AESIS AUTUMN COURSE 2019

Methods and Instruments for Assessing the Societal Impact of Research

6-8 November, London

AESIS
NETWORK FOR ADVANCING & EVALUATING THE SOCIETAL IMPACT OF SCIENCE

uk arma

EARMA
EUROPEAN ASSOCIATION OF RESEARCH MANAGERS AND ADMINISTRATORS

euroCRIS
Current Research Information Systems

KING'S College LONDON

DAY 1

#ASIR19
@AESISNET

WIFI:
PASSWORD:

OVERVIEW OF THE PROGRAMME

Day 1	**Introductions**
	Defining and assessing Institute's Strengths
	Introduction to the Case Study
	Interactive discussions
Day 2	Integrating impact indicators in strategy
	Preparation Case Study
	Research Information Systems and metrics
	Interactive discussions
Day 3	Disciplinary differences and conflicting interests
	Case Study Presentation
	Closing
	Social programme

Welcome and introduction to the course

Martin Kirk
Director of KCLs Research and Researchers Function

Why

KCL role includes: REF, metrics, knowledge exchange/ public engagement, impact, commercialization,

Aim for this meeting: Hope to meet new colleagues/expand network gather new ideas on systems/tools in the impact metrics space

INTRODUCTION BY THE PARTICIPANTS

In groups, discuss for 10 minutes:

1. What is your role in the science ecosystem and your own institute?

2. What are your most pressing questions and what and what do you want to take away?

The social good of universities

Jonathan Grant
Vice-President (Service) and Professor of Public Policy at KCL

The social good of universities

Prof Jonathan Grant, Vice President & Vice Principal (Service)
King's College London
@jonathancgrant; jonathan.grant@kcl.ac.uk

UK seaside special

Summer party food

The Guardian

Revealed: the scale of racism at universities

Exclusive

'People's lives matter more than any political game'

World Cup final 2019

Could this be the book of the summer?

Daily Mail

What happened when Keith met Marianne 50 years after that tryst?

As MP provokes storm by asking what students are being taught about Brexit, a troubling insight into . . .

OUR REMAINER UNIVERSITIES

Now vile Weinstein could be

Liam Gallagher

'The German police pulled my teeth out with pliers'

The Guardian

May warning to universities over high cost of tuition fees

Oxfam three 'threatened witness' in Haiti inquiry

Arterton honours equal-pay pioneers

Inside today, your 32-page official Ucas guide to clearing

The Daily Telegraph

Homecoming queen

University fees a 'Ponzi scheme'

Big Ben reprieve as officials order rethink

Corbyn forces MP to quit over sex gang claim

THE SUNDAY TIMES

JAMIE'S EASIEST RECIPES EVER

BAKE OFF IS BACK!

THE DISH MAGAZINE

Universities take foreign students ahead of British

Drive for higher fees 'betrays' sixth-formers

BOLT FROM BLUE USAIN BOWS OUT WITH BRONZE

Chinese buyer eyes Manchester United

Milly Dowler's killer linked to 24 attacks and rapes

THE VERDICT FABULOUS FREE 20-PAGE FOOTBALL MAGAZINE

Daily Mail

Play our new £100,000 Murder Mystery Game!

£25,000 cash rewards must be won – solve the clues to find WHODUNIT

MILLIONS SPIED ON BY GREEDY TOP UNIVERSITIES

They secretly hire investigators to snoop on ex-students' salaries, pensions and even friends in drive for donations

Aled Jones taken off the air over sex harassment

Britain's boat people

Ireland will be 'open back door' into the UK after Brexit

The nation's 10 best restaurants

50p

i

THE PAPER – BRITAIN'S FIRST AND ONLY CONCISE QUALITY TITLE

A-level results 'free-for-all'

- More top degree places available than ever before as leading universities open their doors
- 2017 clearing 'a fantastic opportunity' for this year's A-level students
- Glut of vacancies means universities will lower entry requirements

INSIDE

Student advice guide – what to do now you have your results

Where Moggmentum goes next

The Tories need new policies to really reach young people

Katy Balls

Michelle Mone

What I wish I'd known when I was a teenager

Determination counts for much more than exam results

What rule book? Zawe Ashton on nudity, women, politics and acting

PLUS TV | PUZZLES | DAY-NIGHT CRICKET ARRIVES IN ENGLAND

STUDENT LOAN WORSE THAN A MORTGAGE

Most graduates will carry debt burden for 30 years and never fully repay it

THE TIMES

Inside the A-list fashion house

Plus Why we've all gone potty for polka

Win a luxury fishing lodge in France

Three quarters of graduates will never pay off student debt

thegua

Student debt to hit £57,000 for the poorest

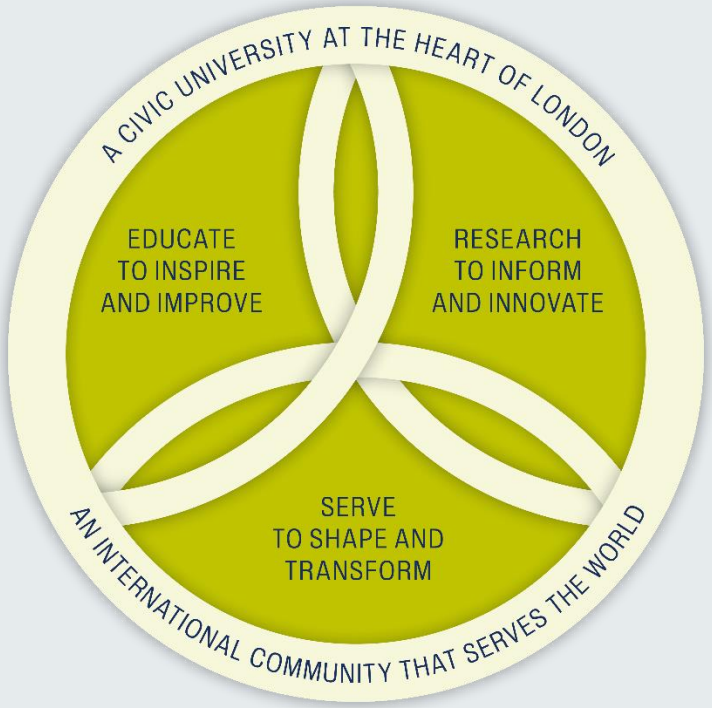
Abolition of last maintenance grants will hit least wealthy hardest, says IFS

“A university is, first and foremost, a social undertaking to create a social good.”

President Amy Gutmann, University of Pennsylvania, ‘Penn Compact’, https://president.upenn.edu/penn-compact

King's Vision journey – "a social undertaking to create a create a social good"

"in Service of Society"



https://www.kcl.ac.uk/aboutkings/strategy/Kings-strategic-vision-2029.pdf and
https://www.kcl.ac.uk/aboutkings/strategy/kings-service-strategy.pdf

Research impact is one part of our Service strategy

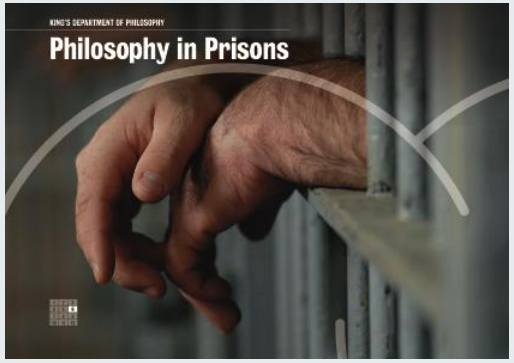
Social reform

Educational experience

Research impact

Volunteering

Environmental sustainability



Social reform

Social reform – King's Sanctuary programme

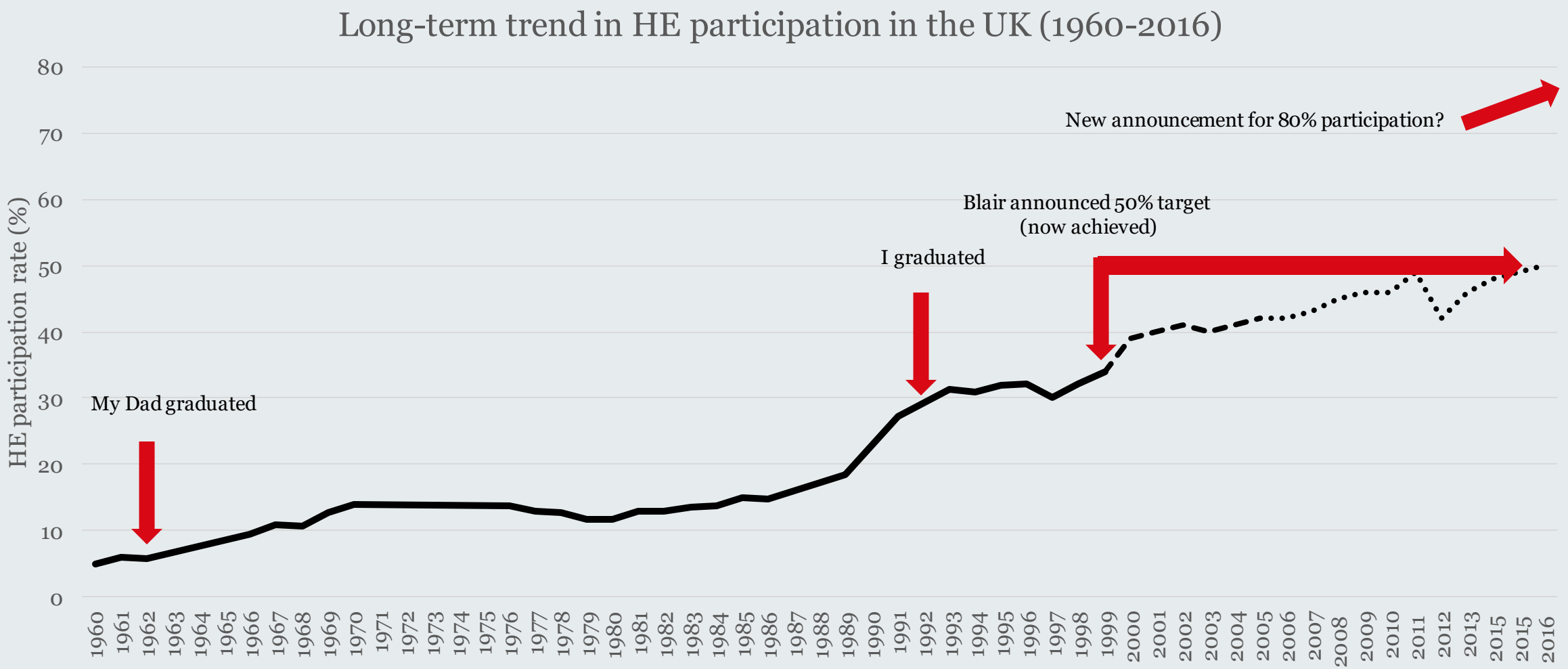
But social reform begins at home …

- Living Wage
- Insourcing
- (D)investment
- Sustainability
- Social responsibility Procurement

Educational experience

Introducing Service-led learning at King's

Higher education for (all) the people



Line is drawn from different sources. Solid line is from IFS (2010) Working Paper W10/04 (https://www.ifs.org.uk/wps/wp1004.pdf). Data extracted from Figure 2 using http://www.graphreader.com so may not be entirely accurate. Dashed line is from Figure 1 of House of Commons Public Accounts Committee report on Widening Participation (https://publications.parliament.uk/pa/cm200809/cmselect/cmpubacc/226/22602.htm), Data estimate by reading graph. Dotted line is from DfS briefing (https://www.gov.uk/government/statistics/participation-rates-in-higher-education-2006-to-2017) using direct data source.

Research impact

Project aims

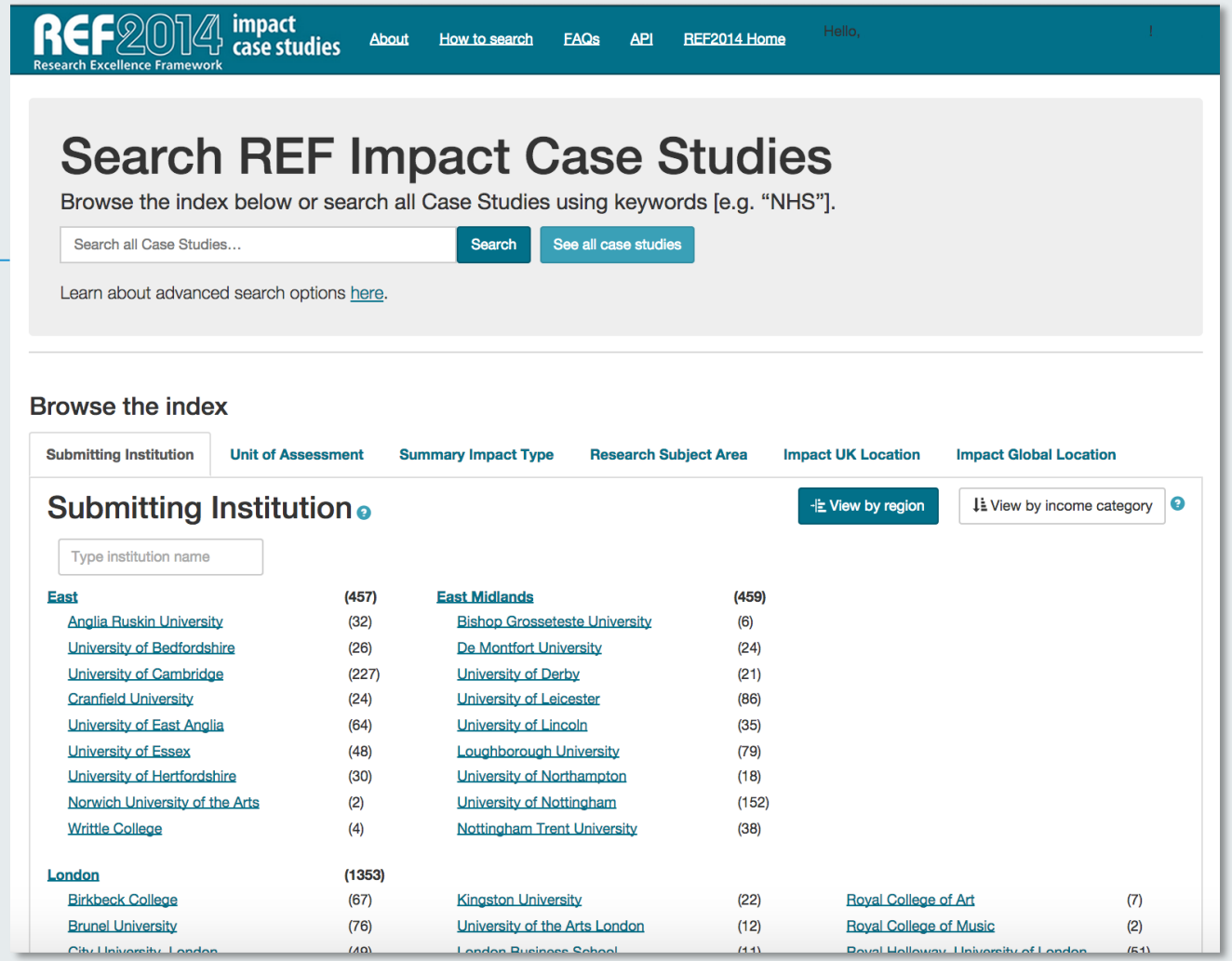
1. To make the impact case studies freely available in a form and format to enable researchers to carry out analysis using a range of techniques and methods

2. Carry out a synthetic analysis of the impact case studies to provide evidence on the impact of research in HEIs

King's College London and Digital Science (2015)

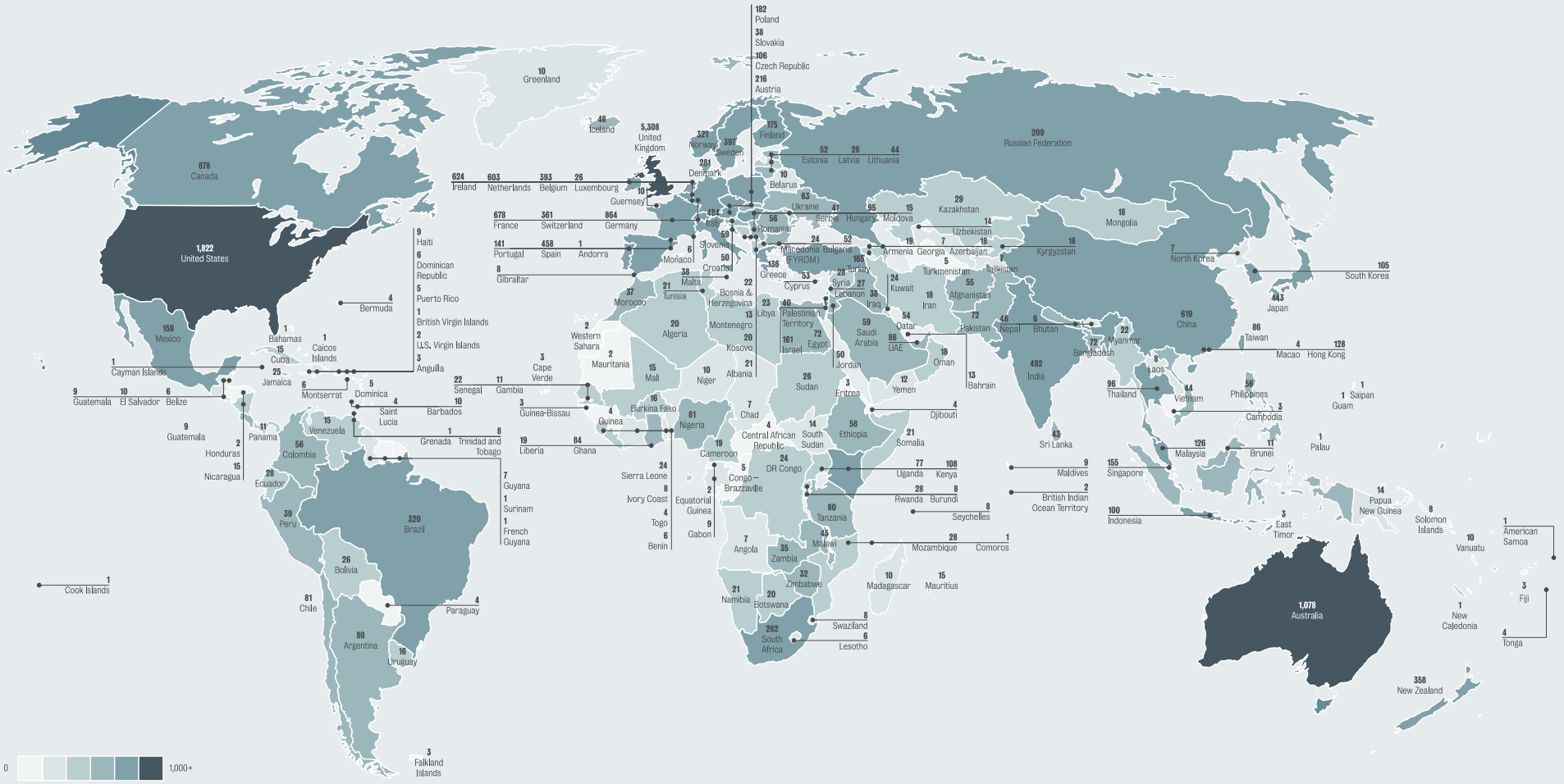
Searchable database of impact case studies

http://impact.ref.ac.uk/CaseStudies/



King's College London and Digital Science (2015)

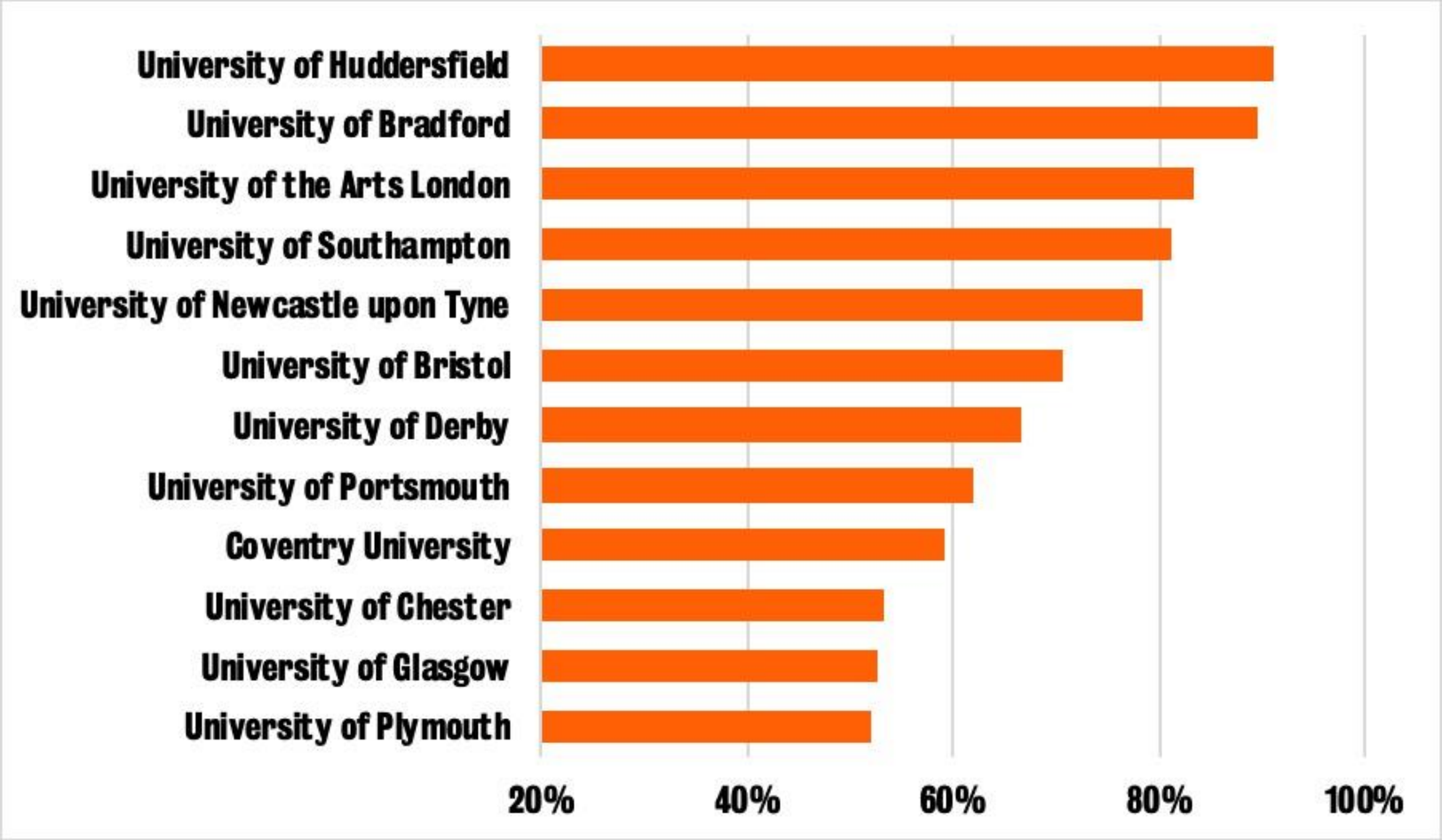
UK universities have a global impact ...



King’s College London and Digital Science (2015)

… and a local impact

Proportion of case studies with city level impact to number of case studies submitted to REF 2014 (HEI's with 10 or fewer *submissions* excluded)



https://researchprofessionalnews.com/rr-news-uk-views-of-the-uk-2019-9-putting-impact-in-its-place/

There are a diverse range of impact pathways

To be fair to all disciplines, this implies that you will need c4,000 metrics to capture the diversity of pathways between research and societal impact

King's College London and Digital Science (2015)

Volunteering

Volunteering

King's Global Day of Service

March 2019

In line with Vision 2029, King's alumni are shaping the 21st Century as creative, thoughtful and engaged citizens who are part of an international community that serves the world. Throughout the month of May King's alumni took part in the inaugural Global Day of Service and volunteered to clean up parks, focused on global health, helped combat food insecurity and much more

190 Volunteers

Beijing, China

9 Service events in London

London, UK

15 International events across five continents

Los Angeles, USA

Hong Kong, China

635 Service hours completed

Lahore, Pakistan

£5k Estimated economic impact

Port of Spain, Trinidad & Tobago

King's is the first university in the UK to run a service event at this level for alumni, students, staff and friends of the University – internationally, locally and on an individual level

Environmental sustainability

Environmental sustainability

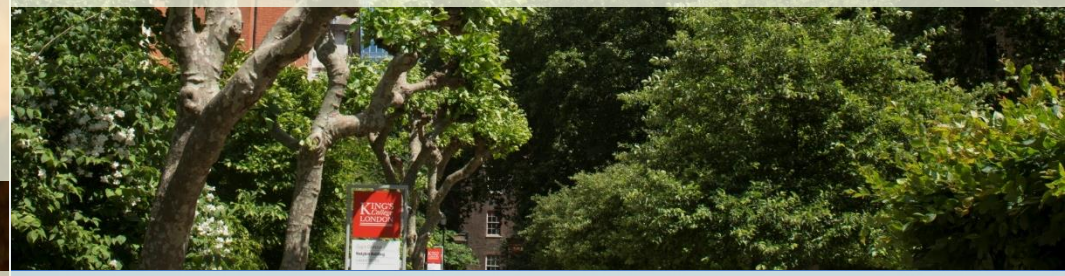
King's has reduced its carbon emissions by 37% between 2005/06 and 2017/18

We have removed beef from canteen menus, and have a 100% plant-based café

We have a network of over 300 Sustainability Champions

Our Residences are pioneering a Sustainable Living Community

We have committed to be net zero carbon by 2025



Our directly purchased electricity is from 100% UK wind power

So how do we assess the overall impact of unviersities?

