: fait@hmri.org.au
Andrew Plume

Vice President of Research Evaluation at Elsevier, United Kingdom
Aligning indicators and incentives to amplify impact: 3 practical contributions

Andrew Plume
Vice President, Research Evaluation, Elsevier
President, International Center for the Study of Research

June 2022
International Center for the Study of Research

Building the evidence base on research evaluation and societal impact in all fields of research.

ICSR Engages  Collaborating with research leaders and experts to identify research questions, with guidance from the ICSR Advisory Board

ICSR Researches  Conducting applied research and development in partnership with the research community

ICSR Empowers  Enabling access for researchers to rich datasets and advanced analytics through ICSR Lab
The Tasmanian Societal Impact Model

A systematic, rigorous and scalable approach to amplifying impact
Global Expertise | Local Impact

Local Expertise | Global Impact
Tasmanian Model

1. Frame the societal problems to solve
2. Calibrate the importance to places and people
3. Assess the ability to influence
4. Select strategic priorities
5. Build initiatives and measure change

Partnerships
Frame the societal problems to solve
- List opportunities and addressable units *likely* to be important and that we *could* influence

Calibrate importance to places & people
- Assess the *relative* importance of each opportunity/unit

Assess ability to influence
- Assess the *relative* ability to influence each opportunity/unit

Select strategic priorities
- Prioritise opportunities/units that are important and can be influenced

Build initiatives and measure change
- Specify impact pathways and how to measure contribution or plausible association

“A place where we do things for Tasmania and from Tasmania.”
University of Tasmania (UTAS)

Black & Fowler (2020)
Employment outcomes of doctoral alumni

People as a vector for societal impact
Where are our doctoral alumni working now?

From the literature (across 4 recent studies):
- 18-50% of PhD alumni working in industry 1-16 years post-graduation (field-dependent)
- Disproportionately in hi-tech and professional services industries, often in R&D roles
What roles do doctoral alumni have?
Are doctoral alumni increasingly entering industry?
| Scopus-indexed publications after PhD using industry affiliation* | Publications appear up to 6 years after PhD (mean 5.3 years); all from 2010-16 cohorts, 5 men & 2 women, 5 US & 2 China |
| Scopus-indexed publications using Cornell or other academic affiliations before or PhD (up to 7 years later; mean 1.3 years) | Individuals who leave academia within a few years of the PhD; their industry destination may not be detected in short-term post-graduation surveys |
| No Scopus-indexed publications, before or after PhD | From the literature: Publication during the PhD is associated with continuation in academia and vice versa |

Invariably, Scopus-indexed publications after PhD using industry affiliation were co-authored with former Cornell colleagues (usually former PhD advisor)**

What proportion of Cornell’s industry co-authored publications is due to collaborations with alumni?

* Not necessarily their current employer
** See Appendix for details

Do doctoral alumni in industry drive academic-corporate collaboration?
Fresh data, fresh insights

Forthcoming SciVal Impact module
Indicators of societal impact relevance and pathways

- Research publications mapped to **UN SDGs**
- Mentions of researchers and/or institutions in **mass media**
- Citations to research publications from **mass media**
- Citations to research publications from **patents**
- Citations to research publications from **policy documents**

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**Policy citations to over 126k publications demonstrated that cross-disciplinarity (indicated by co-authorship) is positively associated with policy relevance**

https://www.elsevier.com/icsr/perspectives/cross-discipline-policy-video
Policy documents are now available analytically at scale
Policy documents are now available analytically at scale
Which policy documents have cited my university’s publications?
<table>
<thead>
<tr>
<th>Policy Title</th>
<th>Policy Body</th>
<th>Year</th>
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<tr>
<td>AR6 Climate Change 2021: The Physical Science Basis</td>
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<td>Medical Therapies for Children with Autism Spectrum Disorder --- An Update</td>
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## Policy documents citing publications at the Athena University

**Year range: 2001 to 2022**

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AR5 Climate Change 2014: Impacts, Adaptation, and Vulnerability

8,856 Scholarly References  5,864 Mentions of Scholarly Articles

Cited Institutions
The Policy Document cites 2,545 unique Institutions.

Top 10 Cited Institutions

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<thead>
<tr>
<th>Institution</th>
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<td>CNRS</td>
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All Mentions in Policy Documents

Scholarly Article: Dynamic adaptive policy pathways: A method for crafting robust decisions for a deeply uncertain world

ARS Climate Change 2014: Impacts, Adaptation, and Vulnerability
IPCC 2014

2 mentions of scholarly article


AR5 Climate Change 2014: Impacts, Adaptation, and Vulnerability

The assessment of impacts, adaptation, and vulnerability in the Working Group II contribution to the IPCC's Fifth Assessment Report (WGII AR5) evaluates how patterns of risks and potential benefits are shifting due to climate change since 2007 when the Fourth Assessment Report (AR4) was released.
Thank you!

@AndrewPlume
a.plume@elsevier.com
Recommendation

Responsible & Alternative Metrics

“In the quest for better indicators & metrics of impact, we shouldn’t allow the perfect to become the enemy of the good. There’s lots we can do with existing measures and methods—quantitative and qualitative—to better understand and support societal impacts.”