Similar (but not the same) set of tools to assessing research impact

- Benchmarking
- Surveys
- Interviews
- ~~Bibliometrics~~
- Case studies
- Economic analysis
- ~~Text mining~~

Guthrie et al , 2013

Benchmarking: THE SDG ranking

THE UNIVERSITY IMPACT RANKINGS

17 PARTNERSHIPS FOR THE GOALS

+ TOP 3 SCORES

TOP 10 OVERALL
PARTNERSHIPS FOR THE GOALS + TOP 3 SCORES

2019 rank	Institution	Country/region	Score
1	University of Auckland	New Zealand	97.2
2	McMaster University	Canada	96.6
=3	University of British Columbia	Canada	96.2
=3	University of Manchester	United Kingdom	96.2
5	King's College London	United Kingdom	95.1
6	University of Gothenburg	Sweden	95.0
=7	KTH Royal Institute of Technology	Sweden	94.6
=7	University of Montreal	Canada	94.6
9	University of Bologna	Italy	94.3
10	University of Hong Kong	Hong Kong	94.1

www.thewur.com
#THEglobalimpact

Times Higher Education University Impact Rankings 2019

King's College London

THE UNIVERSITY IMPACT RANKINGS INAUGURAL PARTICIPANT

Overall: Score 95.1, Rank 5

SDG 3: Good Health and Wellbeing: Score 86.9, Rank 5

SDG 4: Quality Education

SDG 5: Gender Equality: Score 75.9, Rank 10

SDG 8: Decent Work and Economic Growth: Score 60.7, Rank =62

SDG 9: Industry, Innovation and Infrastructure: Score 63.7, Rank 51

SDG 10: Reduced Inequalities: Score 62.7, Rank 12

SDG 11: Sustainable Cities and Communities: Score 68.4, Rank 57

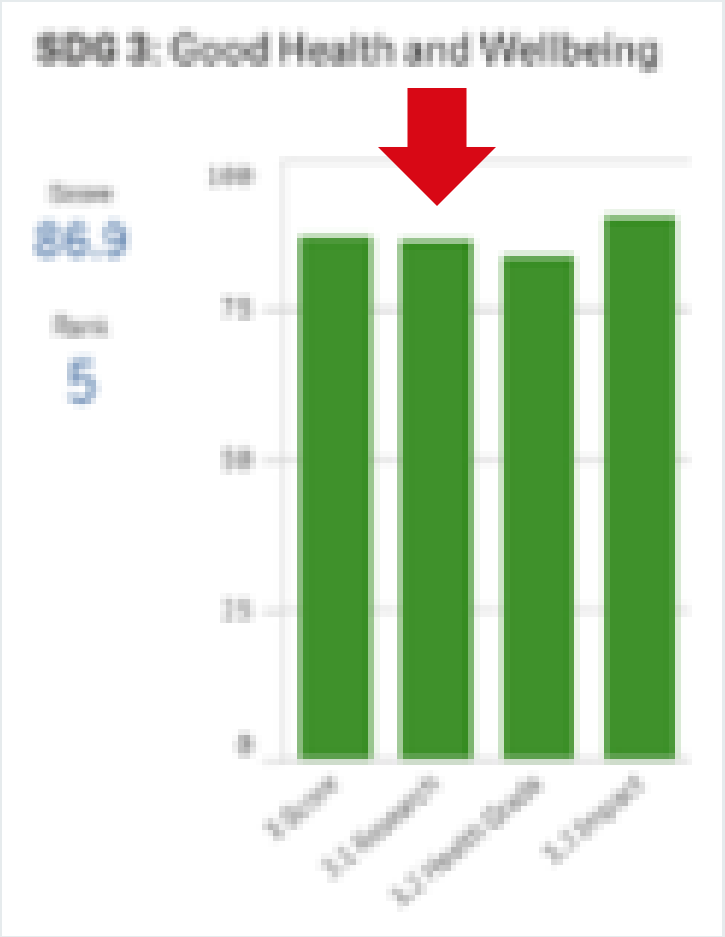
SDG 12: Responsible Consumption and Production: Score 80.2, Rank 13

SDG 13: Climate Action: Score 79.5, Rank 13

SDG 16: Peace, Justice, and Strong Institutions: Score 81.9, Rank 6

SDG 17: Partnerships for The Goals: Score 93.9, Rank 10

THE



SDG 3: Good Health and Wellbeing

Score 86.9

Rank 5

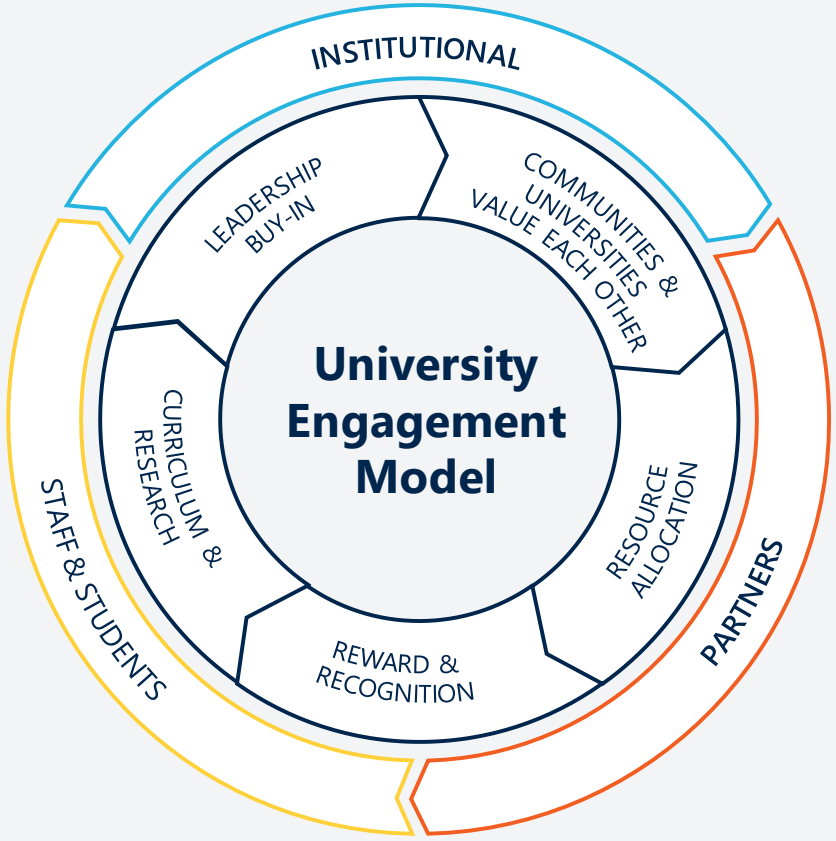
Benchmarking: King's-Melbourne-Chicago framework

A simple mechanism, that takes a holistic approach to measure the breadth and depth of an institution's engagement activities.

ENGAGEMENT INDICATORS

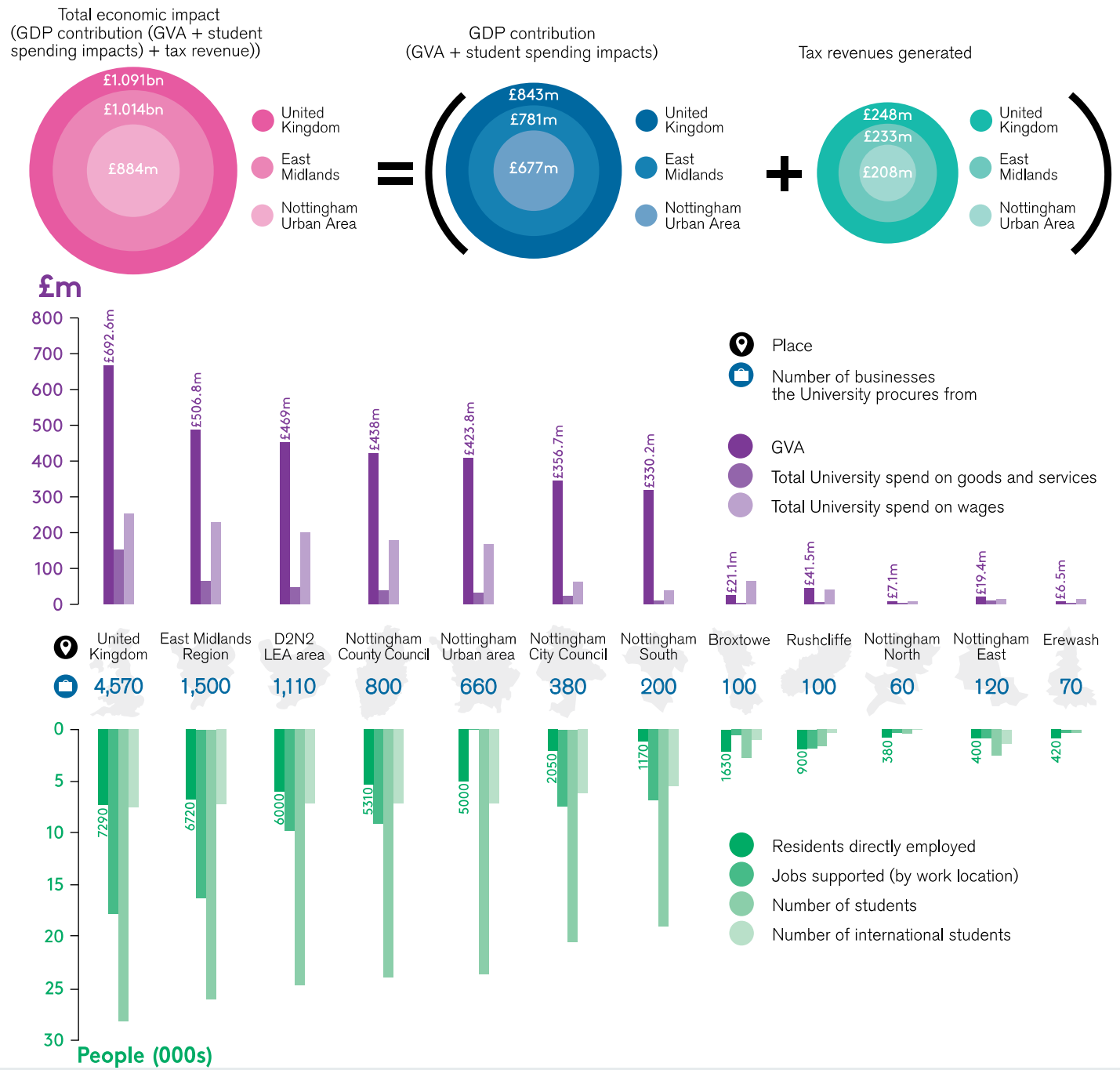
1. Evidence of strategic engagement
2. Partner esteem
3. % pre-university students to the university's undergraduate cohort participating in a university preparedness programmes to strategic social benefit outcomes
4. % of students and staff engaged in institute run volunteering/service programmes
5. Ratio of non-academic total mentions divided by the total outputs tracked
6. % curriculum dedicated to engagement/service learning
7. % negotiable spend on procurement linked to strategic social benefit outcomes
8. Carbon footprint

SECTOR BEHAVIOUR CHANGE



Economic analysis

Our economic impact in detail



Similar set of tools challenges to assessing research impact

Similar set of objectives to assessing research impact

Accountability – To taxpayers, donors, etc

Advocacy – 'Make the case' for research funding

Analysis – What works in research funding?

Allocation – What to fund (institution, field, people, etc)

So what have universities ever done for us?

Source: Morgan Jones and Grant, 2013

So what have universities ever done for us?

KING'S College LONDON

Any questions?

References

King's College London and Digital Science (2015). **The nature, scale and beneficiaries of research impact: An initial analysis of Research Excellence Framework (REF) 2014 impact case studies**. Bristol, United Kingdom: HEFCE. http://www.kcl.ac.uk/sspp/policy-institute/publications/Analysis-of-REF-impact.pdf.

Morgan Jones, M and Grant J (2013). **Making the Grade. Methodologies for Assessing and Evidencing Research Impact.** 7 Essays on Impact. DESCRIBE Project Report for Jisc. University of Exeter / Dean et al. (eds.) (Exeter, UK : University of Exeter, 2013), p. 25-43

Guthrie, Susan, Watu Wamae, Stephanie Diepeveen, Steven Wooding, and Jonathan Grant, **Measuring research: A guide to research evaluation frameworks and tools**. Santa Monica, CA: RAND Corporation, 2013. https://www.rand.org/pubs/monographs/MG1217.html.

BREAK

10:40 – 11:00

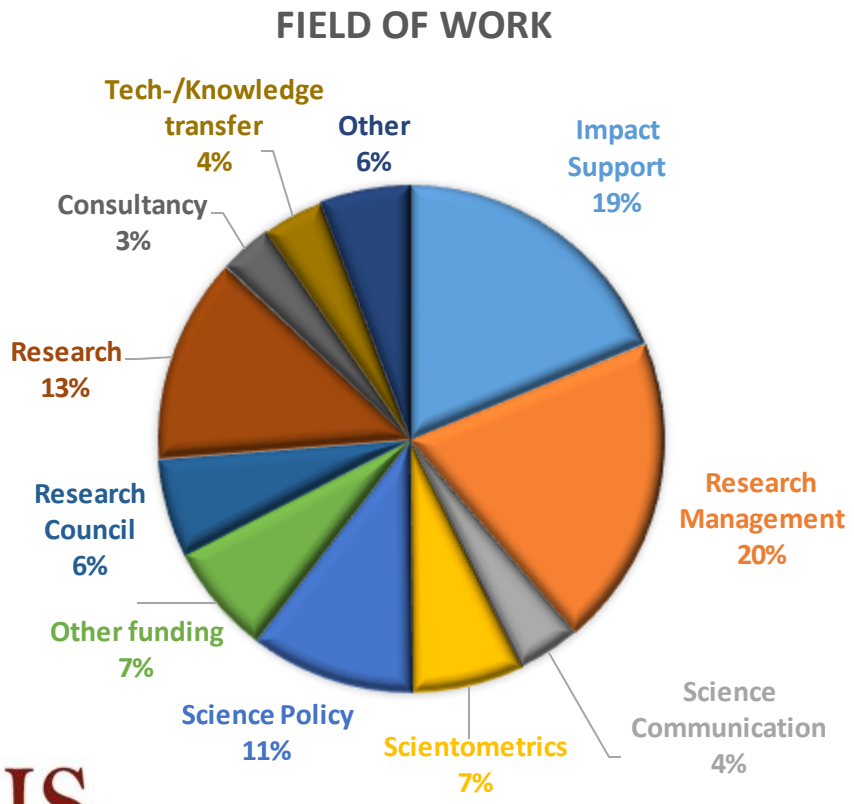
Introducing the Case study

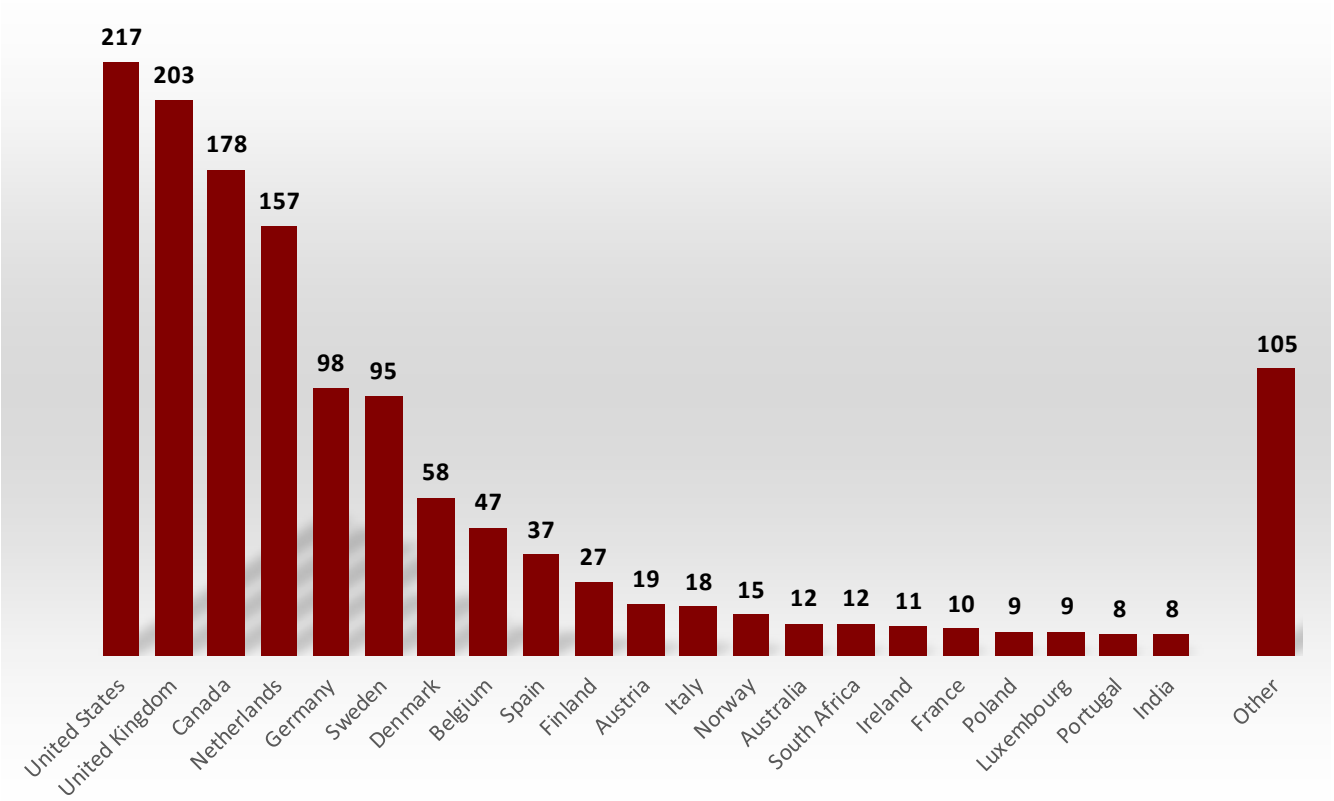
Frank Zwetsloot

Founding director of the AESIS Network
& CEO of ScienceWorks

The AESIS Network

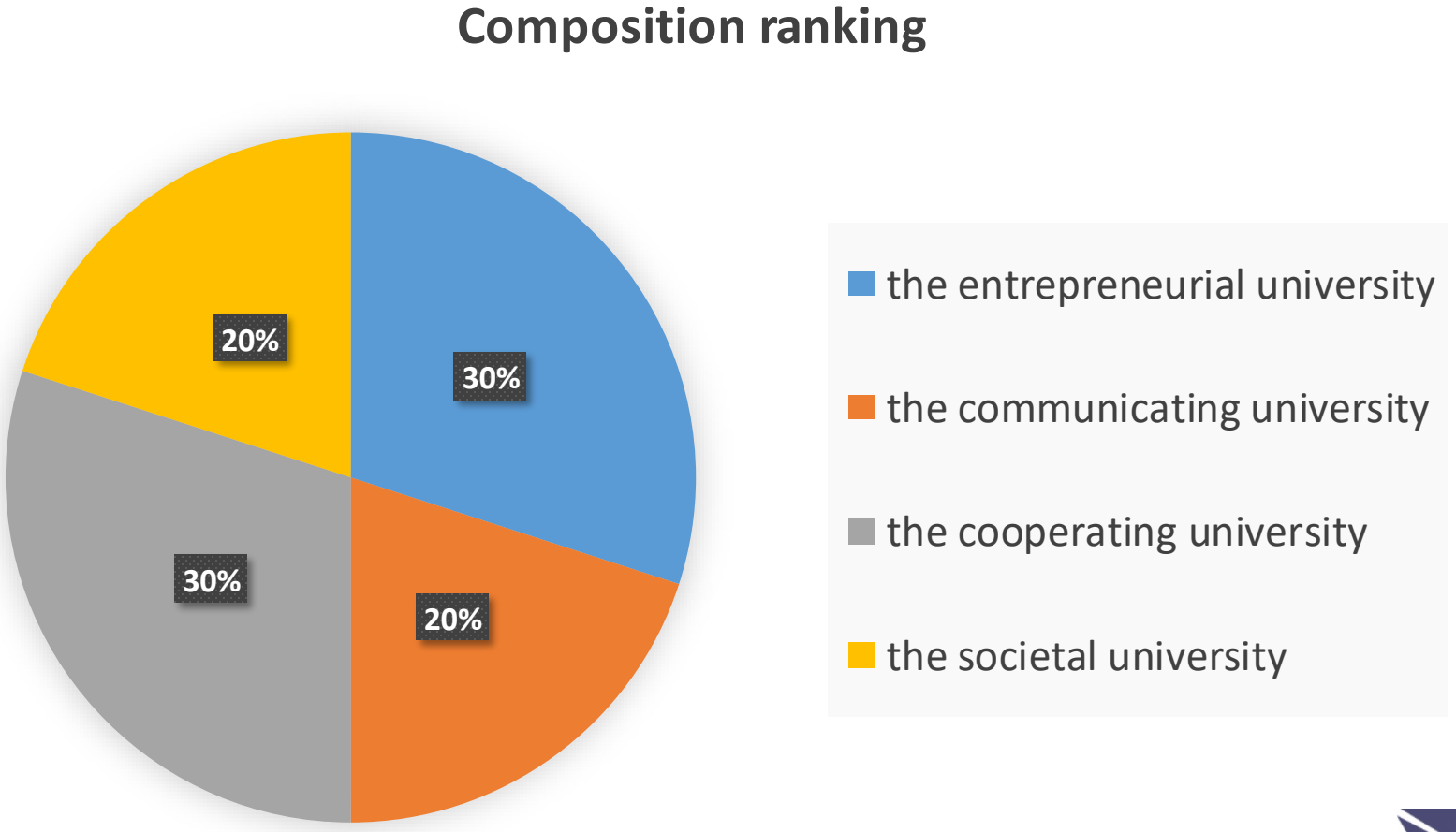
1350+ members from 65 countries



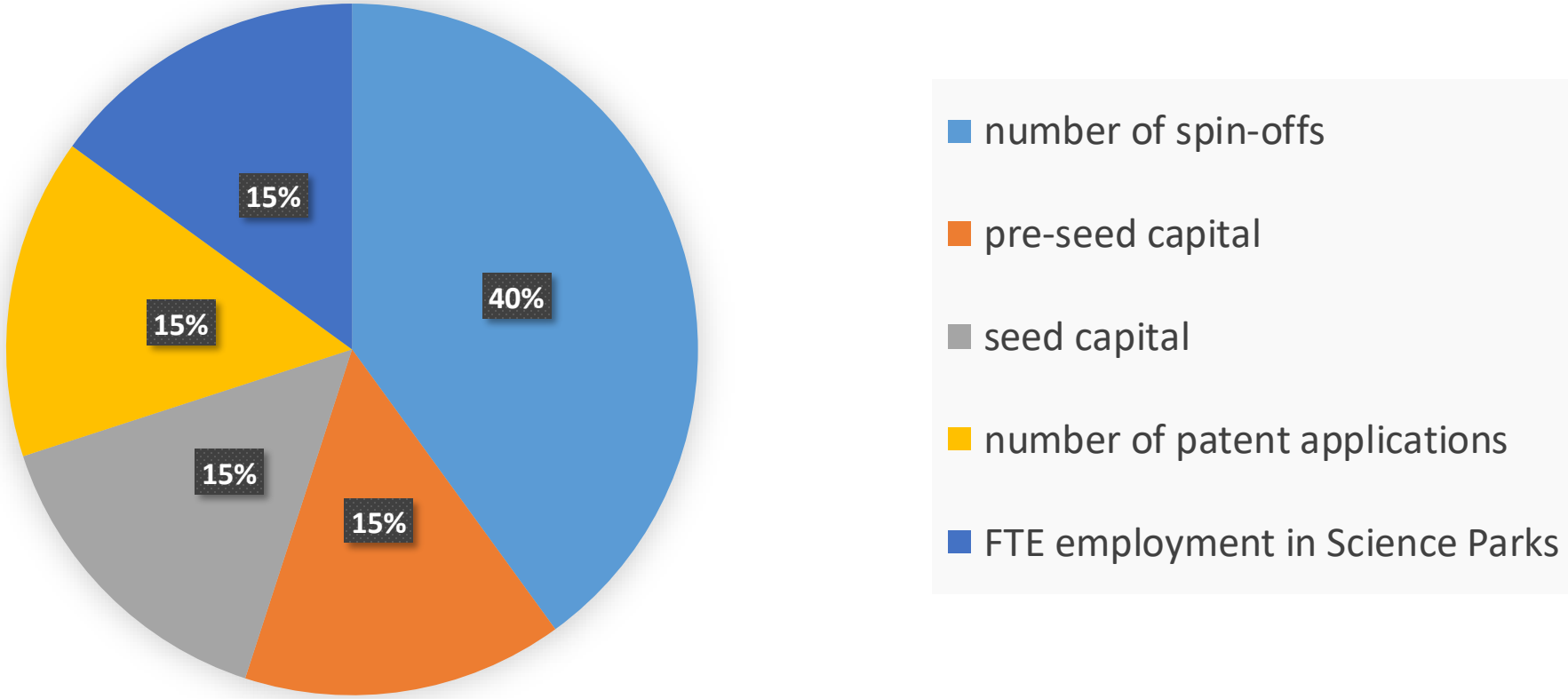


AESIS

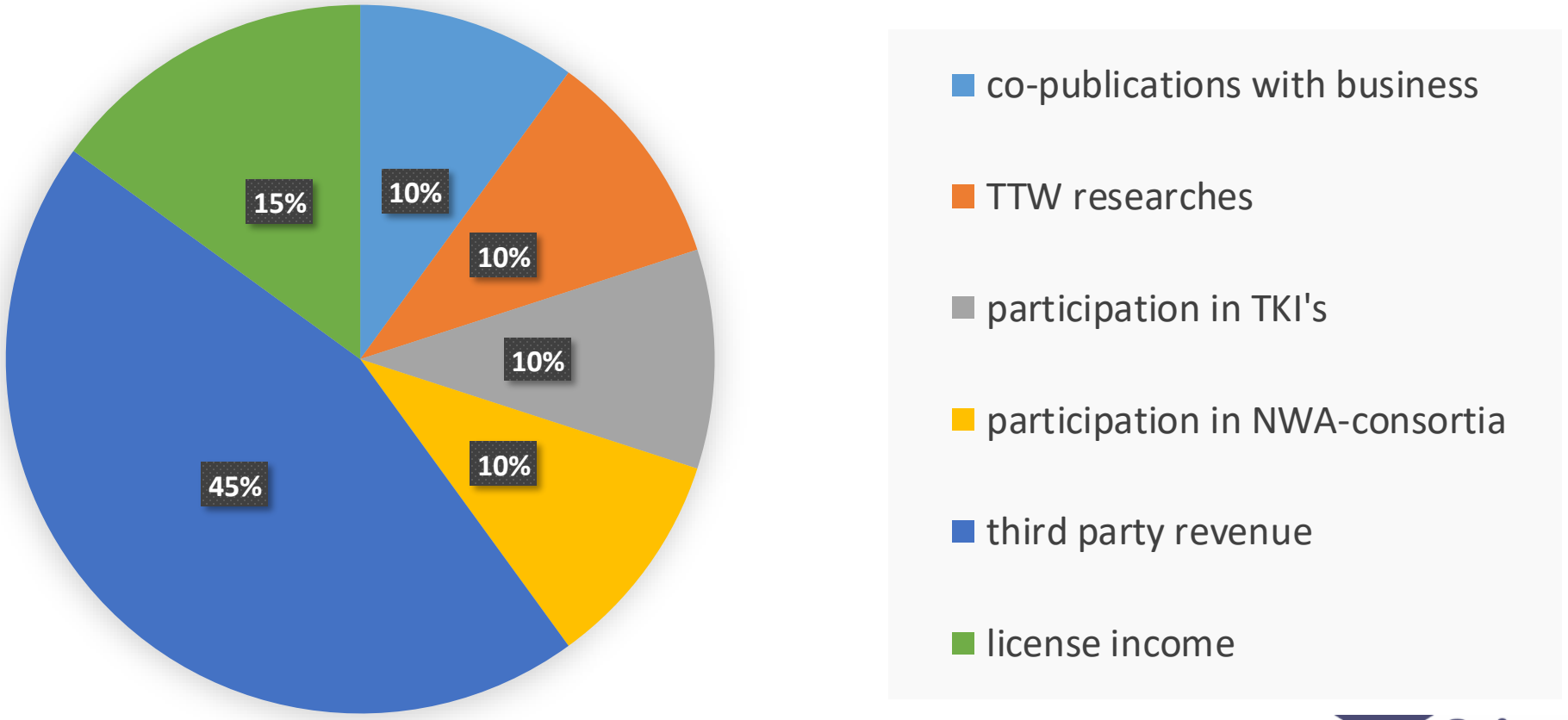
Impact Ranking Universities The Netherlands



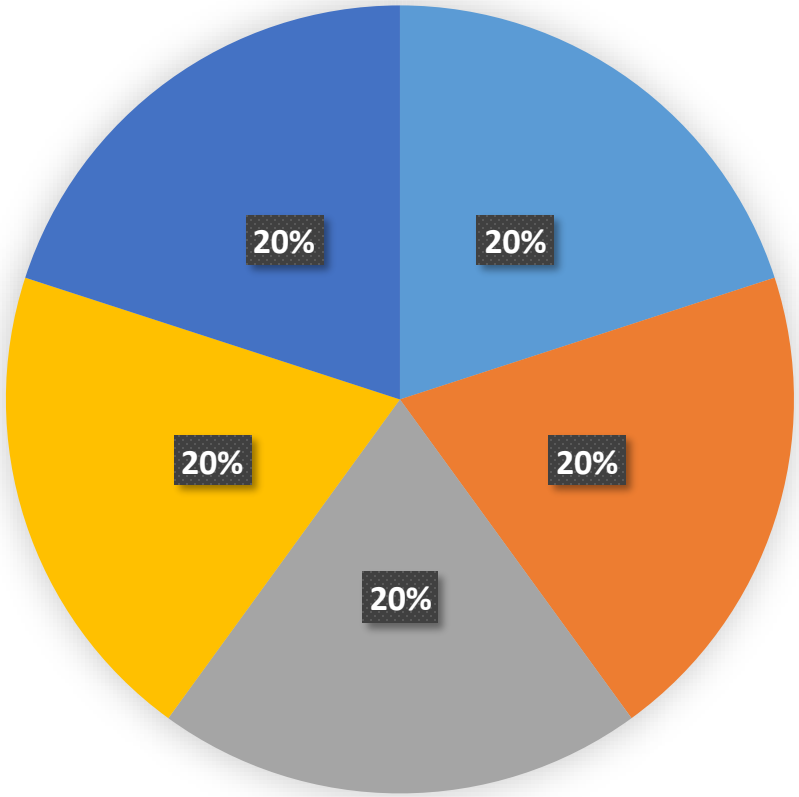
Composition 'the entrepreneurial university'



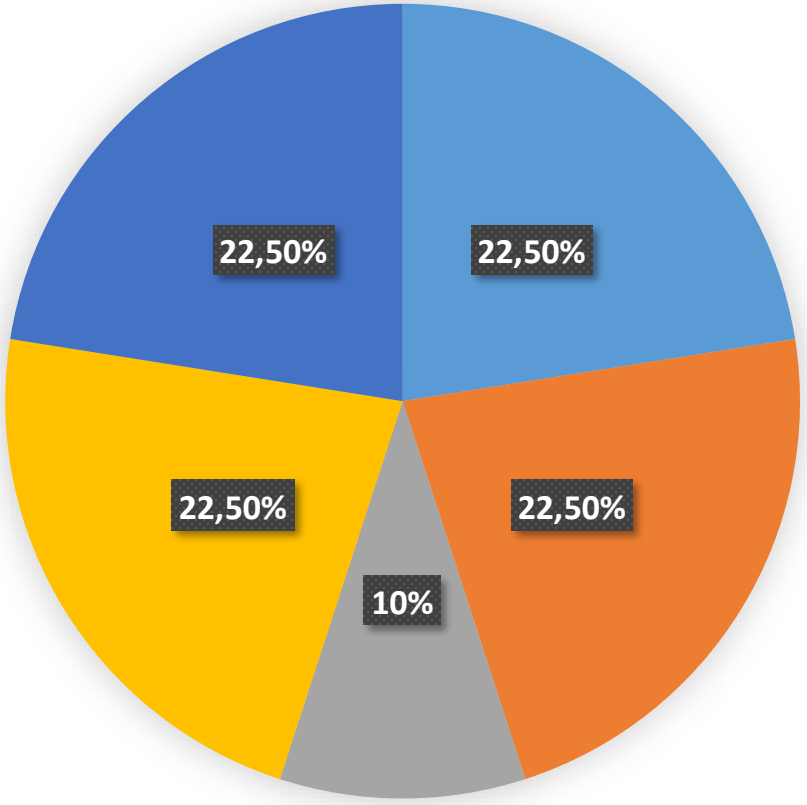
Composition 'the cooperative university'



Composition 'the societal university'



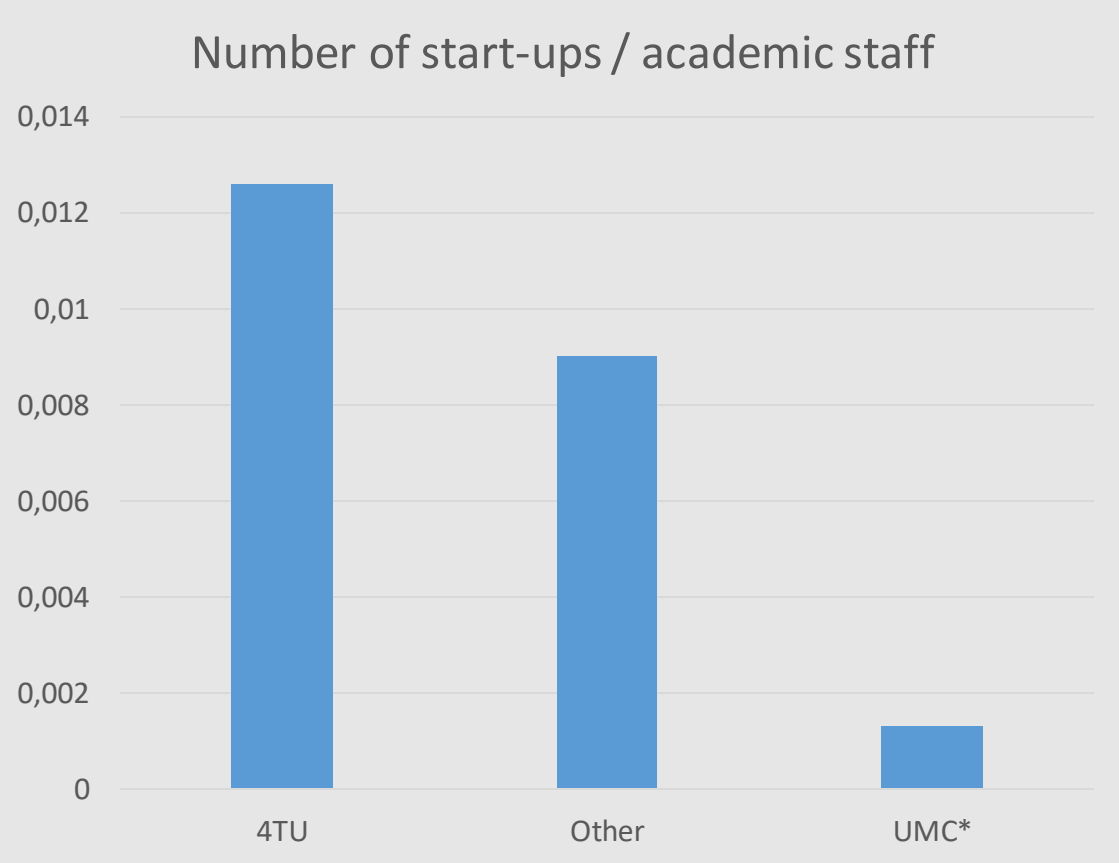
Composition 'the communicative university'



Impact performance Dutch technical universities vs other universities (2017)

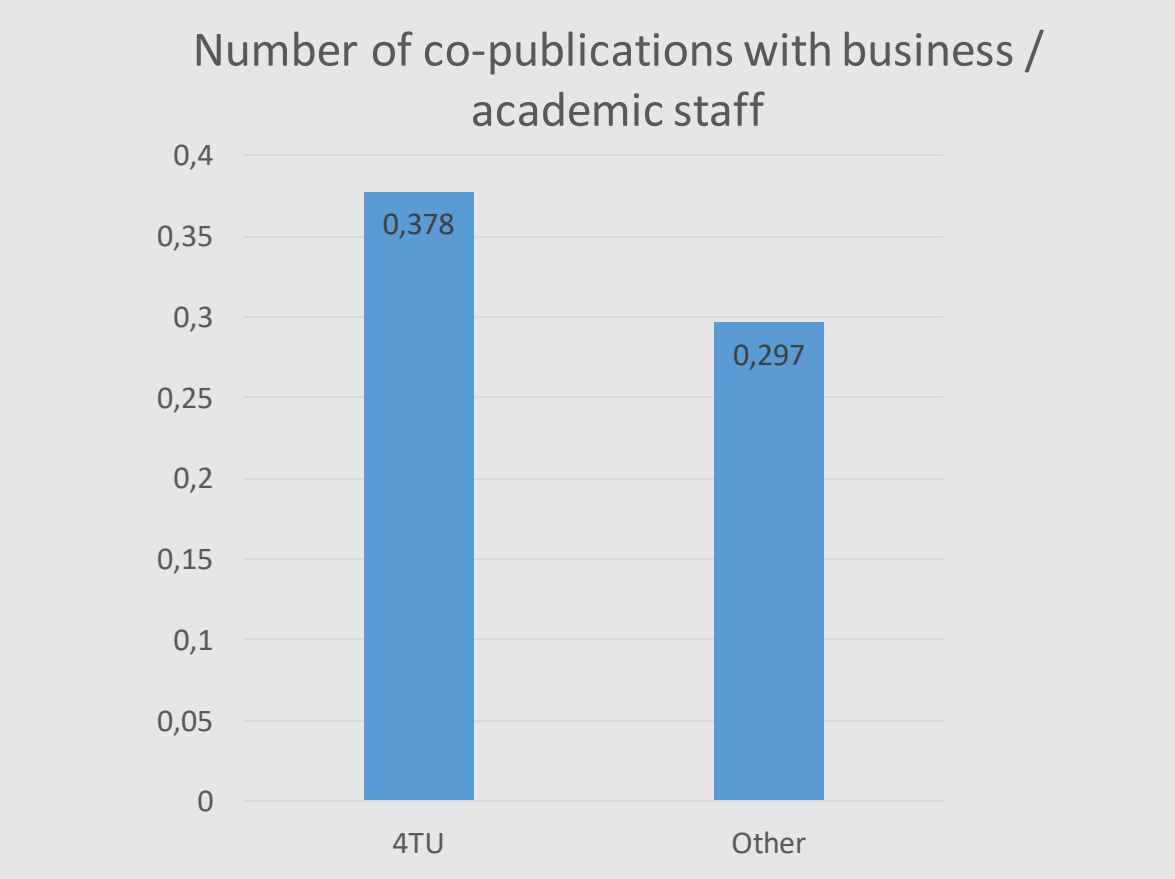
4TU.
TU Delft
WAGENINGEN UNIVERSITY & RESEARCH
TU/e
UNIVERSITEIT TWENTE.
Utrecht University
VU UNIVERSITY AMSTERDAM
TILBURG UNIVERSITY
UNIVERSITY OF AMSTERDAM
Radboud University Nijmegen, the Netherlands
Maastricht University
university of groningen
Erasmus University Rotterdam
Universiteit Leiden

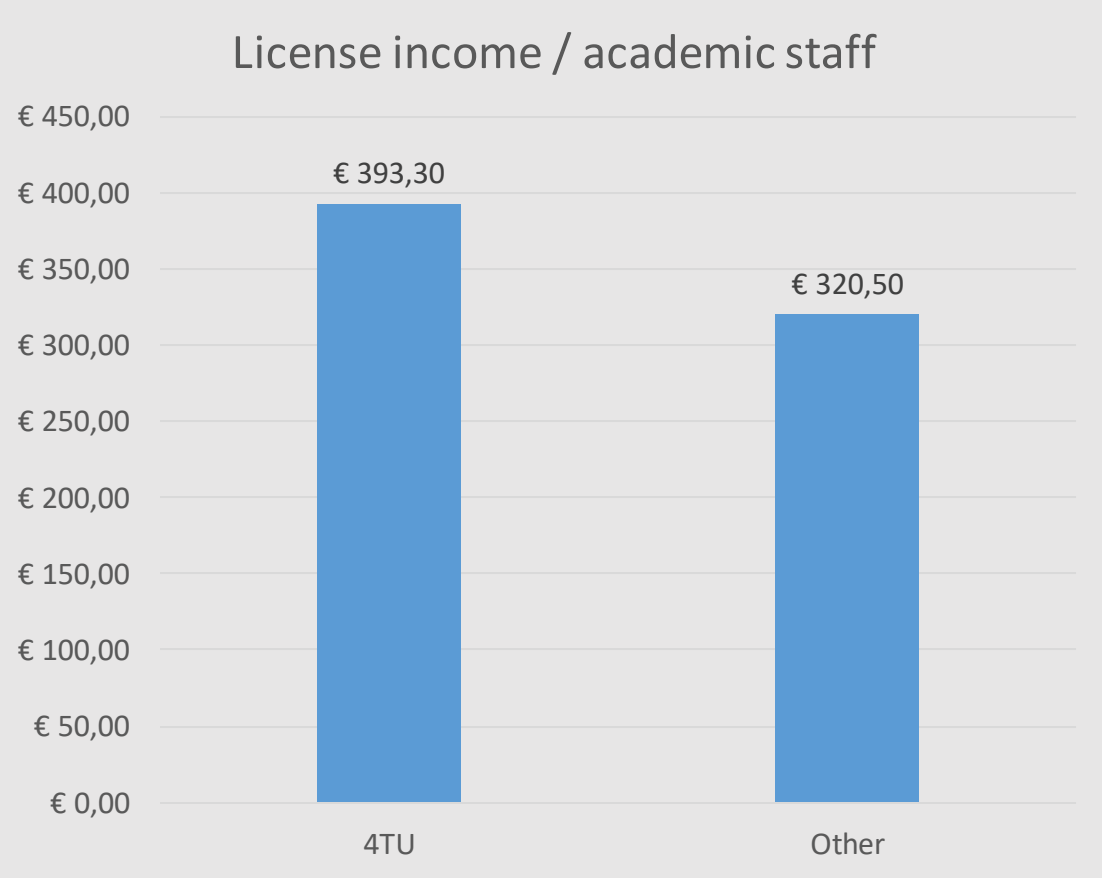
The entrepreneurial university



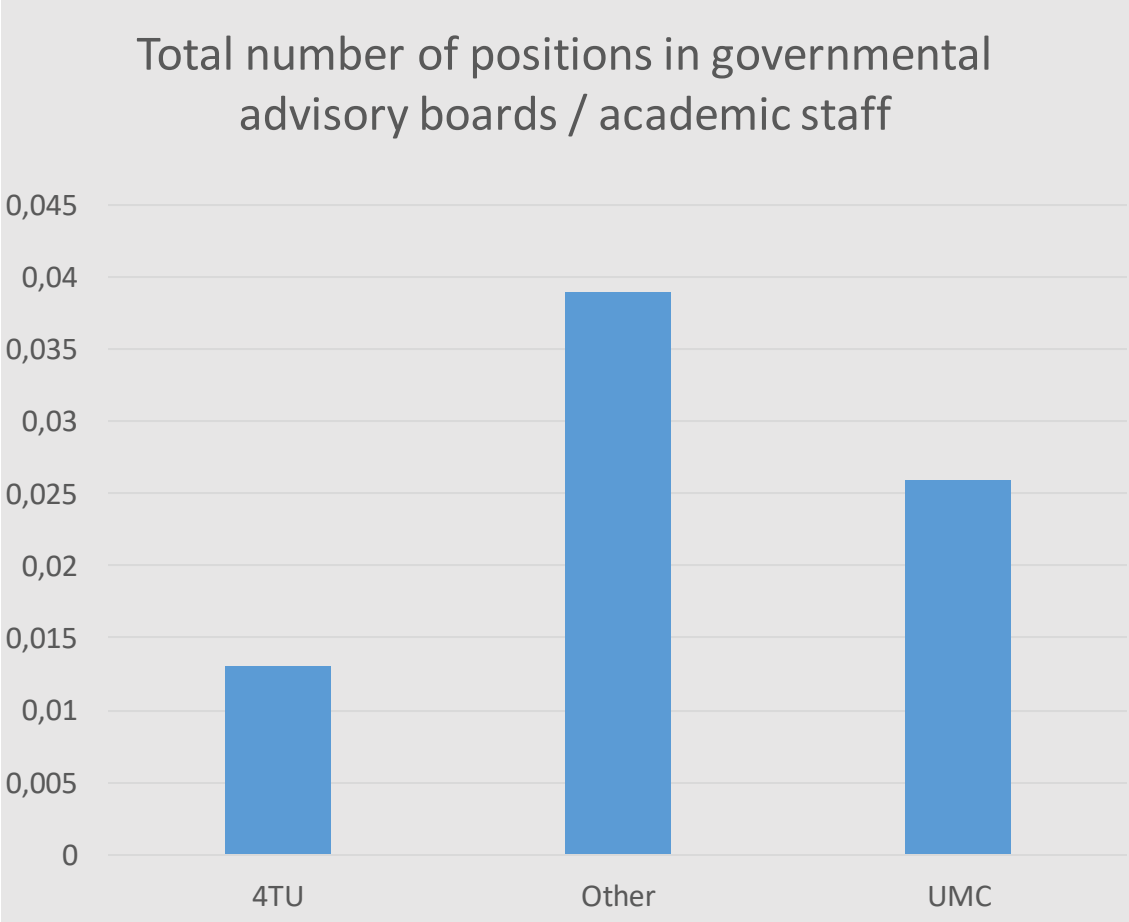
*University Medical Centre

The cooperative university

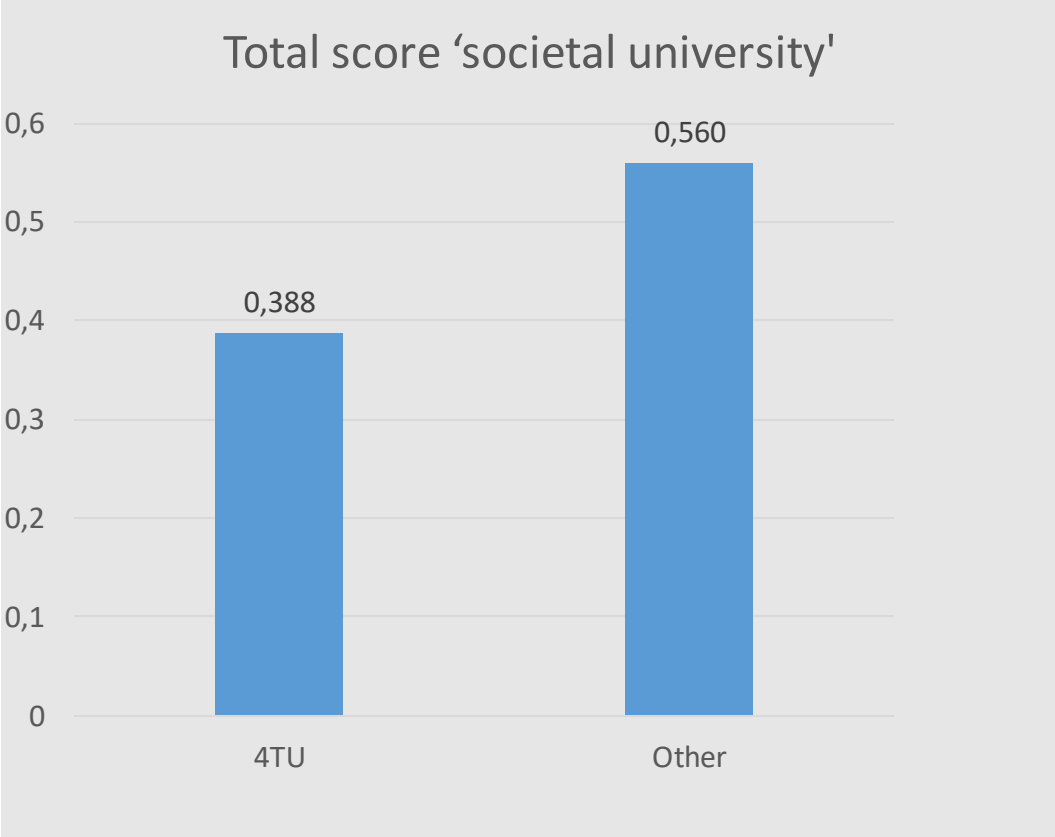


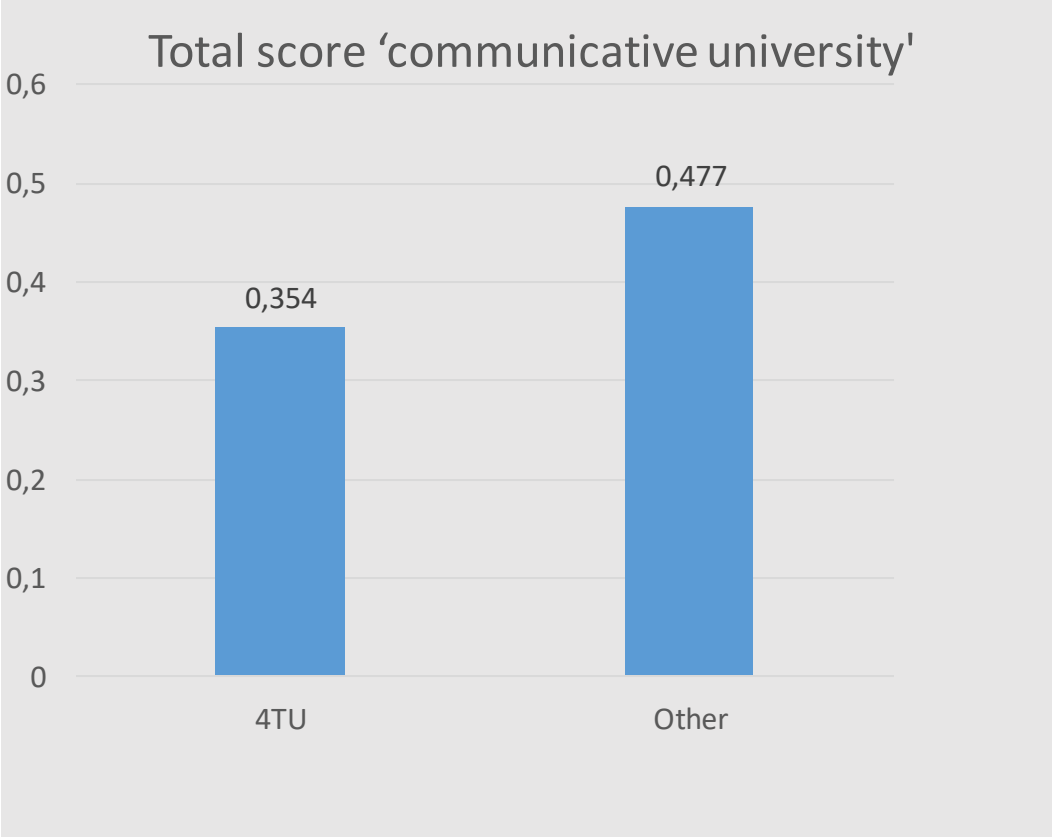


The societal university; positions in governmental advisory boards

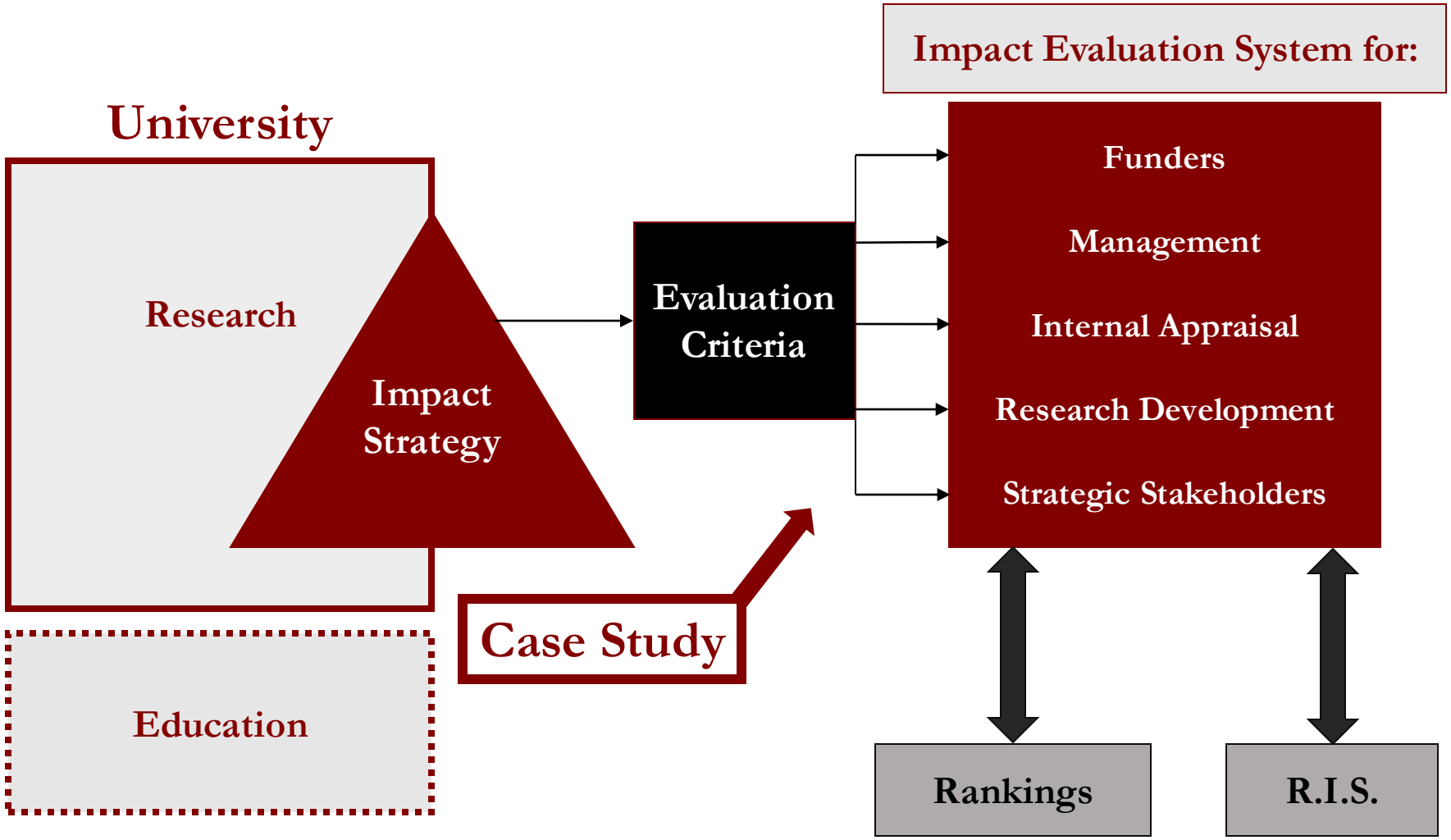


Total scores societal & communicative university





Developing an Impact Evaluation System



Issues

1: Conflicts of interest

- ✓ Societal Impact vs. Scientific quality?
- ✓ Conflicting interests of Funders:
  - ✓ Ministry of Science vs. Ministry of economic affairs
  - ✓ Regional needs vs. (inter)national needs
  - ✓ The national interest vs. Scientific integrity
- ✓ Management vision vs. Individual academic ambition

Issues

2: Impact outcomes

- ✓ The institution's profile vs. National frameworks?
- ✓ Outcome for society vs. outcome for business
- ✓ Outcome for the institute strategy vs. Rankings

Issues

3: Operationalisation

How to create a framework that:

- ✓ Aligns with your existing Research Information System or needs a new Research Information System?
- ✓ Is aware of the impact on public funding and Rankings?
- ✓ Can be integrated in your internal appraisal system?
- ✓ Is flexible to your research priorities and area's?

Methods and techniques of assessing societal impact

Ed Noijons

Senior researcher and Deputy Director of
CWTS for Projects

CWTS
Meaningful metrics

Advanced bibliometric analysis in the context of research evaluation: Area Based Connectedness (ABC) to society

Ed Noyons

AESIS Methods & Instruments for Assessing the Societal Impact of Research,
King's College London, Nov 6-8, 2019

Universiteit Leiden

Baseline

Monitoring Non-scientific impacts of actors by

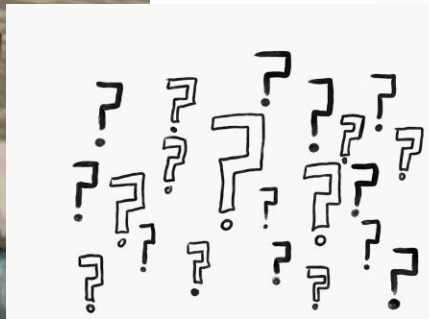
Area-Based Connectedness (ABC) to society

Data:
- Web of Science (CWTS version)
- Publication level classification
- Altmetrics data

CWTS

Key assumptions

- Societal impact too diverse and complicated to assess in a ‘traditional’ quantitative way;
- Societal connectedness may be a more productive approach;
- Connectedness (same as societal impact) is not a merit of one actor only. It is a credit of a community/ research area.



Which one is more important?

How to measure connectedness of research?

- ***Academic output*** connected to ***society***;
- Through signals between ***research outputs*** and ***society***;
- Signals from *both* sides;
- Each signal represents a certain link/ connection/ interaction, a ***dimension of connectedness***.

CWTS

Signals and dimensions

Signal	Dimension
Papers (co-)authored by industry	Industry R&D
Papers published in local languages	Local interest or focus
Papers cited by patents	Technological or commercial interest
Papers mentioned on twitter (or other social media)	Link to general public
Papers mentioned in policy documents	Relating to political issues
Papers mentioned in news	Link to general public
…	…

CWTS

How to use these signals:

Area-based connectedness

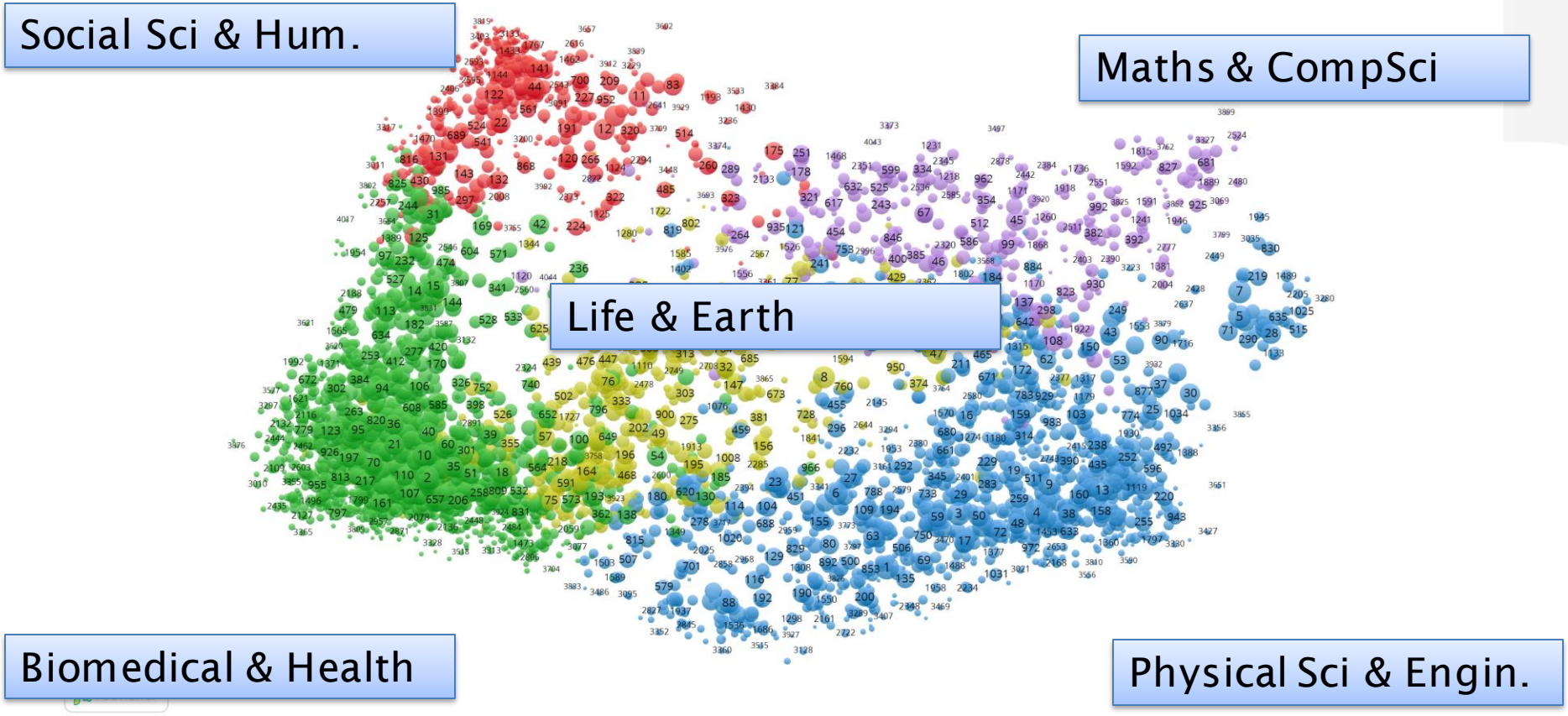
About the communities/ research areas?

- Research is a collaborative effort;
- It's the ***community*** that has impact/ is connected, ***not*** the individual actor (sandbag);
- Therefore, we should measure the interactions at the level of ***research areas*** ("walls of sandbags");
- How to define "walls of sandbags for flood defense"?

CWTS

Research areas (communities)

Consider the WoS science landscape
(publication based classification, 4000 clusters, areas)



CWTS

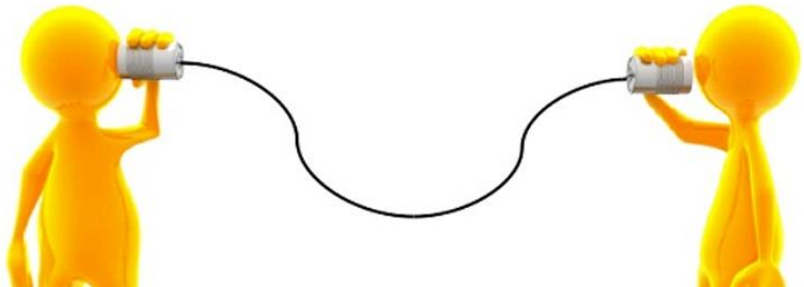
About each research area, we know:

- All info covered by its publications (journals, authors, affiliations, keywords, etc);
- **Total volume (number of P whole period);**
- Volume per year (trend);
- Other average stats (n authors, refs, affiliations, share International collaboration, …);
- Impact (overall and per year)
- Interdisciplinarity?
- Internal coverage (proxy for database coverage)
- …

CWTS

What else do we know about each cluster/area?

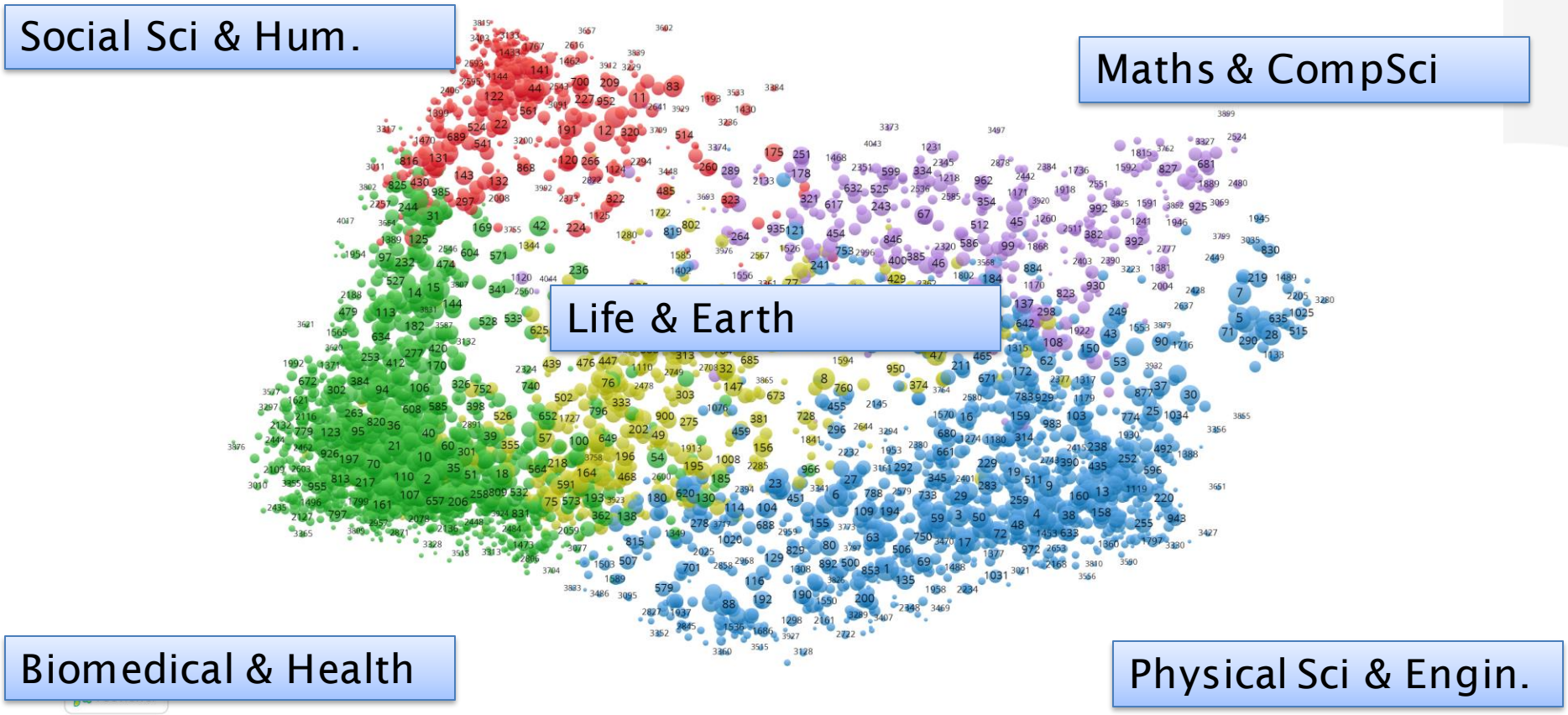
- The percentage of papers P (co-authored) by industry;
- The percentage of papers not published in English;
- The percentage of papers being cited by patents;
- The percentage of papers being tweeted;
- The percentage of papers mentioned in news items;
- The percentage of papers mentioned in policy documents;
- …



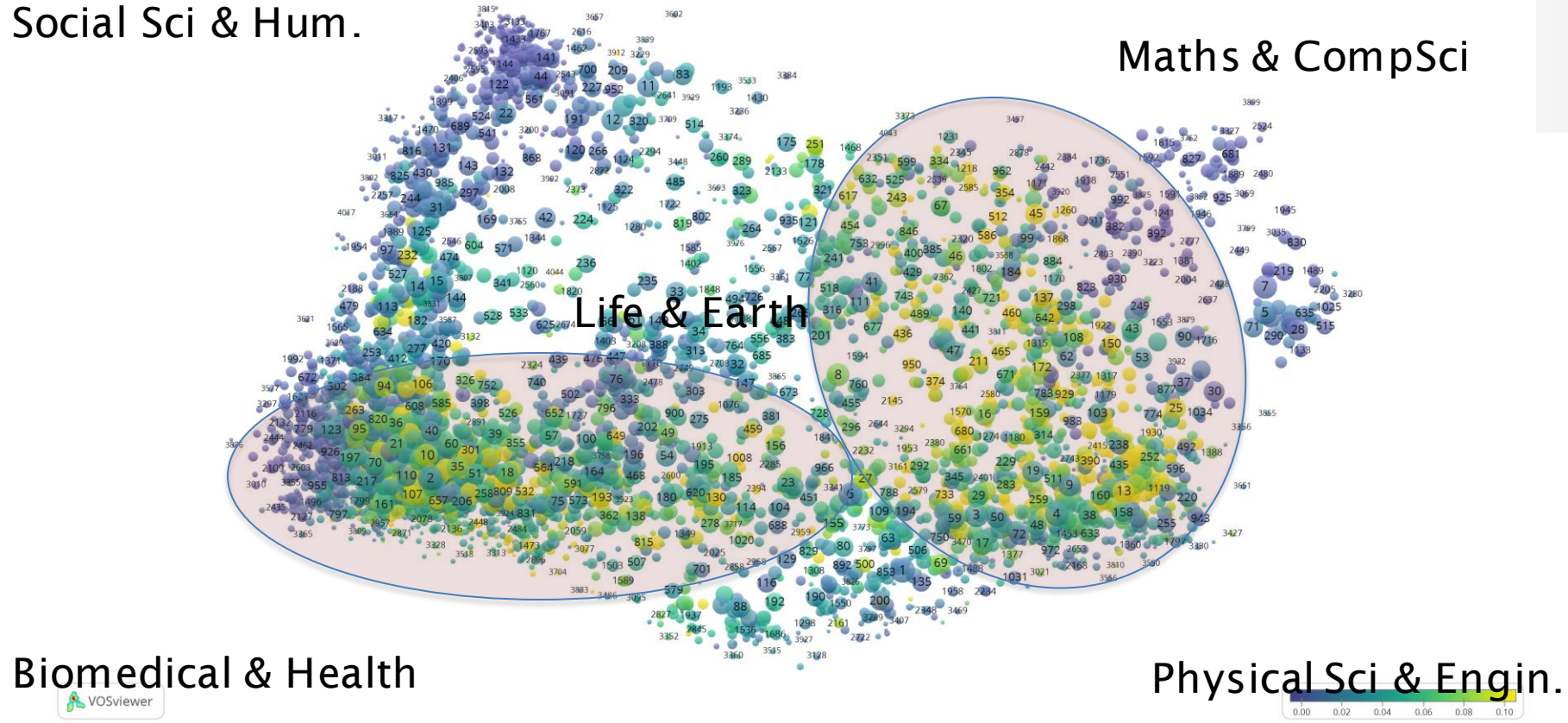
Some statistics (2014-2017) for signals

Dimension	Average WoS overall	Max value in an area
Policy	0.47%	19%
News	3.80%	49%
Industry R&D	4.53%	30%
Technology (cited by patents)	4.27%	41%
Non-English	2.99%	83%

Back to the WoS science landscape
(publication based classification, 4000 clusters)

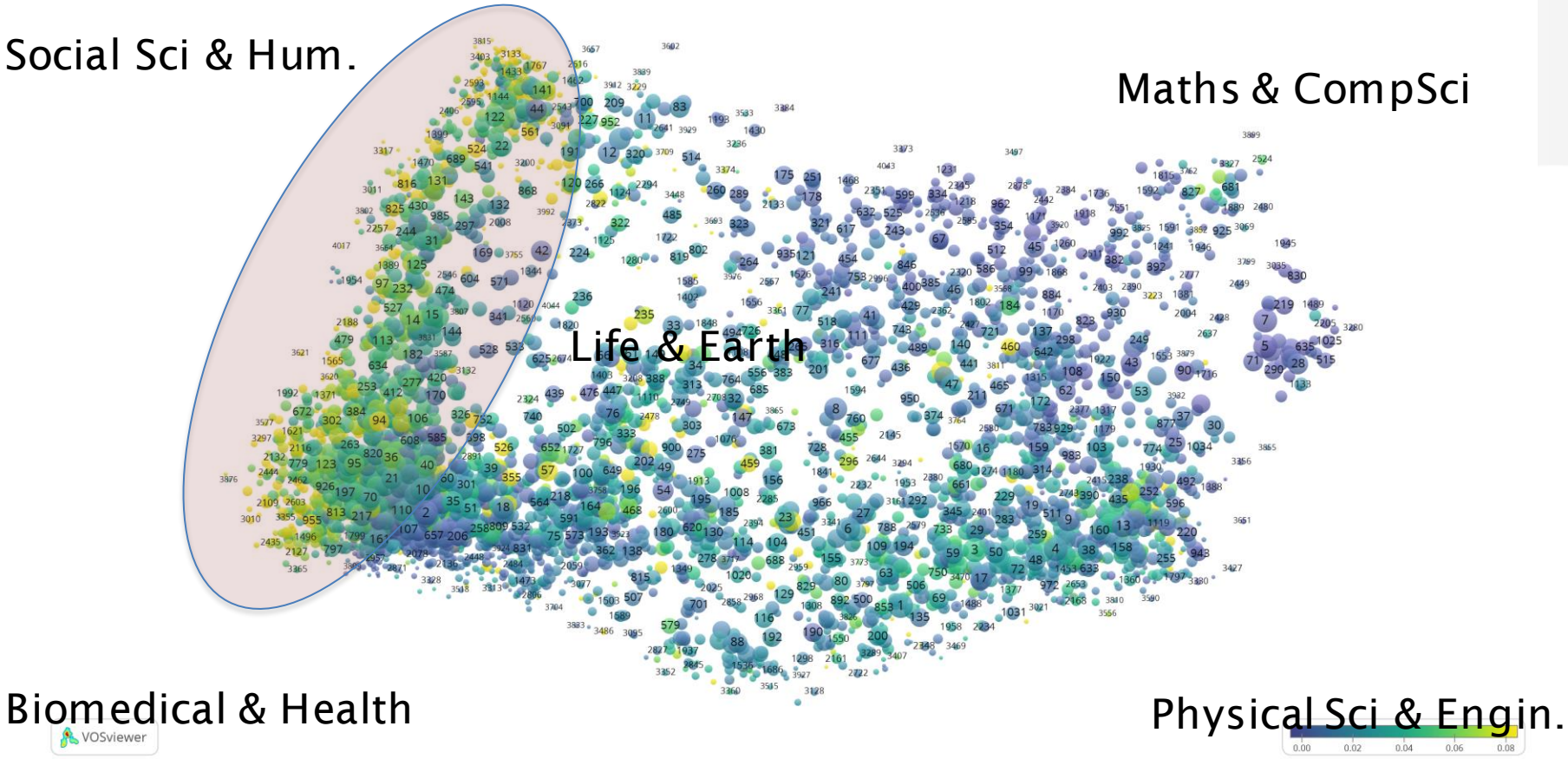


Share (co-)authored by industry



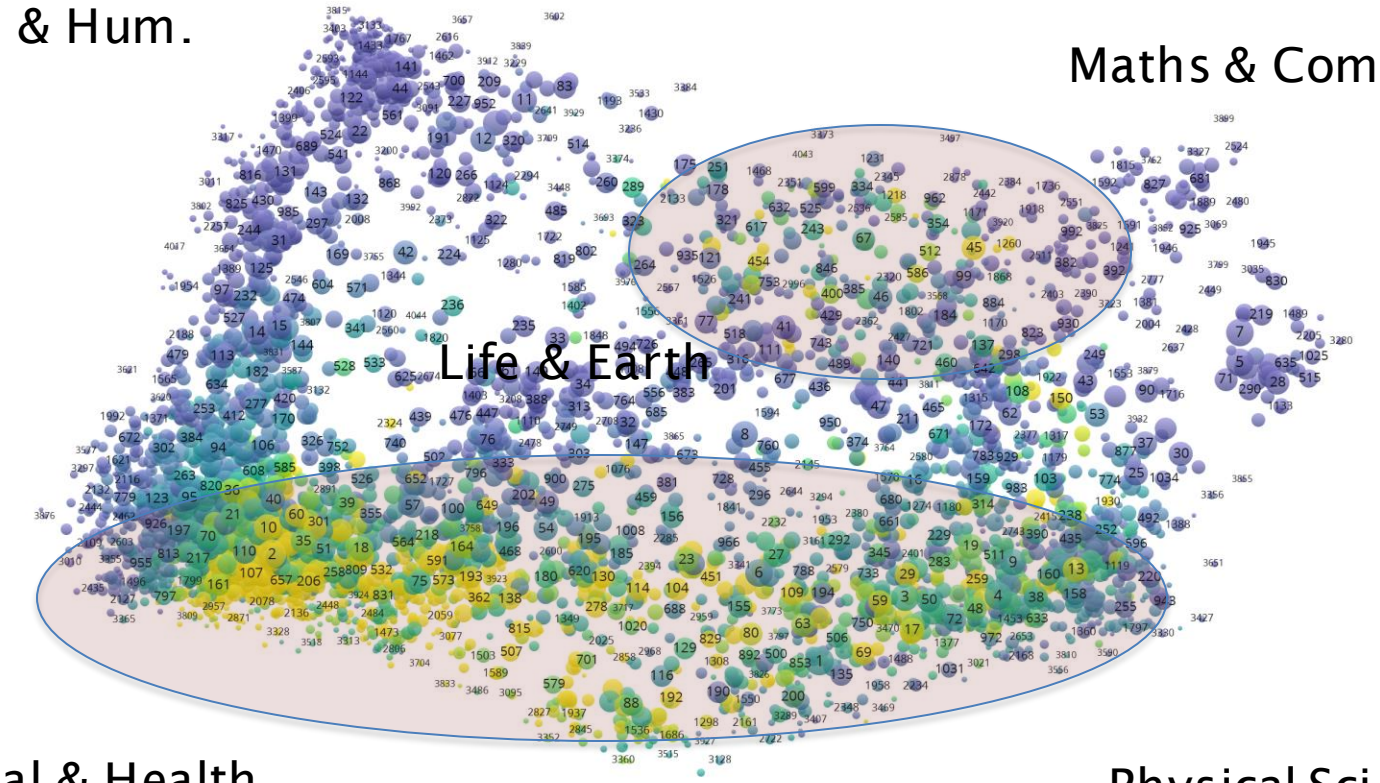
CWTS

Share of papers not in English



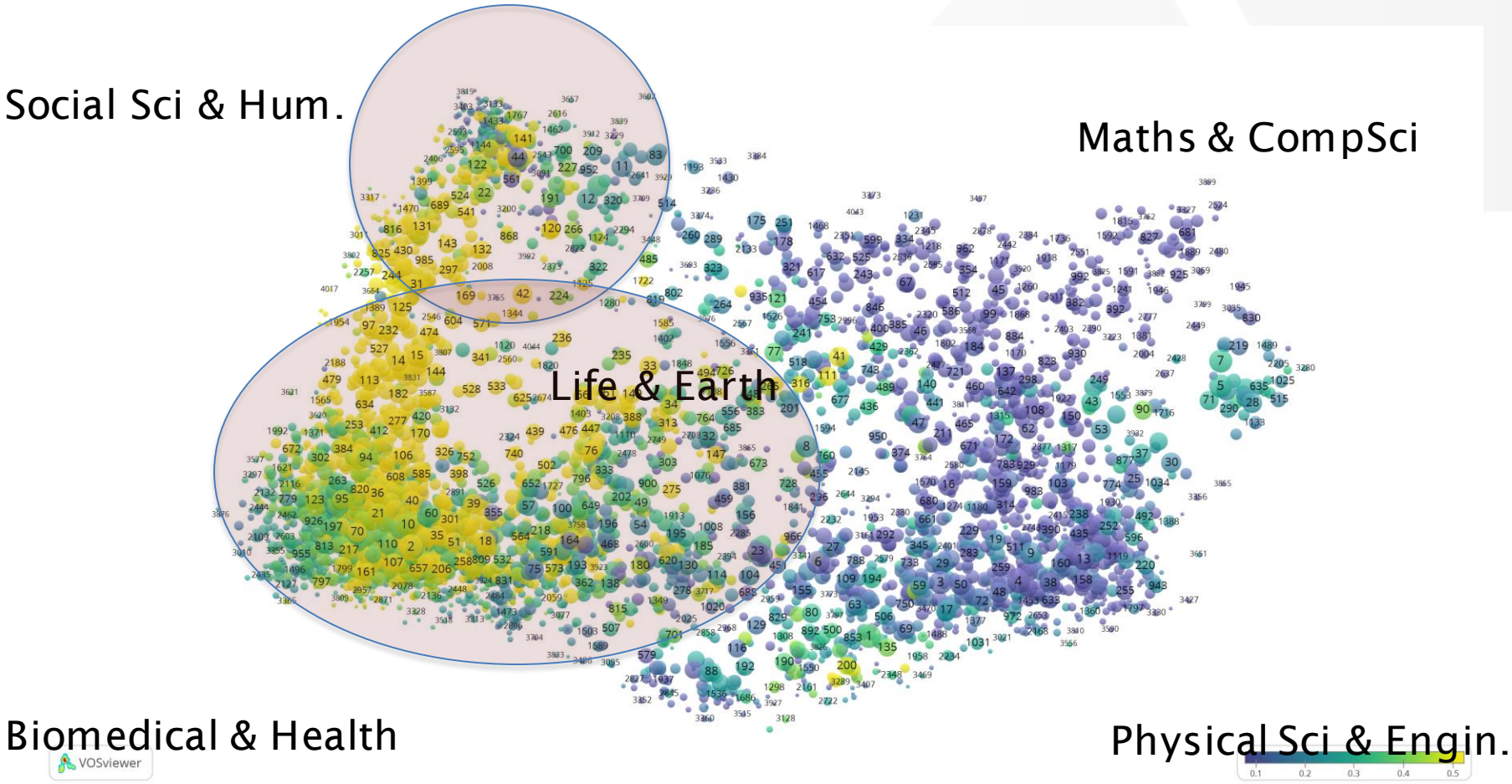
CWTS

Share of papers cited by patents



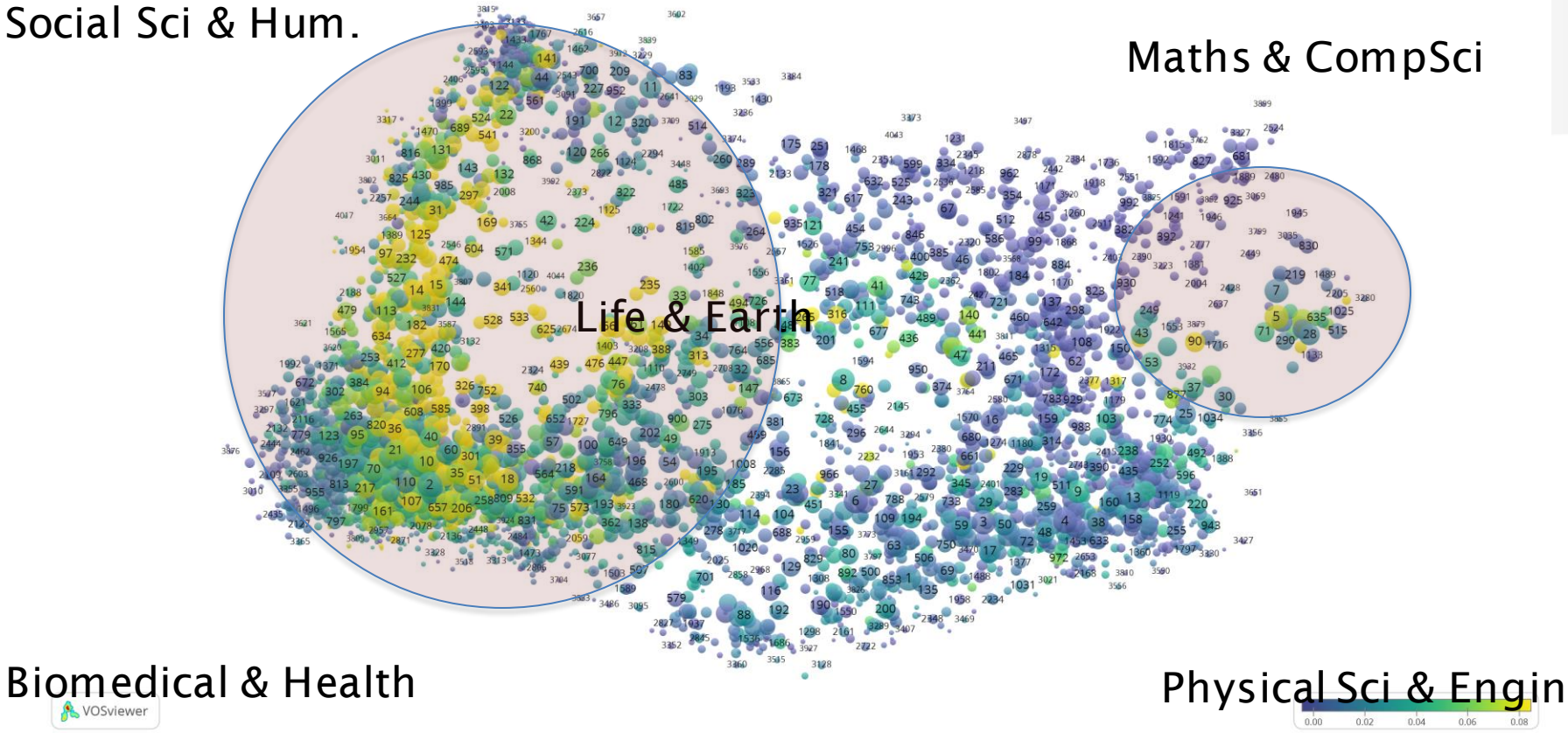
CWTS

Share of papers mentioned on Twitter



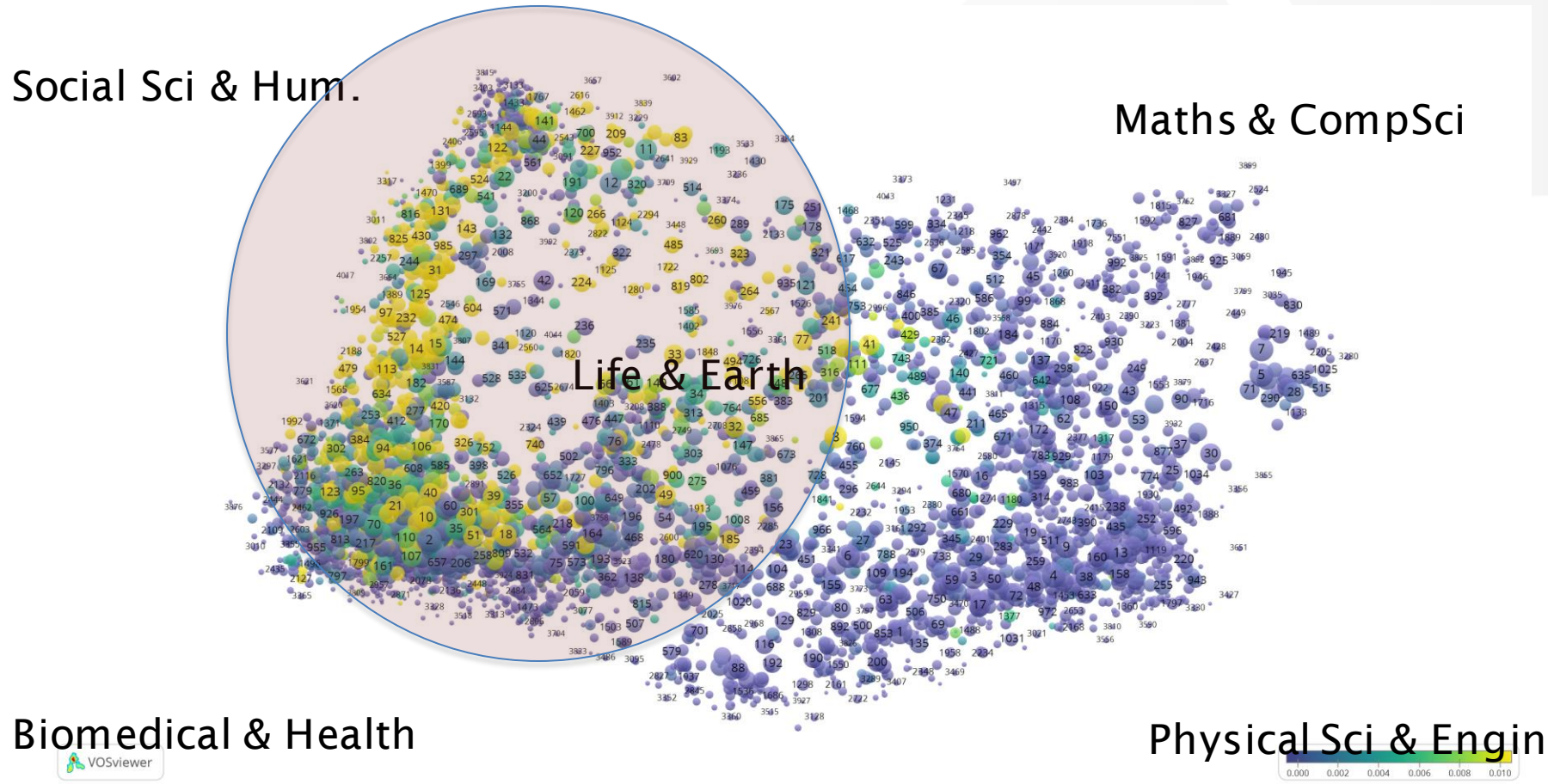
CWTS

Share of papers mentioned in News



CWTS

Share of papers mentioned in policy documents



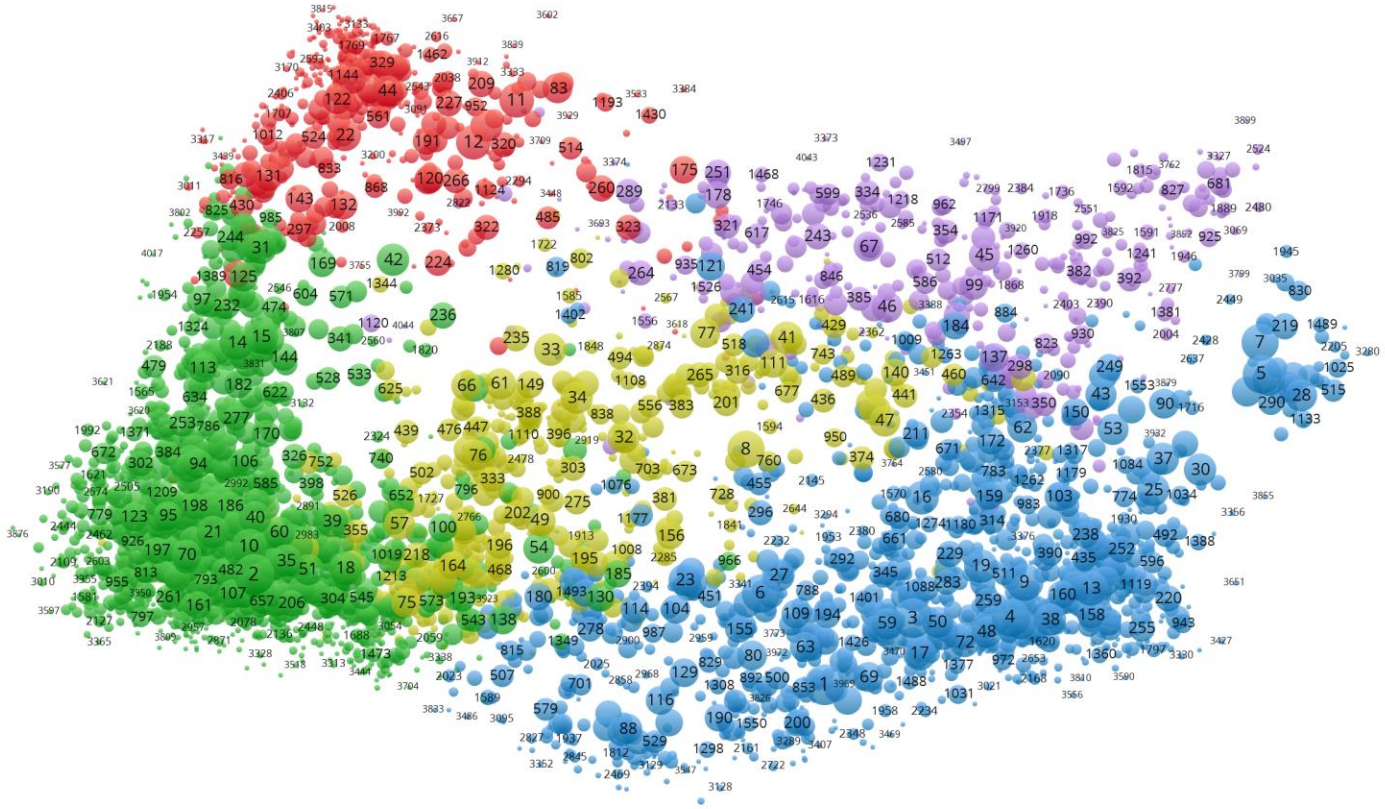
CWTS

In practice:
A case study a Faculty of Science

Faculty has 8 institutes

- Institute of Environmental Sciences
- Institute of Biology
- Center for Drug Research
- Institute of Advanced Computer Science
- Institute of Chemistry
- Institute of Physics
- Mathematical Institute
- Observatory

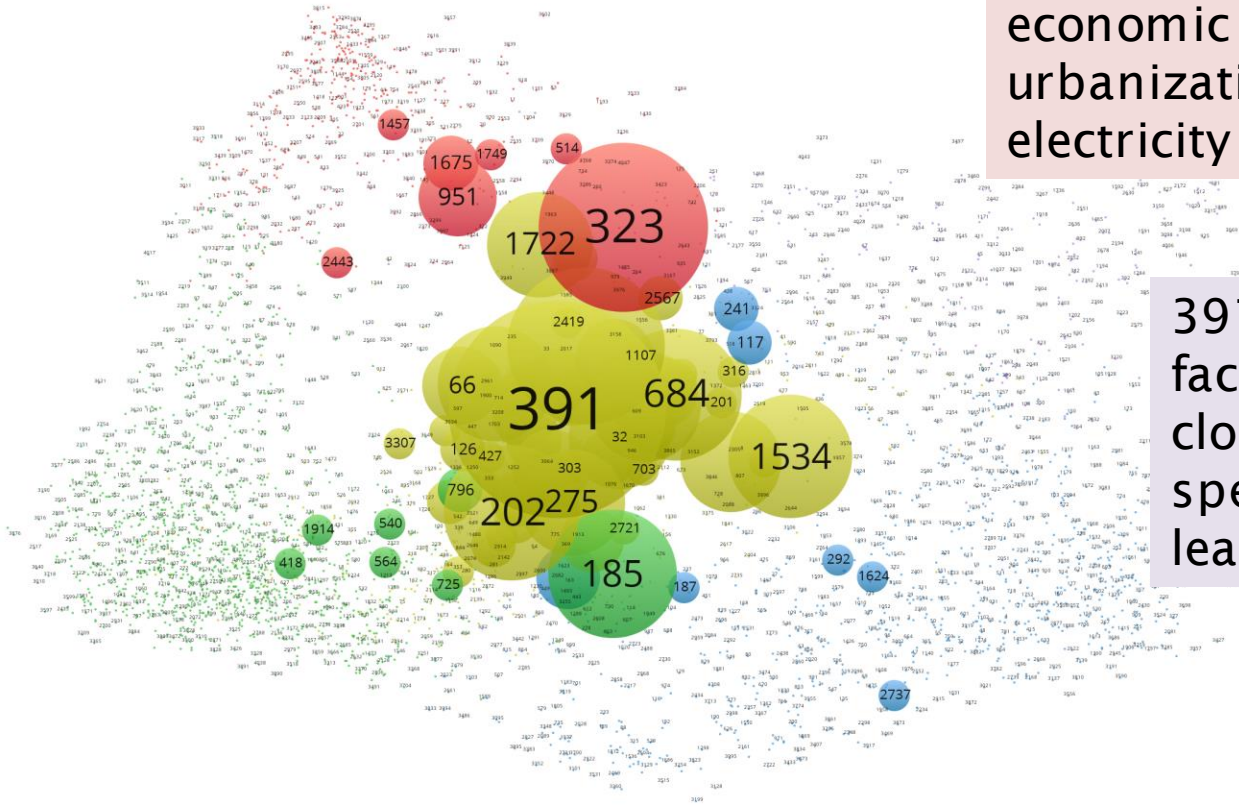
Institute of Environmental Sciences (CML)



CWTS

Institute of Environmental Sciences (CML) within the entire landscape

323 - environmental kuznets curve;
economic growth;
urbanization;
electricity consumption;

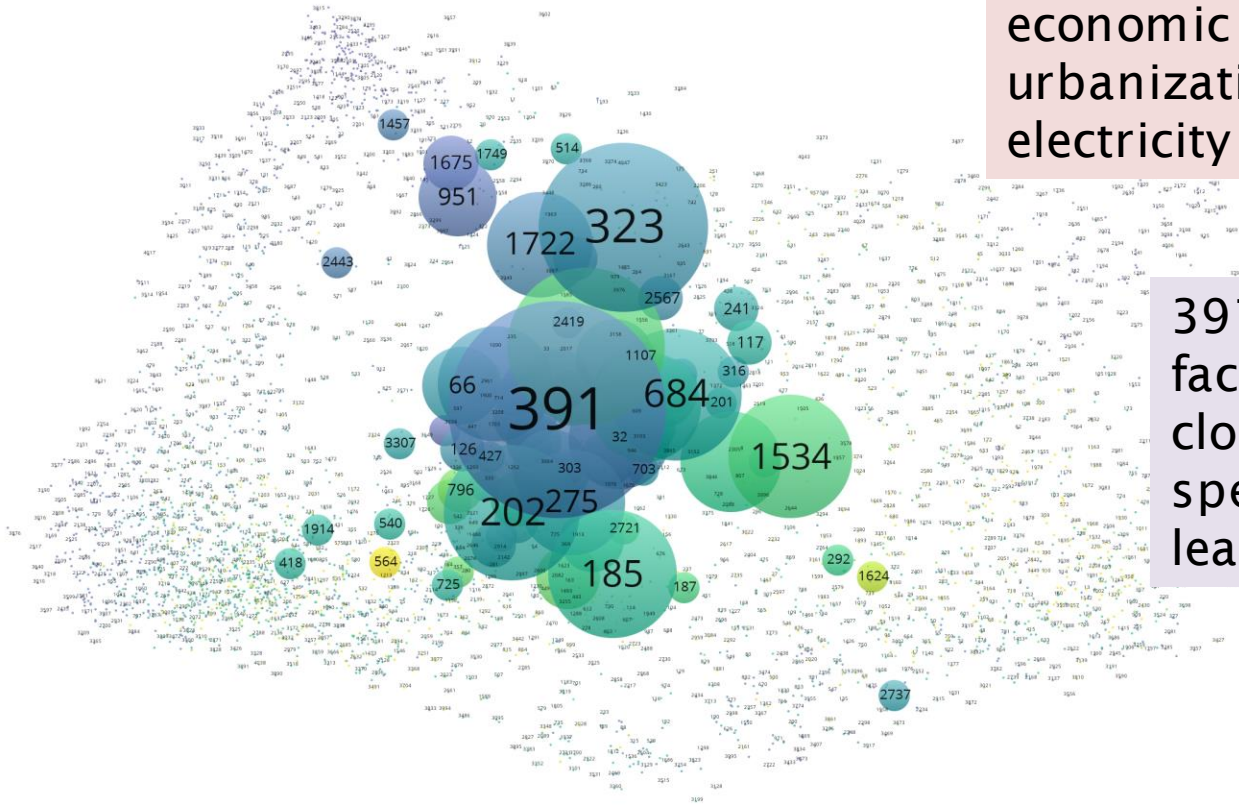


VOSviewer

CWTS

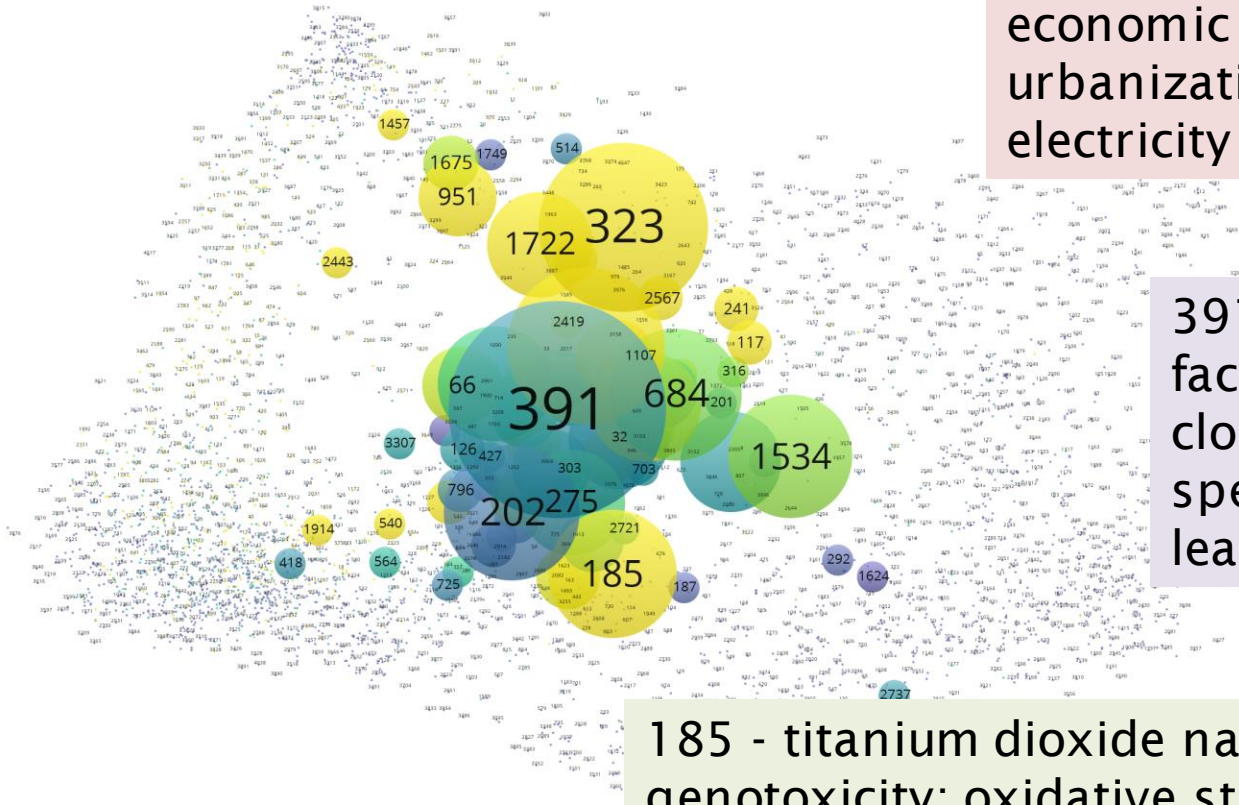
Institute of Environmental Sciences (CML) output characterized by ABC(industry)

323 - environmental kuznets curve;
economic growth;
urbanization;
electricity consumption;



Institute of Environmental Sciences (CML) output characterized by ABC(policy)

323 - environmental kuznets curve;
economic growth;
urbanization;
electricity consumption;



391 - clonal integration;
facilitation;
clonal plant;
specific leaf area;
leaf trait;

185 - titanium dioxide nanoparticle;
genotoxicity; oxidative stress;
exposure;
daphnia magna;

VOSviewer

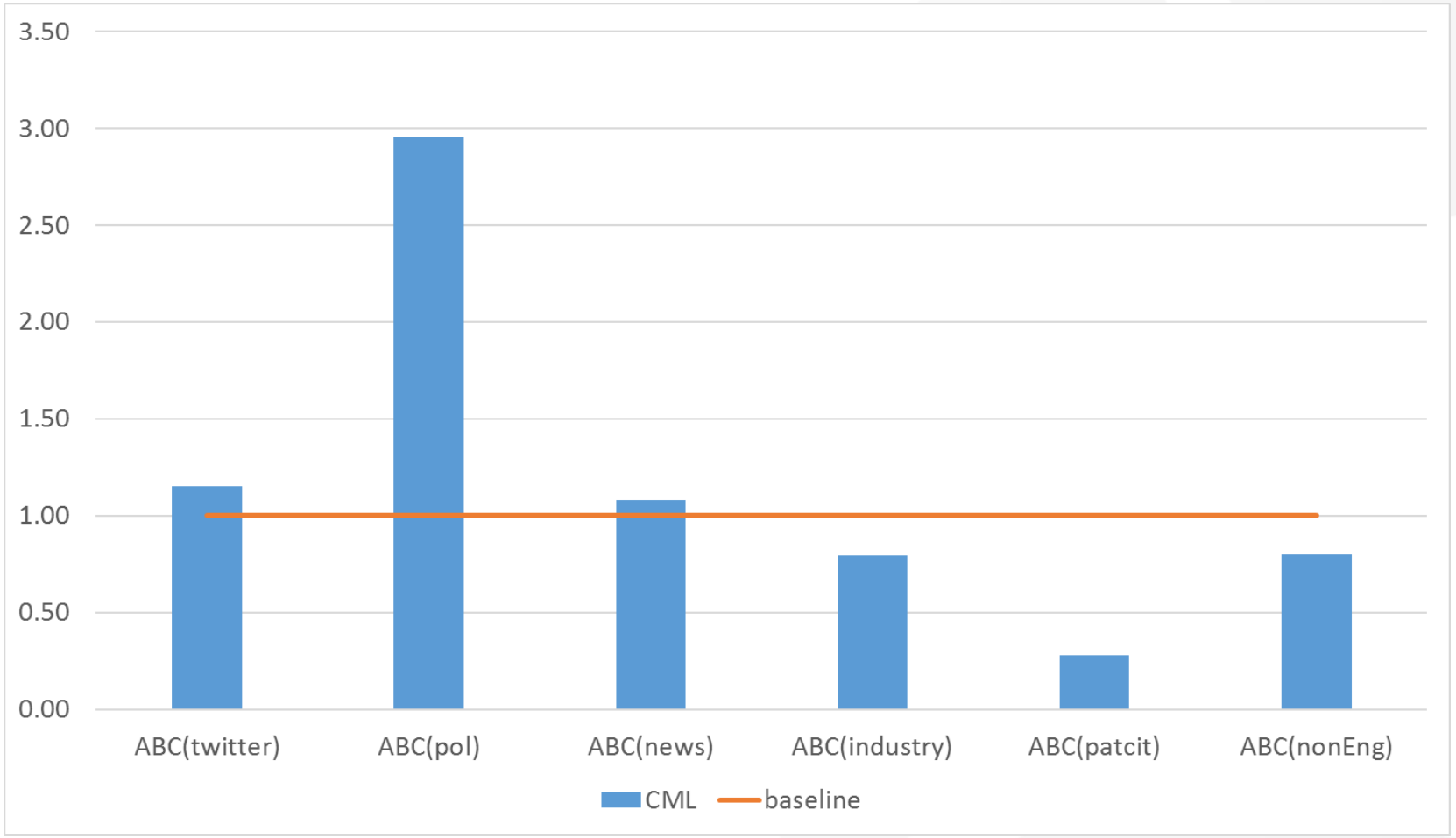
CWTS

Area-based vs actor-based

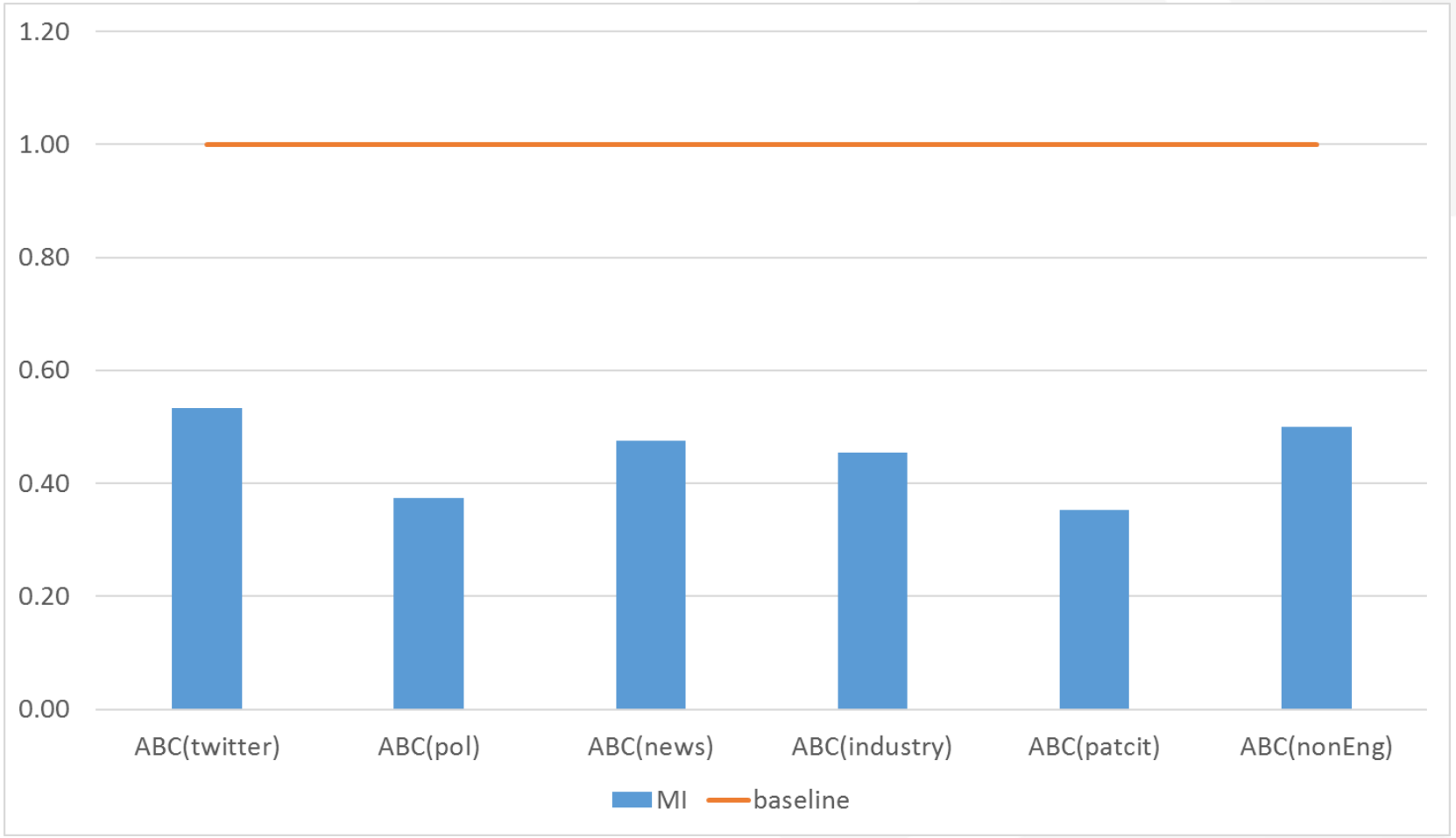
- Actor-based: share of papers from actor A mentioned in policy docs

- Area-based: output of actor A, characterized by the area Z in which A is active (inherited from Z)

ABC profile of Institute of Environmental Sciences (CML)



ABC profile of Mathematical Institute



Take away

- Altmetric data and other ***non-scholarly data*** provide a productive facility to monitor non-scientific 'impacts' of science actors using Area-Based Connectedness (***ABC***) to society;
- The ABC approach
  - Measures connectedness to society at the level of communities rather than the individual actors within;
  - Attributes more credit to content;
  - Is less vulnerable to manipulation and gaming.

End

LUNCH

12:30 – 13:30

Maximising the societal impact of research: the use of impact indicators

Simon Kerridge

Director of Research Services at the University of Kent, EARMA board member and former chair of the board of ARMA

The UK's European university

University of Kent

Maximising the societal impact of research: the use of impact indicators

Methods & Instruments for Assessing the Societal Impact of Research

AESIS

6th Nov 2019, London

Simon Kerridge
Director of Research Services

orcid.org/0000-0003-4094-3719

@SimonRKerridge

https://inorms.net/activities/raaap-taskforce/

Steering Committee CASRAI

Board Alternate, EARMA

Immediate Past Chair, ARMA

Simon

University of Kent

- Ex Entrepreneur
- Ex Researcher
- Research Manager and Administrator
  - Entrepreneurial
  - Researching
  - Teaching

- Open Research Advocate
- Metric Tide
- Research Administration as a Profession (RAAAP)
- JHU Masters in Research Administration
- Journal of Research Management and Administration

Simon

1987: Graduated (Natural Sciences)

1987-1990: Didn't become Bill Gates

1990-1994: Researcher (Durham) x3 projects

1994-1995: Researcher (Sunderland) x3 projects

[including securing an additional partner]

1995-2012: Its complicated

2012-Present: Director of Research Services, University of Kent, UK

Maximising the societal impact of research: the use of impact indicators

- Institutional Impact Strategy
  - Responsible Metrics
- Snowball Metrics
  - As an example of pathways to impact
- Vertigo Ventures
  - As an example of evidencing impact

Institutional Impact Strategy

- A brief reprise of
  - What impact is
  - What it isn't
  - How to facilitate it
- How to assess it
- Thanks to Dr Julie Bayley, University of Lincoln

What is research impact?

‘For the purposes of the REF, impact is defined as an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia’

Research England (REF)

'the demonstrable contribution that excellent research makes to society and the economy‘

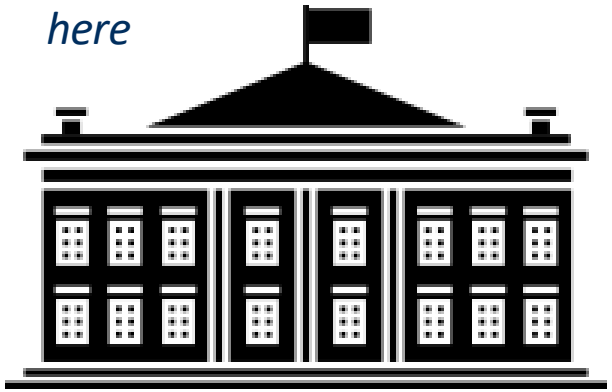
UK Research and Innovation

The provable effects (benefits) of research in the ‘real world’

Increased – Improved – Faster – Safer – Reduced – More – Cheaper – Less – Lower – Disrupted etc

The VERY shorthand version *(*overly simplified and subject to disciplinary nuance, critical discourse, ethical reflections…..)*

Research conducted here



University

"The wall"

Effects felt here

Society

Impact is change (e.g.)

Reduced, less, lower…

Mortality

Waste

Risk

Cost

Staff turnover

Stress

Crime

Efficiency

Effectiveness

Wellbeing

Engagement

Access

Sales

Profit

Skills

Improved, more, faster, increased….

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Impact is not….

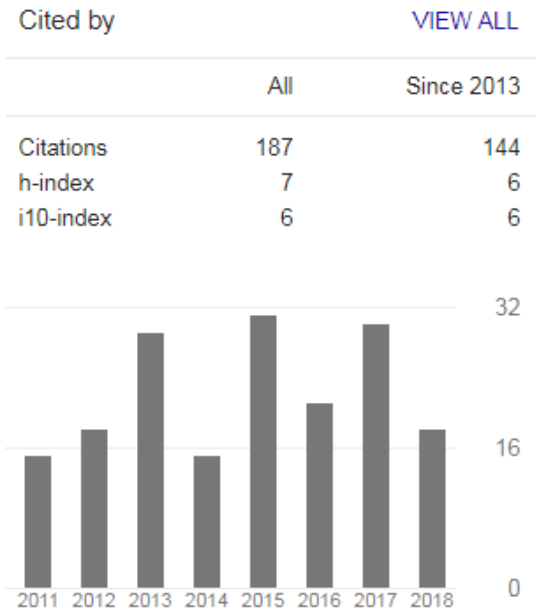
☒ Dissemination

☒ Academic interest, citations, or publications metrics

☒ Visibility, attention or reputation

☒ Neat, linear or without effort

☒ Just in the UK



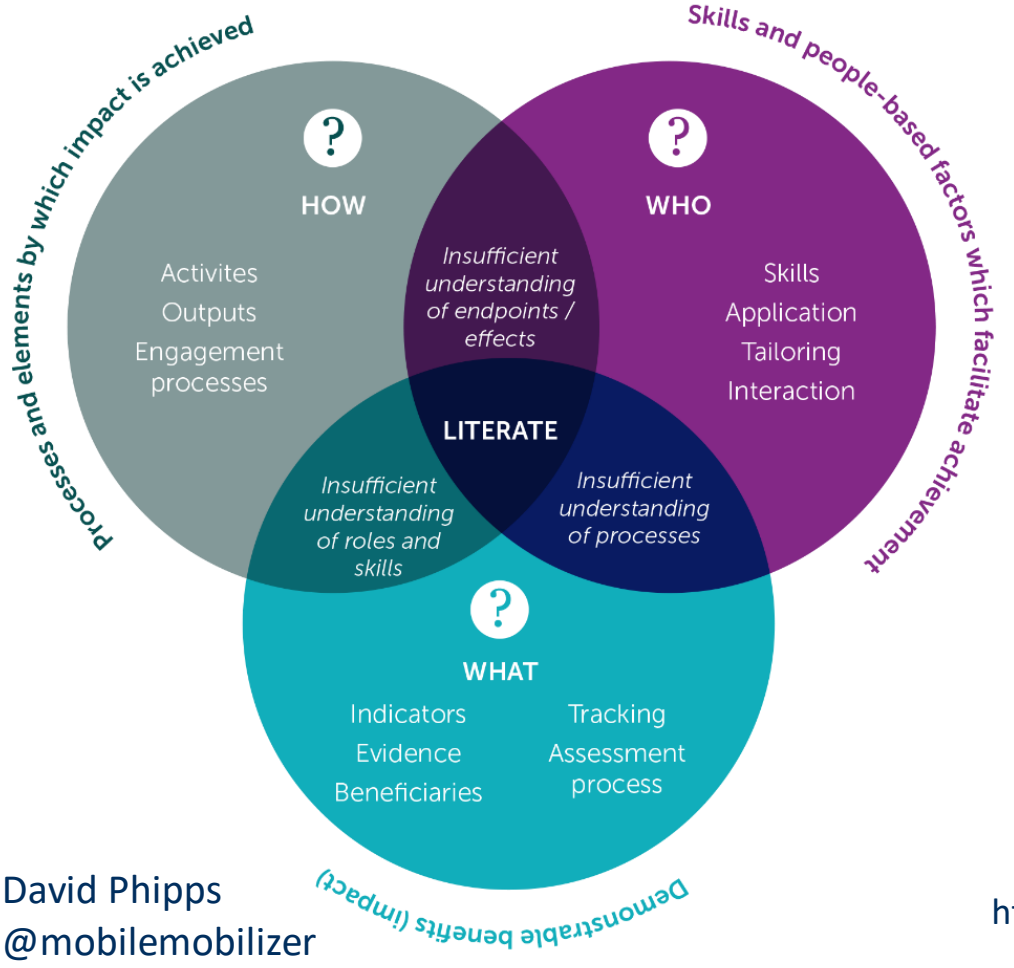
REF2021 Research Excellence Framework

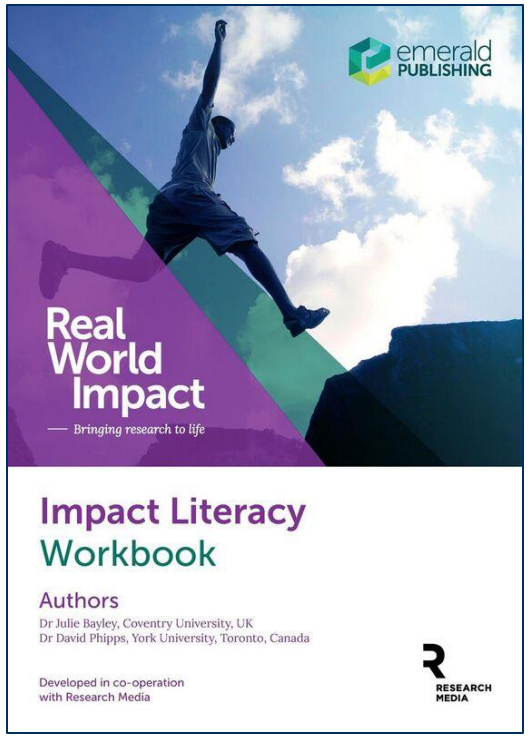
- Case studies describing specific examples of impacts achieved during the assessment period **(1 August 2013 to 31 July 2020),** underpinned by research at the institution in the period **1 January 2000 to 31 December 2020.**
- Marked on reach and significance
- Ratings: Unclassified (no impact/ineligible) to 4* (Outstanding)
- Worth 25% of total score

5 Impact Lessons

1. We are all custodians of impact; we each have a piece of the puzzle

Impact literacy





David Phipps
@mobilemobilizer

Available at
https://www.emeraldpublishing.com/resources/

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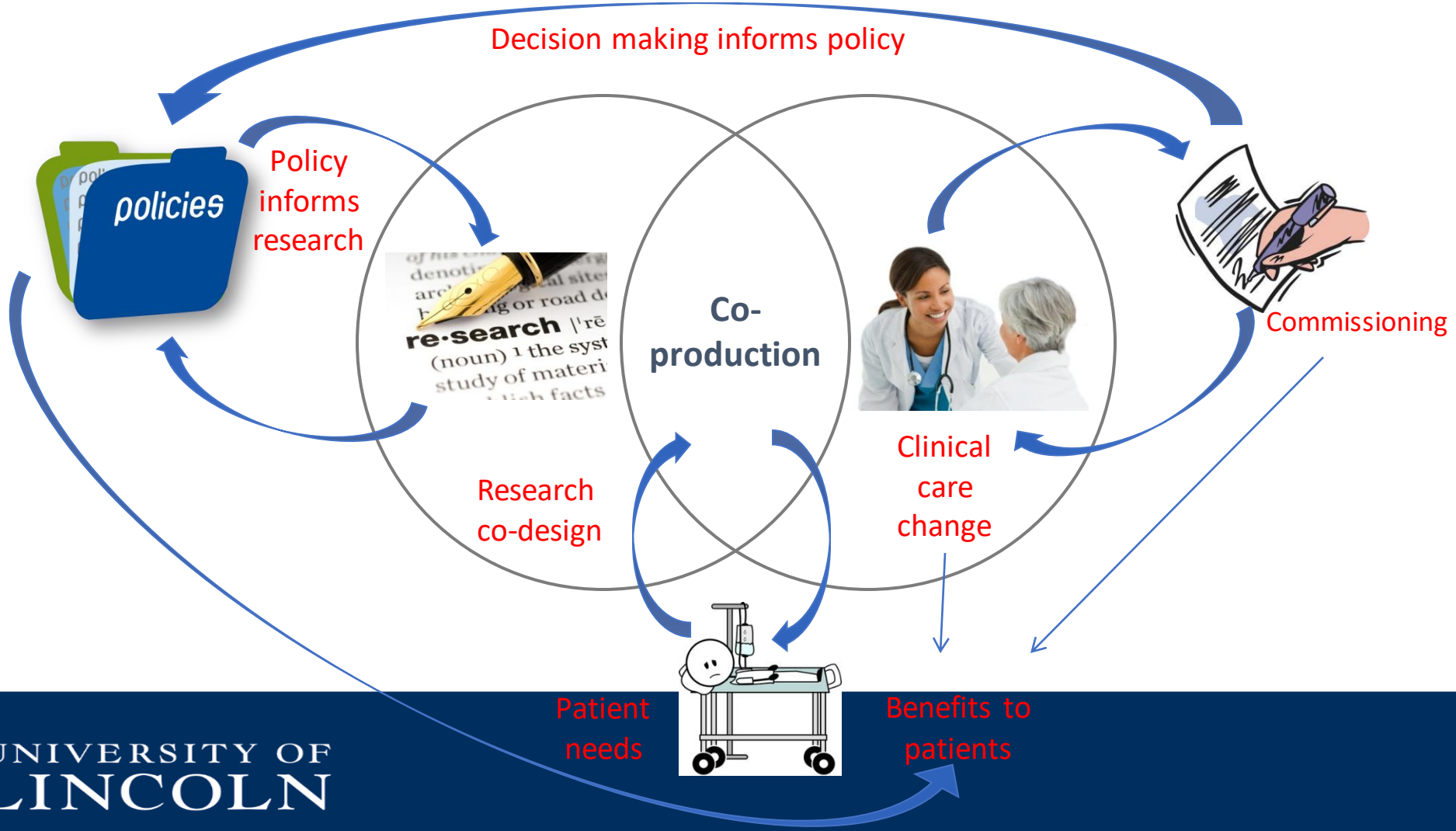
Bayley, J. and Phipps, D. (2017) *Building the Concept of Impact Literacy, Evidence and Policy (available online)* http://www.ingentaconnect.com/content/tpp/ep

Recognising complexity……

Knowledge transfer

Knowledge exchange

Knowledge mobilisation



2. We often speak different languages

Bibliometrics vs. impact measures

Bibliometrics

Demonstrate the scholarly attention for a research output

- Citations based metrics *(eg. citations, H index, field weighted citation impact, percentile rankings)* calculate influence by the number of citations against certain benchmarks.
- The basic unit of measurement therefore is the level of *academic referencing.*
- Bibliometrics do not demonstrate change

Impact measures

Demonstrate the nature and extent of research-led changes (impacts) beyond academia

- Impact does not always arise from a specific output; may be achieved through wider engagement during the research process
- Impact measures may be quantitative or qualitative
- Measurement is of anything which demonstrates change beyond academia, arising from research

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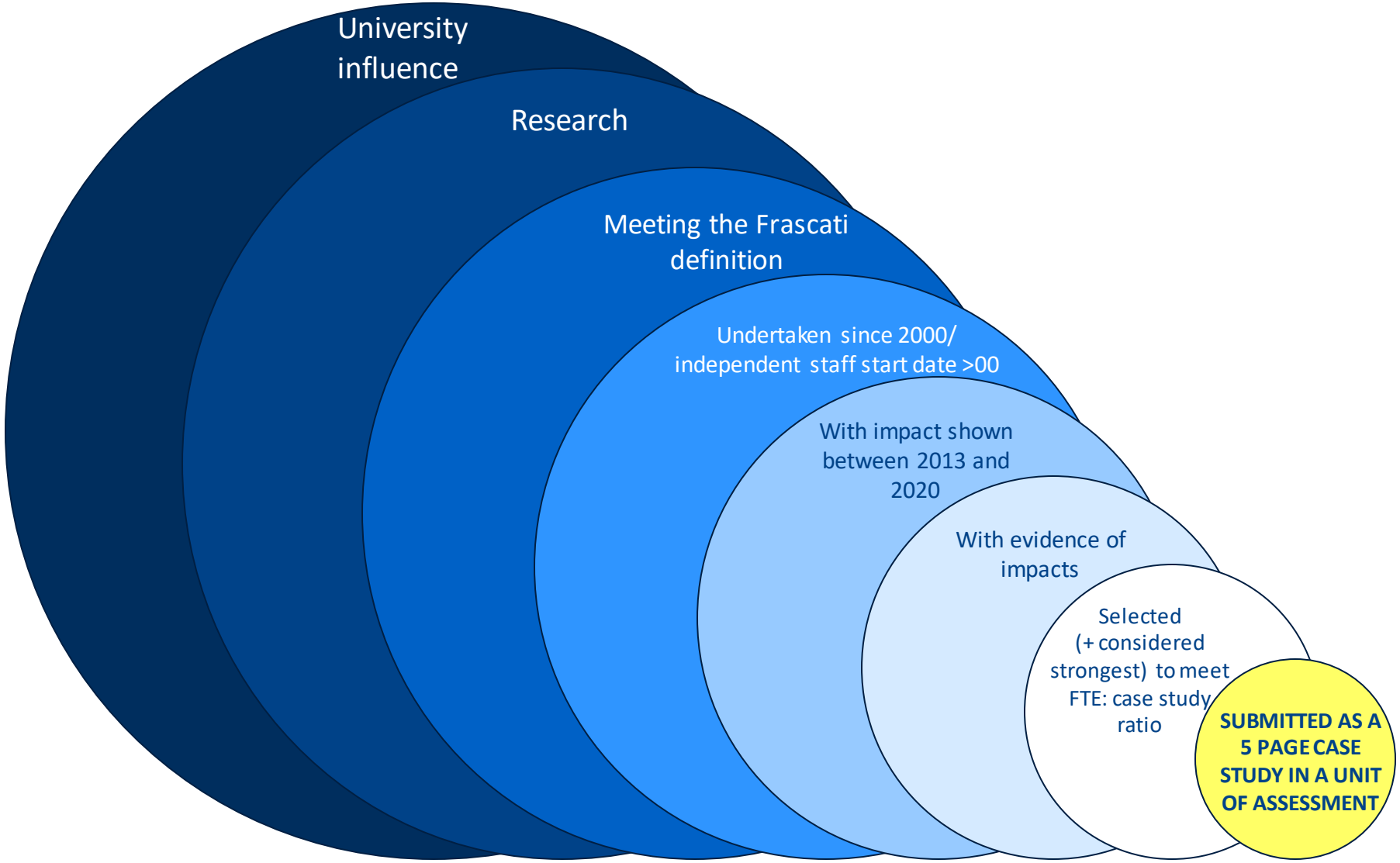
University influence vs. REF impact



3. Impact case studies show the sausages, not the sausage factory

Challenges

- Impact resists templating
- Assumption the problem is ‘lack of knowledge’
- Requires time and effort
- Requires knowledge broker and translation skills
- Insufficient implementation planning
- Can be an afterthought
- May meet with resistance

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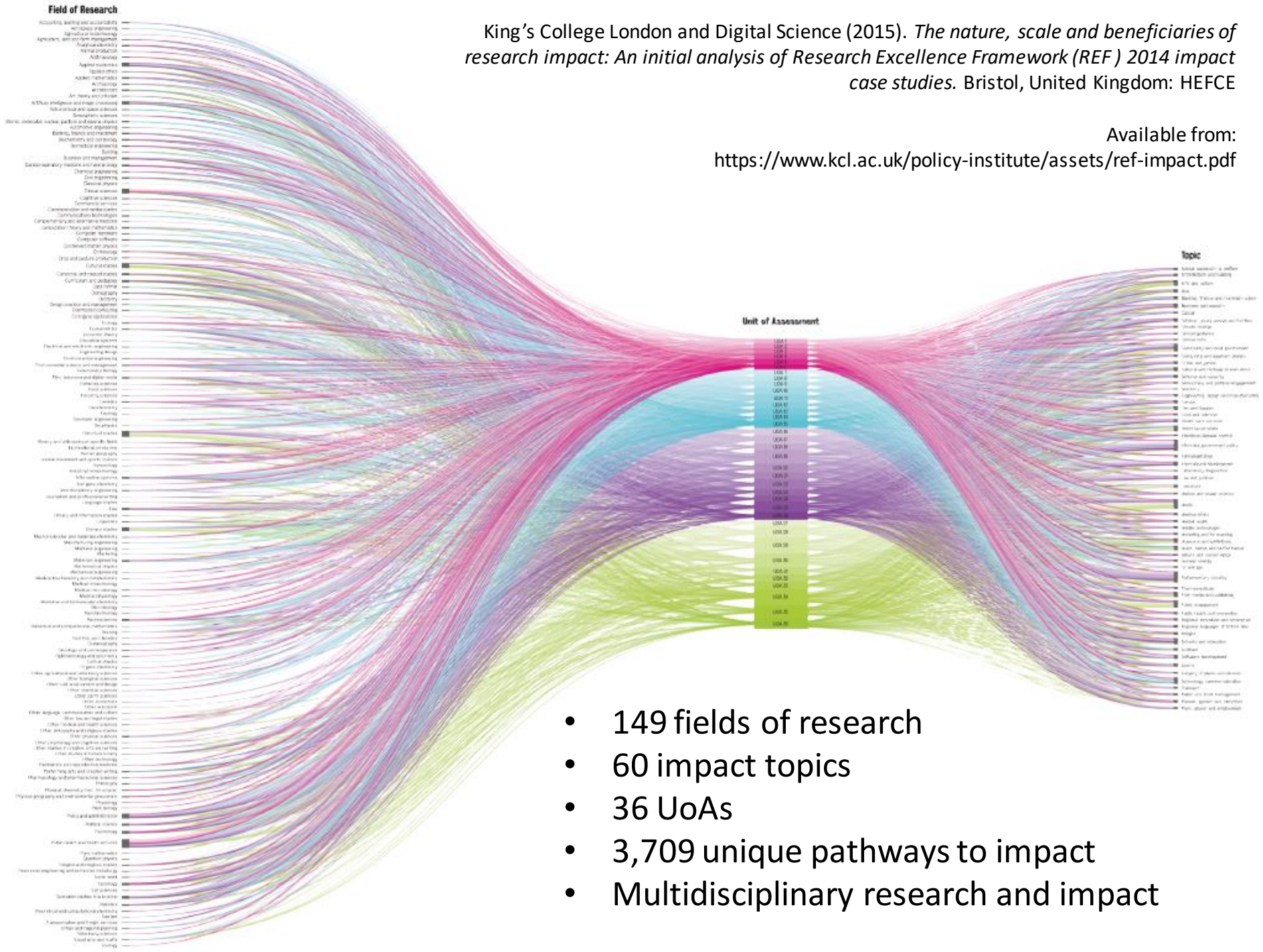
King's College London and Digital Science (2015). *The nature, scale and beneficiaries of research impact: An initial analysis of Research Excellence Framework (REF) 2014 impact case studies.* Bristol, United Kingdom: HEFCE

Available from:
https://www.kcl.ac.uk/policy-institute/assets/ref-impact.pdf



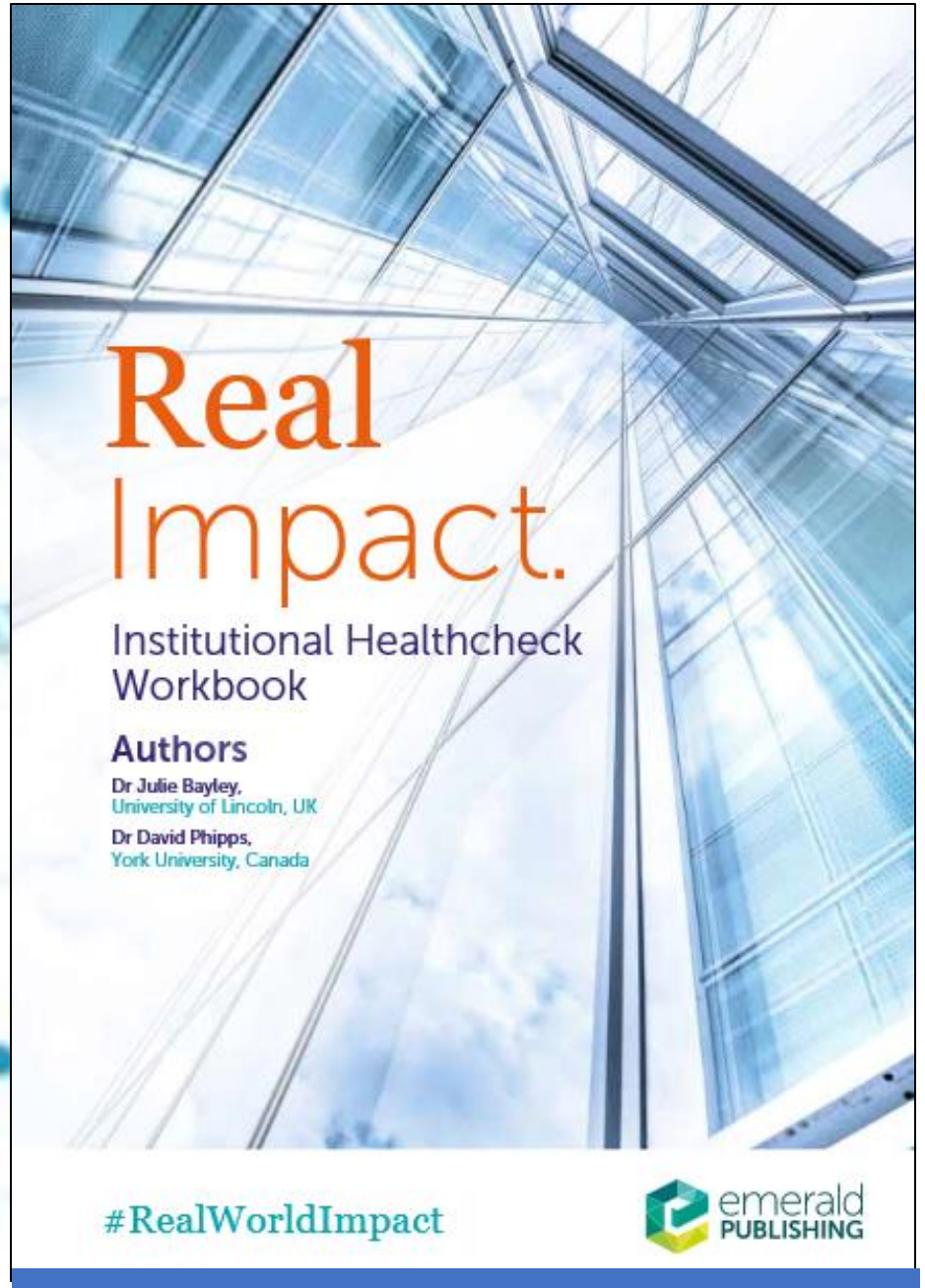
- 149 fields of research
- 60 impact topics
- 36 UoAs
- 3,709 unique pathways to impact
- Multidisciplinary research and impact

King's College London and Digital Science (2015). *The nature, scale and beneficiaries of research impact: An initial analysis of Research Excellence Framework (REF) 2014 impact case studies.* Bristol, United Kingdom: HEFCE

Available from:
https://www.kcl.ac.uk/policy-institute/assets/ref-impact.pdf

- 60 impact topics
- 36 UoAs (Social Sciences in purple)
- Multidisciplinary research and impact

4. We need healthy, *connected* institutions



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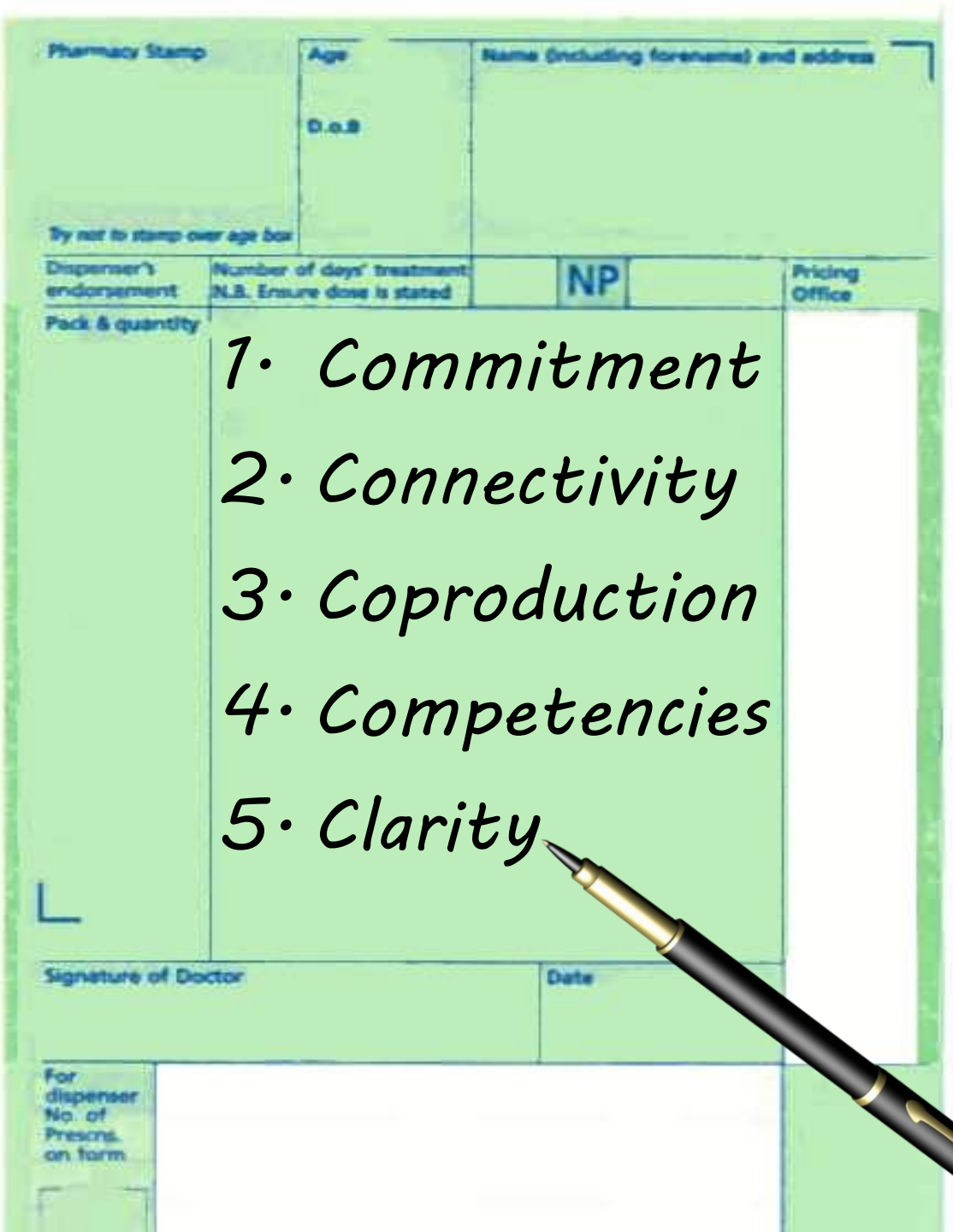
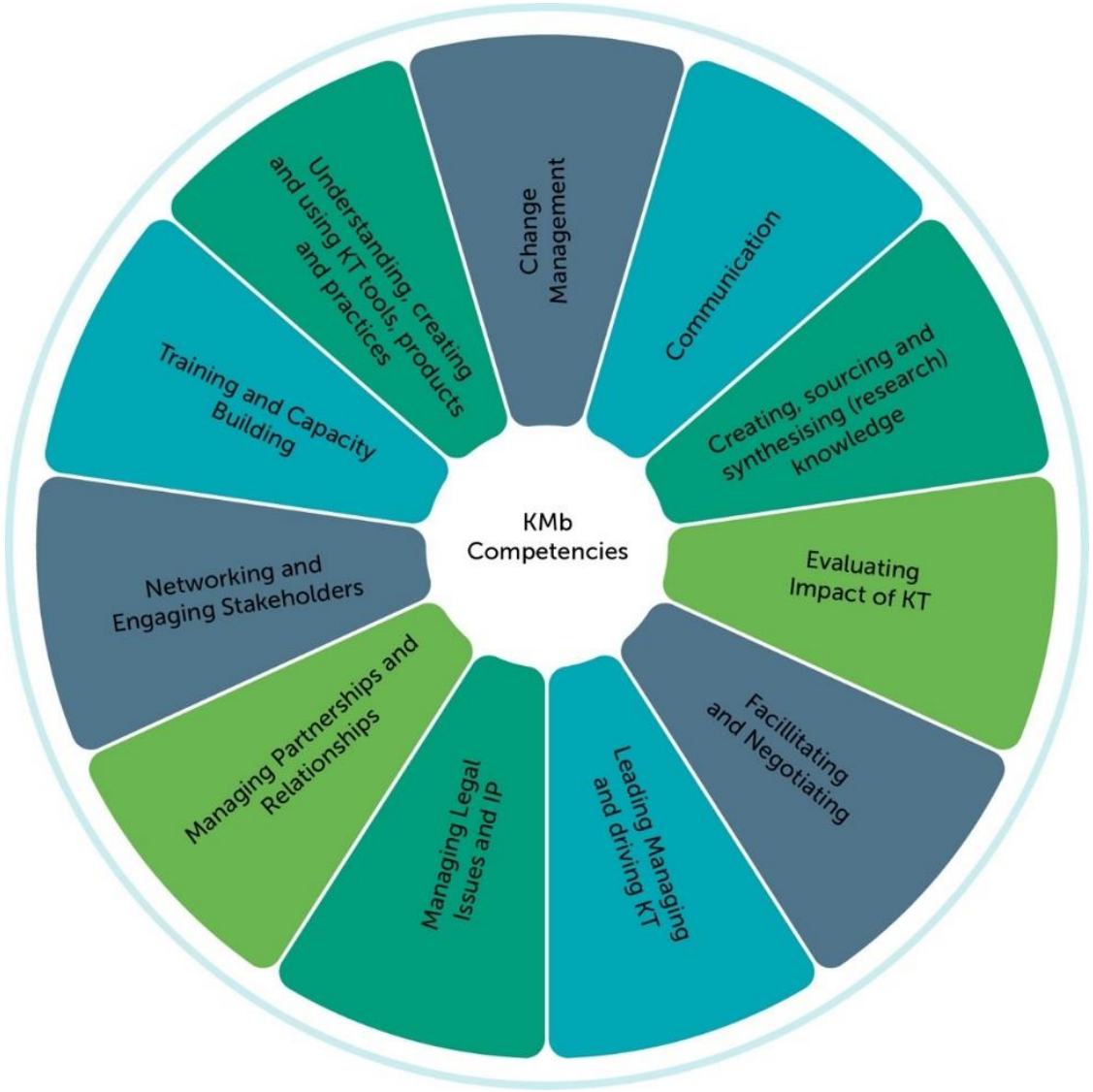
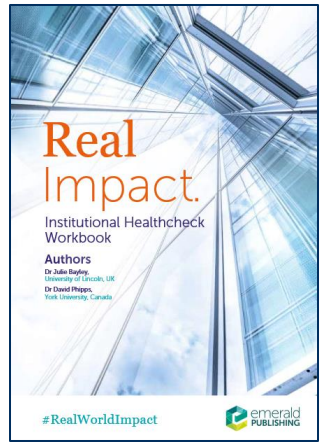


5 Cs of Institutional Impact Health

emerald PUBLISHING

Competencies





Bayley, J.E, Phipps, D., Batac, M. and Stevens, E. (2017) Development and synthesis of a Knowledge Broker Competency Framework. *Evidence and Policy (available online)* https://doi.org/10.1332/174426417X14945838375124

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https://www.nihr.ac.uk/blogs/chasing-the-impact-unicorn-myths-and-methods-in-demonstrating-research-benefit/7479)
5. We have a tendency to chase impact unicorns

Meaning is everything

"When all the medics were talking about curing cancer….

… what I also wanted…..

….was to swallow"

Derek Stewart

Patient advocate after throat cancer in 1995: Blogger, Facilitator, Speaker with a Narrowboat and an OBE

Follow him on Twitter:
@DerekCStewart

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Impact is a challenge of connection

Imagine what's possible when we work together

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For commentary and slides see www.juliebayley.blog

THANK YOU TO

Email: jbayley@lincoln.ac.uk

Twitter: @JulieEBayley

Website: www.juliebayley.blog

Institutional Impact Strategy - Summary

A committed institution can embed processes to:

1. Maximise the production of 'impactful' research
2. Maximise the likelihood of uptake and adoption of research
3. Support monitoring, tracking and recording of impact
4. Build capacity through staff and student training.

- What impact is (and isn't)
- Their vision for impact, and how this connects to both institutional processes and job roles
- Formal expectations the institution must meet (eg. funding requirements, government assessments)
- How impact is not measurable by traditional markers of research attention (eg. impact factors, article citations)
- Recognition that not all research will have impact (or immediate impact), and that disciplines vary greatly in impact pathways and demonstrable effects.

However, communication cannot be in one direction only; senior leadership must listen carefully to those delivering impact to shape strategy and actively review delivery processes.

Who 'does impact'?

Impact operates at all levels of an institution, and requires the support of individuals and teams in various capacities, including:

- **Knowledge producers:** researchers and academic staff who create the 'new knowledge' with the potential to make change
- **Leaders and strategy makers:** those in senior leadership positions who develop the vision, space and investment in impact
- **Impact specialists:** highly impact literate individuals with a deeper level of understanding about how impact operates
- **Knowledge brokers:** staff who actively connect research outwards beyond academia. This may be commercial in focus (eg. technology transfer, industry partnerships), non-commercial (eg. public engagement, policy development, charities, schools, hospitals) or a combination. NB commercially focused alone is not sufficient to make in institution impact 'healthy'
- **Research managers:** staff with a focus on broader institutional processes (such as funding and post award)
- **Information managers:** staff with a focus on coordinating and systematising the information associated with impact pathways
- **Communicators:** staff who showcase and improve visibility of research (such as marketing, communication, web teams and scholarly communications.

https://www.emeraldpublishing.com/wordpress/wp-content/uploads/Emerald-Resources-Institutional-Healthcheck-Workbook.pdf

Institutional Impact Strategy - Summary

Impact requires effort and skills in brokering research beyond academia. It's therefore necessary that institutions:

a) Develop skills across the workforce, including academics (at all levels), research managers, those working in brokering roles (eg. public engagement, technology transfer) and built into student curricula

b) Identify and coordinate specialised skills such as intellectual property and higher level impact experts

Dissemination is necessary but not sufficient to inform change. Impact can only happen if research is used beyond academia, so it is crucial to engage non-academics into the research process as early as possible. If stakeholder involvement is left until the end, the pathway to impact may be far harder and potentially unachievable. Collaboration across the research lifecycle helps:

- Frame research questions and methodology
- Root the research in what matters to stakeholders
- Understand, check and overturn assumptions about which changes (impacts) are most meaningful to those affected by the research
- Identify how outcomes can be best communicated to difference audiences
- Identify any difficulties in putting research into practice
- Improve plans for and likelihood of uptake, adoption and implementation

A healthy impact institution will recognise, value and support engagement of those beyond the institution through a range of means such as:

- Developing formal arrangements with organisational partners (eg. contractual relationships with industry for joint posts, or formal agreements to adopt research)
- Developing relationships with potential audiences (eg. establishing networks of local businesses or healthcare organisations)
- Supporting individual level connections (eg. identifying and/or resourcing opportunities to build on-the-ground links)
- Showcasing research via institutional communication channels to strengthen visibility (eg. for policy makers attention)

https://www.emeraldpublishing.com/wordpress/wp-content/uploads/Emerald-Resources-Institutional-Healthcheck-Workbook.pdf

Responsible Metrics

- https://sfdora.org/
- https://responsiblemetrics.org/
- http://www.leidenmanifesto.org/

- And thanks to Lizzie Gadd for most of these slides!
- https://thebibliomagician.wordpress.com/category/responsible-metrics/

Overview

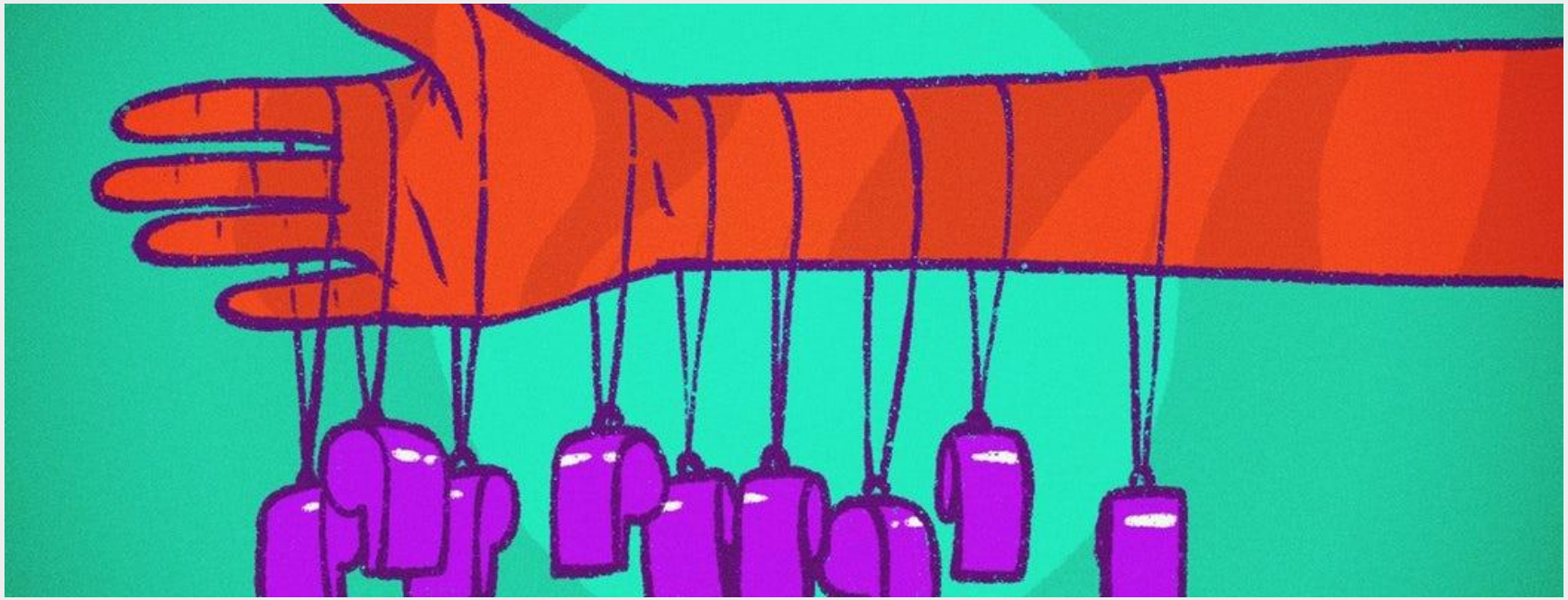
- What are responsible metrics?
- Why should we care?
- How to implement a responsible metrics policy
- How to actually do metrics responsibly
- Who is responsible for responsible metrics?
- A call for research evaluation literacy

Responsible metrics lead to better decisions

- Comparing SSH with STEM on citation counts…
- Comparing early & late-career academics on h-index…
- Judging anyone by their ResearchGate score…
- …just isn't going to lead to a sensible decision, let alone a fair one.

How to implement a responsible metrics policy

The need to accept your policy is just the beginning



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The need to consider the advise- police-judge spectrum

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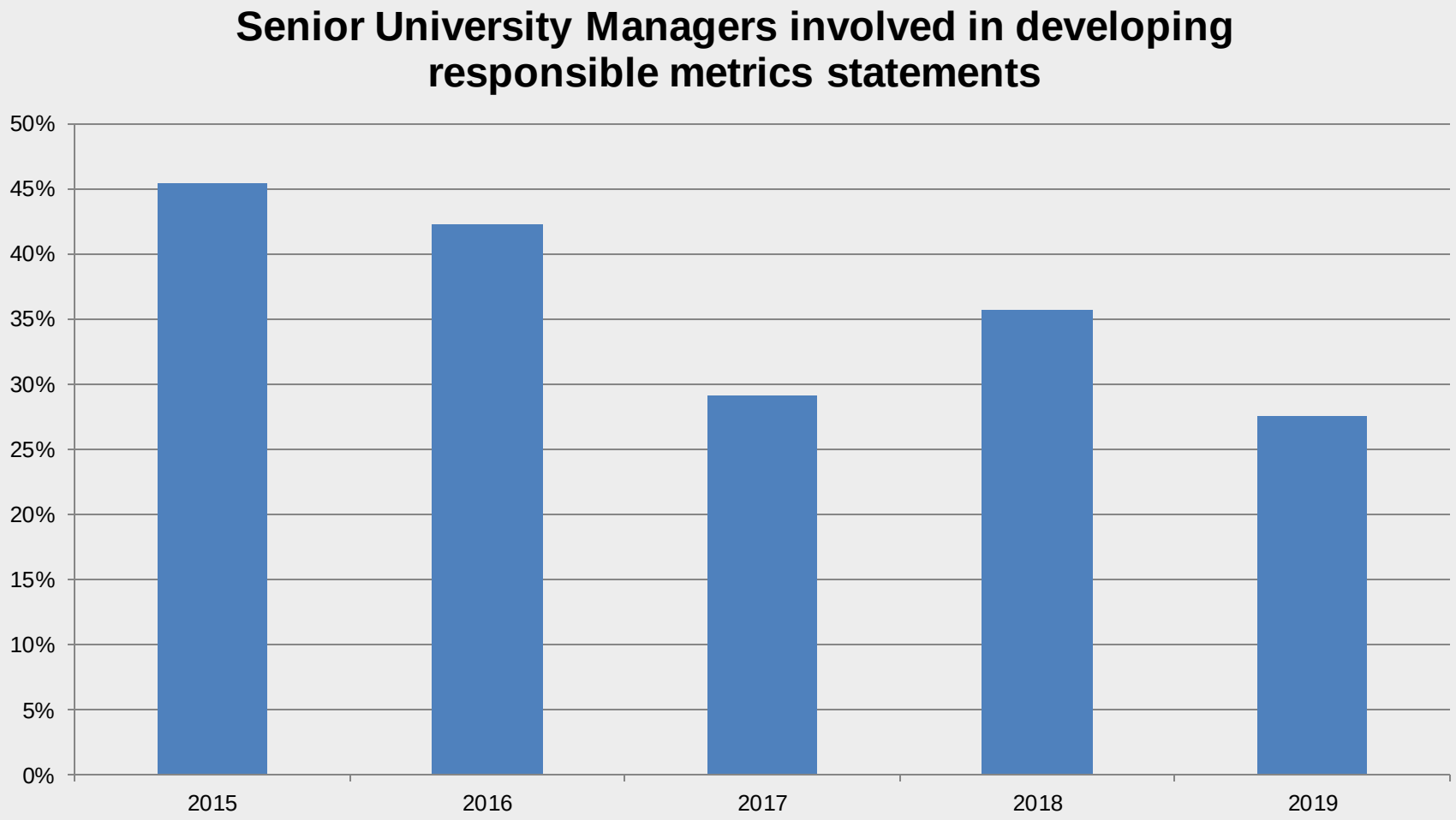
This Photo by Unknown Author is licensed under CC BY

The need for ownership at senior level



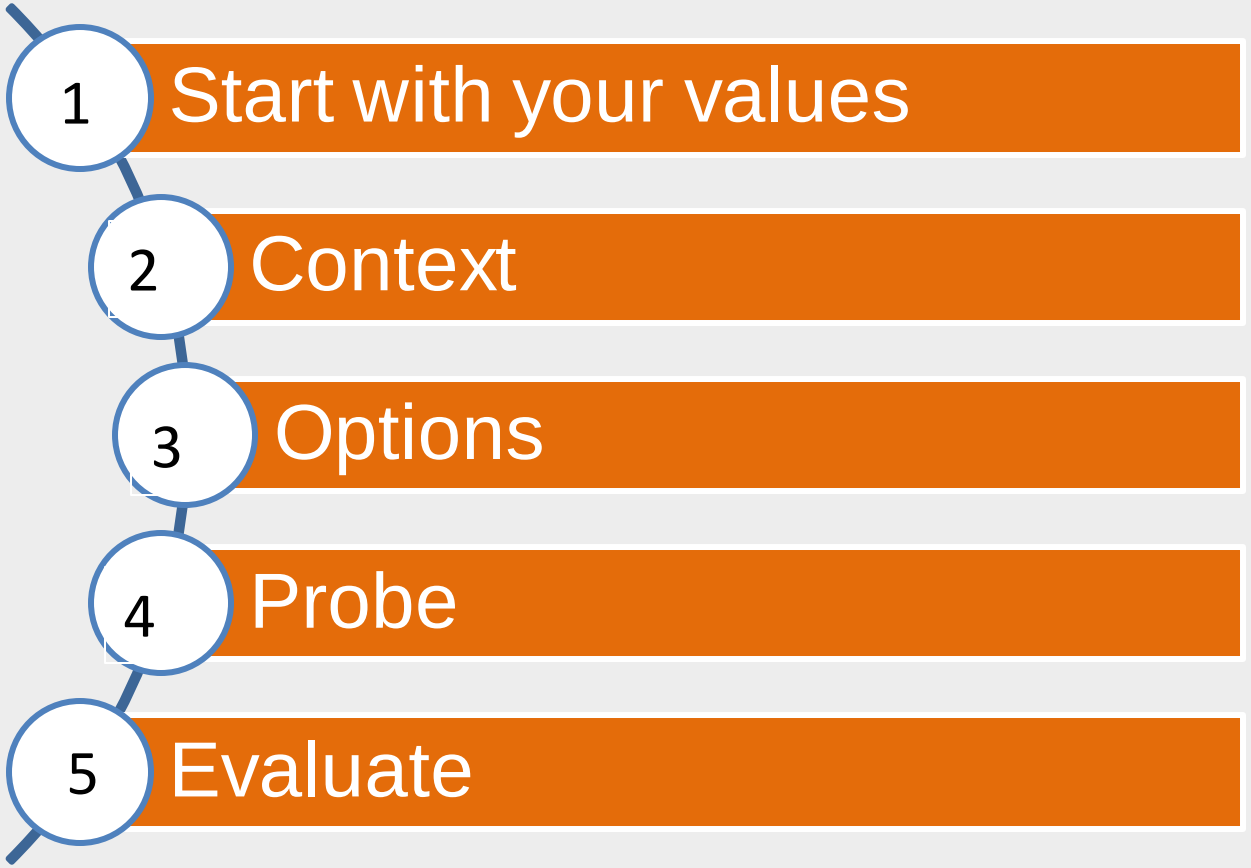
The need to manage upwards

From a mailing list:

"…there's a desire to have…a metric (and they are keen on just one) against which to evaluate the performance of our research…. I'd be very interested to hear anyone else's experiences …in dealing with the expectations of senior managers with this sort of thing."

Introducing the INORMS SCOPE model

inorms
Research Evaluation Working Group



START with what you value

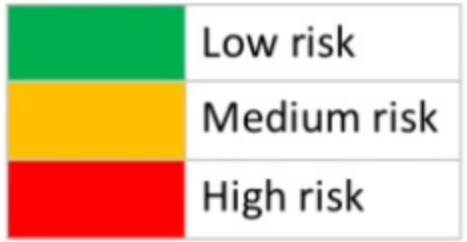
- Not with the data you have available
  - The Streetlight Effect
- Not what others value
- University autonomy: use it or lose it

“If my h-index is the answer, what is the question?”

The streetlight effect

Understand who & why you're evaluating

Figure 1. Risks associated with metric use in various settings



Do we need to evaluate at all?

- Huge growth in incentivising behaviour through measurement
- Campbell's Law: "The way you measure me is the way I'll behave"
- Measuring is not always the best way to incentivise behaviour

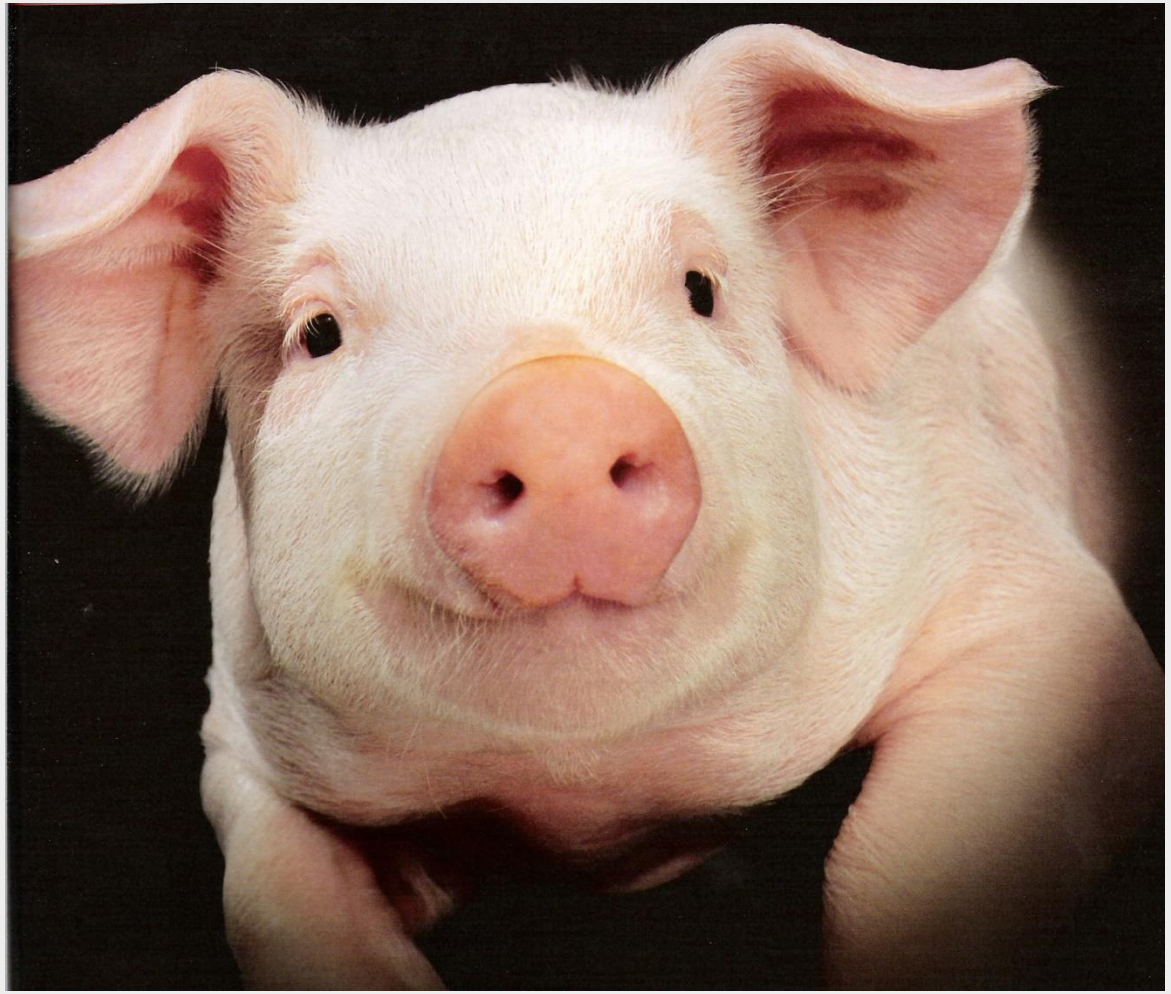
Options

- Is your measure a suitable proxy for what you're measuring?
- Quantitative measures are for quantifiable things…
  - Citations, publications, money, students
- Qualitative measures for qualifiable things…
  - Quality, diversity, excellence, value
- Beware using quantitative indicators as a proxy for qualitative things
  - Citations ≠ quality
  - Ranking position ≠ excellence

Probe for potential negative impacts

1. Who does this discriminate against?
2. How could this be gamed?
3. What might the perverse incentives and consequences be?
4. Do the benefits of measuring outweigh the cost of measuring?
5. Is evaluating research actually going to make it any better?

You don’t fatten a pig by weighing it



This Photo by Unknown Author is licensed under CC BY-ND

Responsible metrics requires responsible people

- Robust
- Humble
- Transparent
- Diverse
- Reflexive

Thank you for those slides to

Dr Elizabeth Gadd
Research Policy Manager (Publications)
Loughborough University

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Twitter: @lizziegadd
Email: e.a.gadd@lboro.ac.uk

http://orcid.org/0000-0003-4509-7785
http://about.me/elizabeth.gadd

Snowball Metrics

- https://www.snowballmetrics.com/

- Defined and agreed by research-intensive universities themselves
- Commonly understood metrics that help uncover research strengths by benchmarking apples with apples, and thus provide valuable input into strategic decision making
- Tested methodologies that are not tied to any particular provider of data or tools
- Recipes that are owned by universities, and are available free-of-charge for use by any organization
- Aspire to become global standards and cover the entire spectrum of research activities

Snowball Metrics

	Research Inputs	Research Processes	Research Outputs and Outcomes
Research	• Applications Volume • Awards Volume • Success Rate	• Income Volume • Market Share	**Publications & citations** • Scholarly Output (enhanced) • Citation Count • Citations per Output • *h*-index • Field-Weighted Citation Impact • Outputs in Top Percentiles • Publications in Top Journal Percentiles **Collaboration** • Collaboration • Collaboration Publication Share • Collaboration Impact • Collaboration Field-Weighted Citation Impact • Academic-Corporate Collaboration • Academic-Corporate Collaboration Impact **Societal impact** • Altmetrics • Public Engagement • Academic Recognition
Enterprise Activities/ Economic Development	• Academic-Industry Leverage • Business Consultancy Activities	• Contract Research Volume	• Intellectual Property Volume • Intellectual Property Income • Sustainable Spin-Offs (enhanced) • Spin-Off-Related Finances (enhanced)
Post-Graduate Education	• Research Student Funding	• Research Student to Academic Staff Ratio	• Time to Award of Doctoral Degree • Destination of Research Student Leavers

Snowball Metrics shared in original Recipe Book, November 2012

Snowball Metrics shared in edition 2 of the Recipe Book, June 2014

Snowball Metrics shared in this edition of the Recipe Book, November 2017

CASRAI INFORMATION HARMONY

Snowball Metrics

5.19 Sustainable Spin-Offs ❄

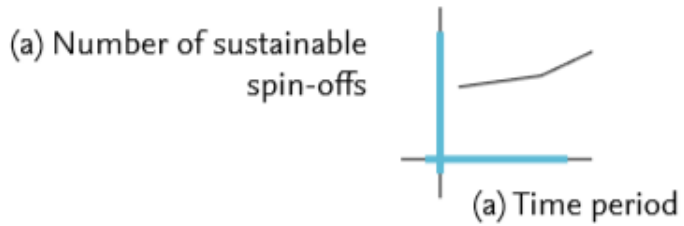
NUMBER OF SUSTAINABLE SPIN-OFFS

ENDORSED BY: UNITED KINGDOM.

5.19.1 Metric definition

This metric calculates the number of sustainable spin-offs.

It answers the question of how many companies that are high quality, and therefore sustainable, an institution has delivered.



5.19.2 Details

A spin-off is a company that has been set up to exploit intellectual property that originated from within the institution.

The types of spin-off counted in this recipe are those for which the definition is specific and not open to interpretation, and where the institutional data quality upon which the metric is based are relatively high. These are:

- A spin-off with some institutional ownership.
  A spin-off based on institutional intellectual property that is not owned by the institution.

5.19.3 Primary data sources

- Institutional intellectual property database or Current Research Information System (CRIS system)
- Published annual accounts
- National statutory reports, such as those available from the Higher Education Statistics Agency[172] (HESA) in the UK

CASRAI INFORMATION HARMONY

Snowball Metrics

5.20.3 Primary data sources

- Institutional accounts system or Current Research Information System (CRIS system)
- Published annual accounts
- National statutory reports, such as those available from the Higher Education Statistics Agency (HESA) in the UK

5.20 Spin-Off-Related Finances

FINANCIAL BENEFITS DERIVED FROM ACTIVE SPIN-OFFS

ENDORSED BY: UNITED KINGDOM.

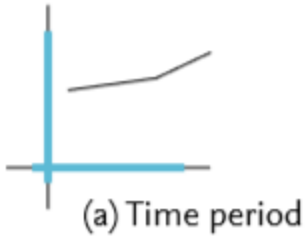
5.20.1 Metric definition

This metric calculates the financial benefits derived from an institution's active spin-offs.

It answers the questions of:

- How many jobs an institution is creating from its spin-offs.
- What economic return an institution delivers to its region and / or nation.
- How an institution is helping its companies to grow.
- The quality of an institution's spin-out companies.

(a) Number of FTEs employed by active spin-offs
(b) Turnover from active spin-offs
(c) External investment in active spin-offs



Vertigo Ventures

- https://www.vertigoventures.com/

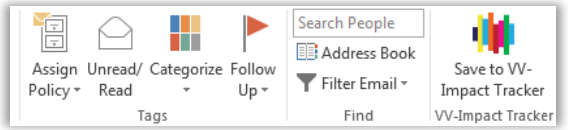
- There are other systems, eg:
  - Kudos: https://www.growkudos.com/
  - Evernote: https://www.fasttrackimpact.com/evernote
    – (Fast Track Impact)
  - ImpactStory: https://our-research.org/

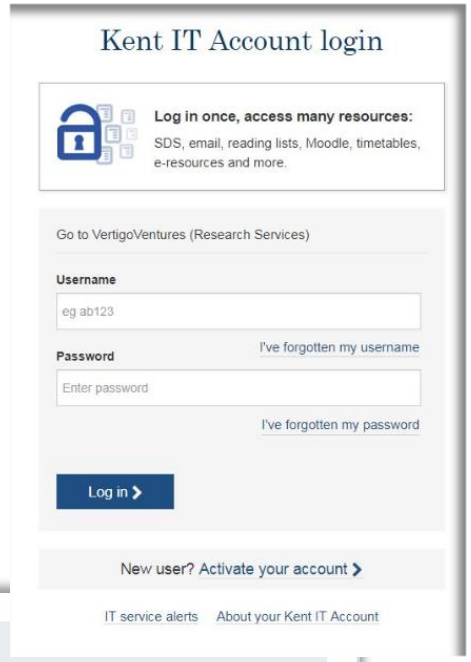
  - DCC: http://www.dcc.ac.uk/resources/how-guides/track-data-impact-metrics

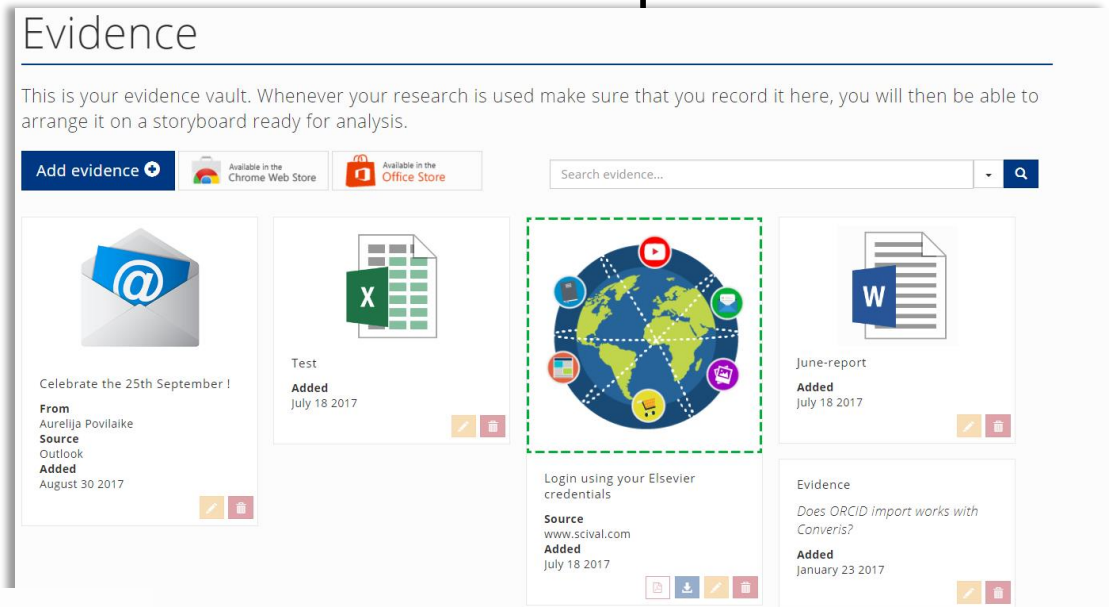
- Thanks to Renata McDonnell for these slides

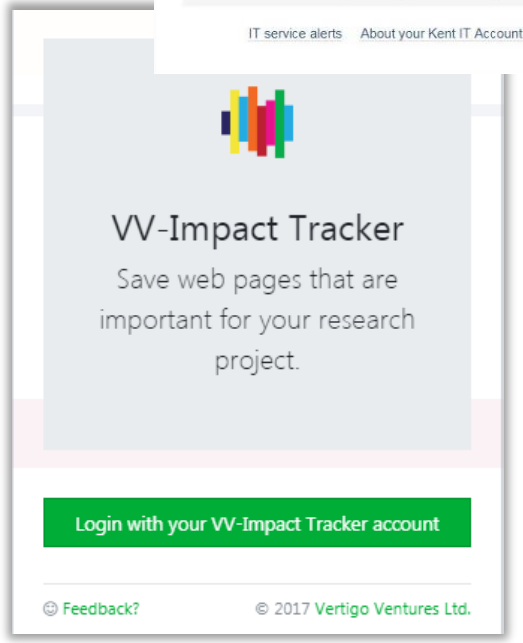
VV-Impact Tracker

- Single Sign On
- Intuitive
- Fast tracking impact
- Learning tool
- Fulfil evidence requirement









Recent Feedback

- *“I’ve been using VV impact tracker to help me prepare a pilot case study for the REF pilot. I find it very intuitive. I am particularly keen on the feature that allows you to add VV to the Google Chrome toolbar for easy downloads/clipping to the VV Venture’s evidence vault.”*

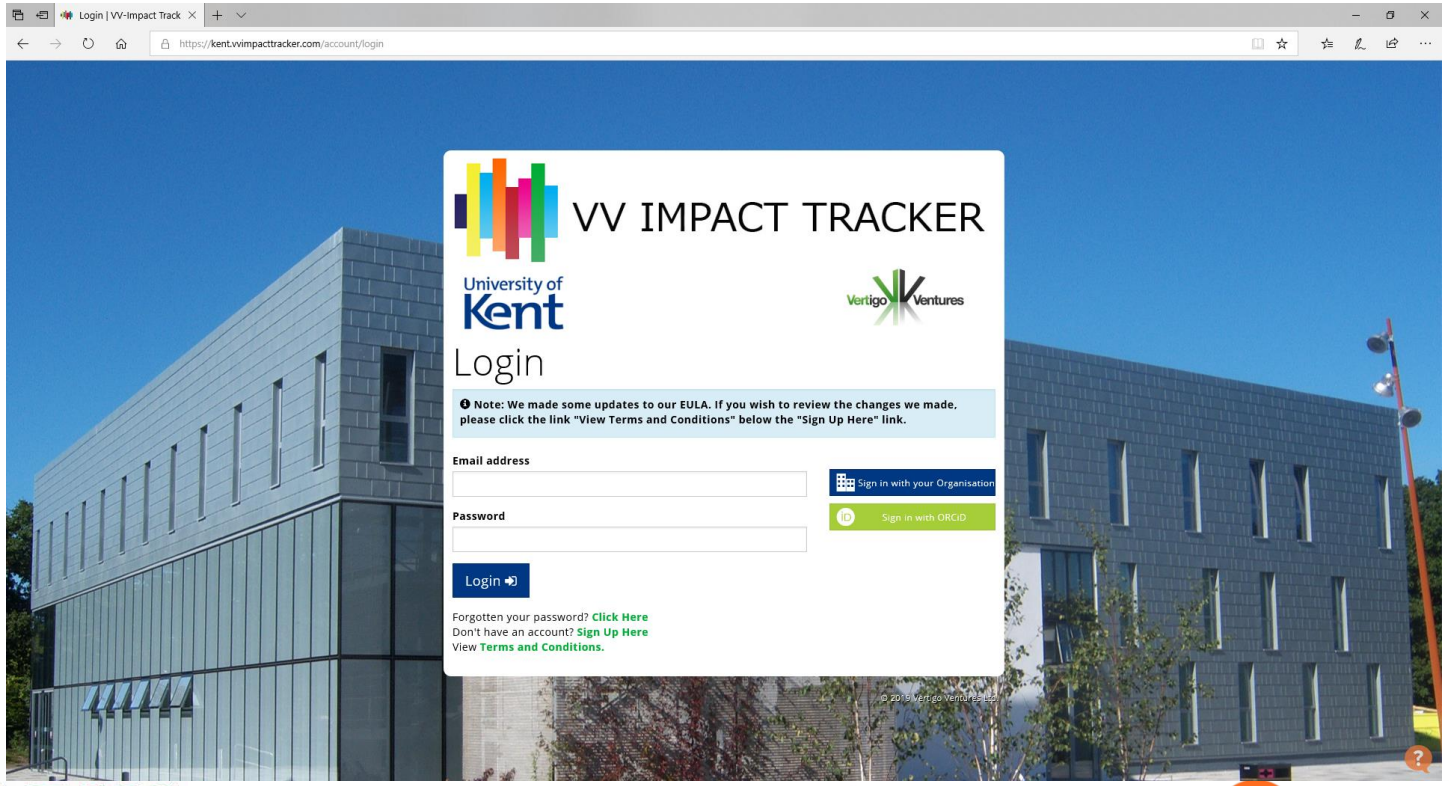
- *“Over all I think the system has a lot of potential. I’ve done a lot of impact recording and tracking for my work in the past (we were a case study in 2014)* ***and this software will definitely make it easier.”***

How we support / engage with staff

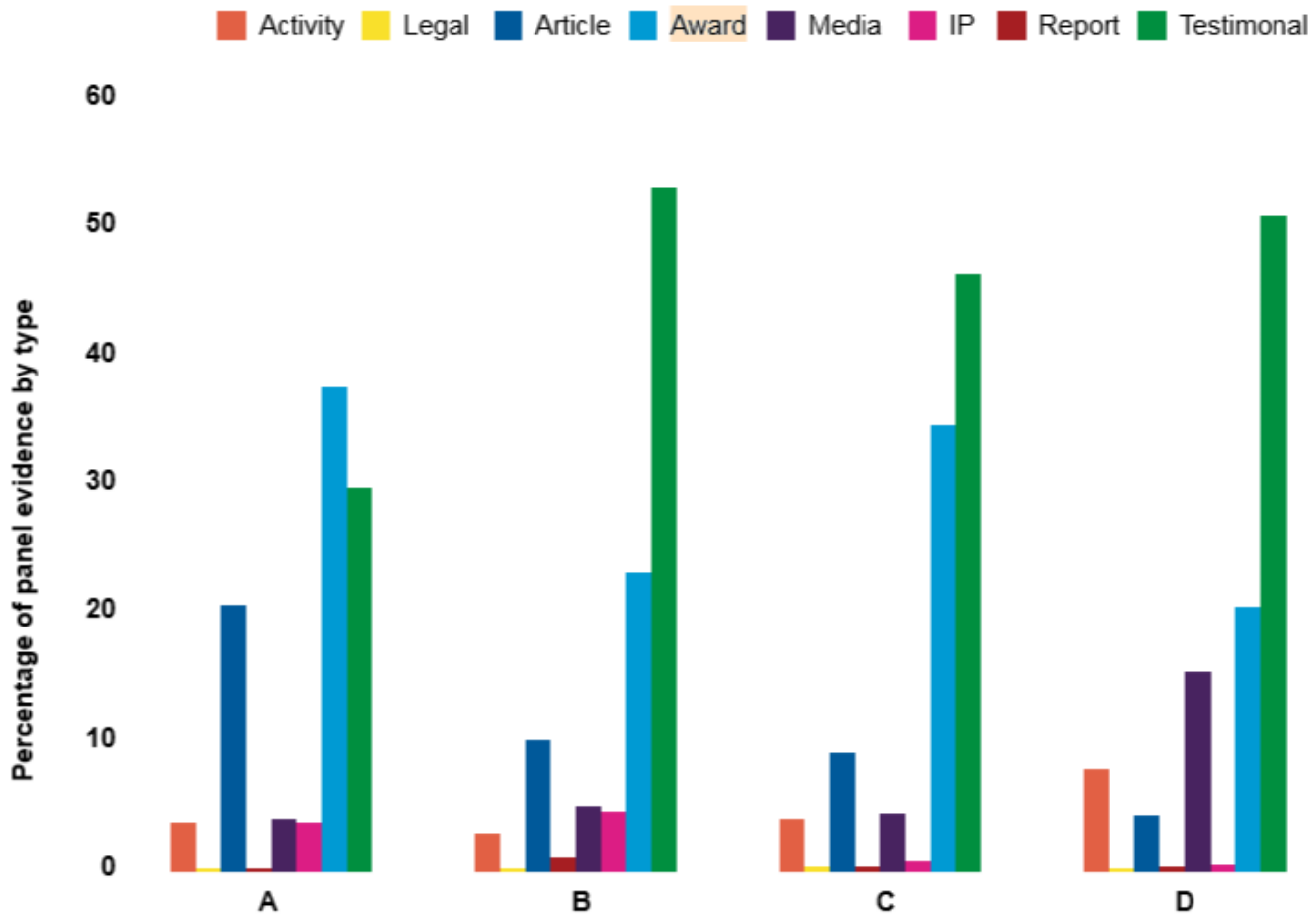
- Web resources
- Proactive and Responsive support
- Scheduled and bespoke training
- Engagement and support
  - VV, IS department
- Events to promote Impact
  - *i.e. Maximise Your Research Impact 2017* →

Challenges

- New system
- Additional support in certain areas
- Providing training at the right time



Types of Evidence



Main Panel A: Biological Sciences and Medicine
Main Panel B: Physical Sciences and Engineering
Main Panel C: Social Sciences
Main Panel D: Arts and Humanities

http://www.vertigoventures.com/wp-content/uploads/2018/11/HEFCE-2016_05_CollectingResearchImpactEvidenceReport.pdf

Vertigo Ventures

- UN SDGs
  - The eleven optional SDGs that universities can report on are:
    - SDG #3: Good Health and Well-Being
    - SDG #4: Quality Education
    - SDG #5: Gender Equality
    - SDG #8: Decent Work and Economic Growth
    - SDG #9: Industry, Innovation and Infrastructure
    - SDG #10: Reduced Inequalities
    - SDG #11: Sustainable Cities and Communities
    - SDG #12: Responsible Consumption and Production
    - SDG #13: Climate Action
    - SDG #16: Peace, Justice and Strong Institutions
    - SDG #17: Partnerships for the goals

Vertigo Ventures (THE)

How is the ranking created?

A university's final score in the overall table is calculated by combining its score in SDG 17 with its top three scores out of the remaining 10 SDGs. SDG 17 accounts for 22 per cent of the overall score, while the other SDGs each carry a weighting of 26 per cent. This means that different universities are scored based on a different set of SDGs, depending on their focus.

The score from each SDG is scaled so that the highest score in each SDG in the overall calculation is 100. This is to adjust for minor differences in the scoring range in each SDG and to ensure that universities are treated equitably whichever SDGs they have provided data for.

Summary

- Why do you want to measure / assess impact?
- What data do you have / can you get?
- What is missing?

- Responsible Impact Culture…?
- How will you approach it?
- How will you embed it?
- How will you uphold it?

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University of Kent

Working with impact: a research management perspective

Bettina Uhrig
Senior advisor at NOVA, OsloMet and Deputy Chair of the Policy and Representation Committee of EARMA

Methods & Instruments for Assessing the Societal Impact of Research

Defining and assessing your institute's strength

Working with impact
A research management perspective

London, Wednesday, 06 November 2019

Bettina Uhrig, bettina.uhrig@oslomet.no

Senior Adviser Internationalisation and DARE Impact Manager
Oslo Metropolitan University (OsloMet) – Norwegian Social Research (NOVA)

Definition of impact

‘Impact broadly defines the wider societal, economic or environmental cumulative changes over a longer period of time.’
(European Commission, *Horizon 2020 indicators – Assessing the results and impact of Horizon 2020’*, Brussels 2015, page 6)

‘**Scientific consequences** (impact) are, for example, the advancement of knowledge and how the research landscape is influenced….
Societal consequences include addressing questions, such as what does society gain in the form of better products, better services, healthier lives, better welfare, a sustainable development, etc.’
(European Science Foundation, *The challenges of Impact Assessment,* Strasbourg 2012, page 5)

Creating impact activities – before assessing impact

Defining outputs, outcomes and impact in H2020

Impact:

Societal, including political, impact

Academic/scientific impact

Economic impact

Net4Society, *Increasing Impact!*,
https://www.net4society.eu/files/Net4Society4_D3_1_1_Factsheet_Impact_final.pdf

Why impact management at project level?

Projects funded by EU Research and Innovation Programmes should increasingly involve citizens and should **create societal, including political, impact.**

‘**Mobilise and involve citizens**’ is one of the recommendations in the Lamy report and should be achieved by stimulating ‘co-design and co-creation through citizen involvement’.

European Commission, DG RTD, *LAB – FAB – APP – Investing in the Future we want,* Luxembourg 2017, page 6.

Mobilising and involving citizens

Good practice examples from many programmes and projects are available, e.g. from

- the Targeted Socio-Economic Research (TSER) Programme in FP4
- the FP projects IMPACT-EV (FP7), DANDELION (H2020) and ACCOMPLISSH (H2020)
- national funding agencies, e.g. the Research Excellence Framework (REF) in UK and the evaluation of the social sciences (SAMEVAL) in Norway

Tools for involving citizens and creating impact

1) Civil Society Organisations (CSOs) as consortium members in H2020 proposals and projects

They should be

- engaged in the proposal process,
- partly involved in the research studies,
- involved in drafting and monitoring the Plan for Dissemination and Exploitation of the project's Results (PDER),
- paid for their involvement (person months, other and indirect costs).

Tools for involving citizens and creating impact

2) National Stakeholder Groups (NSGs)

- Members can come from public (incl. schools), private (incl. media) or social partner organisations, industry and CSOs.

- Their tasks can differ, according to the needs of the project and the consortium members, the national/regional/local context and the expected impacts.

Working with impact - A research management perspective

Tools for involving citizens and creating impact

Collaboration with CSOs and NSGs

Challenges: various demands and tasks at the work places (e.g. research – teaching – advocacy); different languages and cultures

Action: dedicated impact management, e.g. through the involvement of an impact manager and an impact sub-committee

Working with impact - A research management perspective

Case study H2020 project DARE

DARE – Dialogue About Radicalisation and Equality

Research and Innovation Action, Societal Challenge 6, Work Programme 2016

17 consortium members from 13 different countries

11 Work Packages, Duration: May 2017 – April 2021

Coordinator: Hilary Pilkington, University of Manchester, UK

DARE has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 725349.

Working with impact - A research management perspective

Case study H2020 project DARE

DARE **aims** to broaden understanding of radicalisation, demonstrates that it is not located in any one religion or community and explores the effects of radicalisation on society.

DARE **focuses** on environments in which radicalisation messages are found, rather than terrorist events or individuals.

For further information, please visit the DARE website and watch the video:
http://www.dare-h2020.org/

Working with impact - A research management perspective

Case study H2020 project DARE

DARE has a strong focus on involving citizens to create and disseminate new knowledge. These are some of the tools for achieving societal impact:

1) The consortium comprises two CSOs: **the European Network Against Racism (ENAR) and the People for Change Foundation (PfC).** Both are responsible for exploitation and dissemination actions, e.g. the DARE website, dialogue workshops and policy forums. They are also involved in some of the research studies and they are members in the **DARE Impact Sub-Committee (ISC).**

Case study H2020 project DARE

2) DARE has established **National Stakeholder Groups (NSGs)** in nearly all participating countries. Most NSGs have between six and 12 members and meet app. two times each year.

Challenge: to create understanding and acceptance for the relevance and benefit of having a NSG.

*Advantage: support and monitoring by the **ISC and the Impact Manager.***

Actions: impact workshop during a consortium meeting and regular communication; minutes from NSG meetings and internal impact reports.

Case study H2020 project DARE

3) Based on the DARE findings, the ISC supports the early development and dissemination of **Policy Briefs,** and their translation into national languages.

Challenge: writing a Policy Brief which is interesting and easy to understand by different stakeholders and in different languages.

Action: the ISC has developed a guideline relevant and acceptable for DARE and the Research Executive Agency.

Conclusions

1) **Stakeholder involvement in research proposals and projects** is one tool for mobilising and involving citizens.

2) Stakeholder involvement can be strengthened through different actions, e.g. by **involving CSOs in the project team** and by **establishing NSGs**.

3) **Dedicated impact management** at different levels (project, programme, department, organisation) could enhance and ease the involvement of stakeholders.

Recommendations

4) Acknowledgment of the **involvement of stakeholders as indicator for the Societal Readiness Level (SRL)** of a proposal and project.

5) **Funding** for communication, dissemination and impact management **after the end of a project** to encourage, monitor and secure possible societal impacts.

6) Enhance the involvement of citizens in the development of work programmes and missions in Horizon Europe, e.g. through **dialogue workshops or future search conferences at national and regional levels**.

Working with impact - A research management perspective

Reminder

‘There is a need for **greater outreach** to civil society to better explain results and impacts and the contribution that research and innovation can make to tackling societal challenges, and to **involve them better** in the programme co-design (agenda setting) and its implementation (co-creation).’

European Commission, DG RTD, *Key findings from the HORIZON 2020 interim evaluation*, Luxembourg 2017, page 21.

Issue to discuss

How can we link this need to the Agenda 2030 and its Sustainable Development Goals (SDGs) – in research strategies, research proposals and projects?

Outlook

What does EARMA do?

One example

The Policy & Representation Committee (P&RC) has developed a questionnaire asking all institutional members to reflect on their impact strategies and impact actions.

Period of survey: November 2019

The results will be presented at the next EARMA Annual Conference, 27 – 29 April 2020 in Oslo.

Assessing the Societal Impact of Research

6-8 November 2019, King's College, London

Evaluating quantitative and qualitative impact indicators: pitfalls and challenges

Steven Hill

Director of Research at Research England

AESIS

Evaluating quantitative and qualitative impact indicators: pitfalls and challenges

Steven Hill, Director of Research

Methods & Instruments for Assessing the Societal Impact of Research
AESIS, King's College, London
06 November 2019

Overview of session

- Using case study evidence to measure impact
  - Introduction to UK Research Excellence Framework (REF)
  - Strengths and weaknesses of case studies
  - Questions?
- Quantitative indicator use in case studies
  - What indicators are used?
  - Consistency and coverage
  - Questions?
- Role of altmetrics in impact assessment
  - Relationship between altmetrics and impact
  - Altmetrics as early indicators
  - Questions?
- Implications for the preparations of your case study

UKRI Research England

Overview of session

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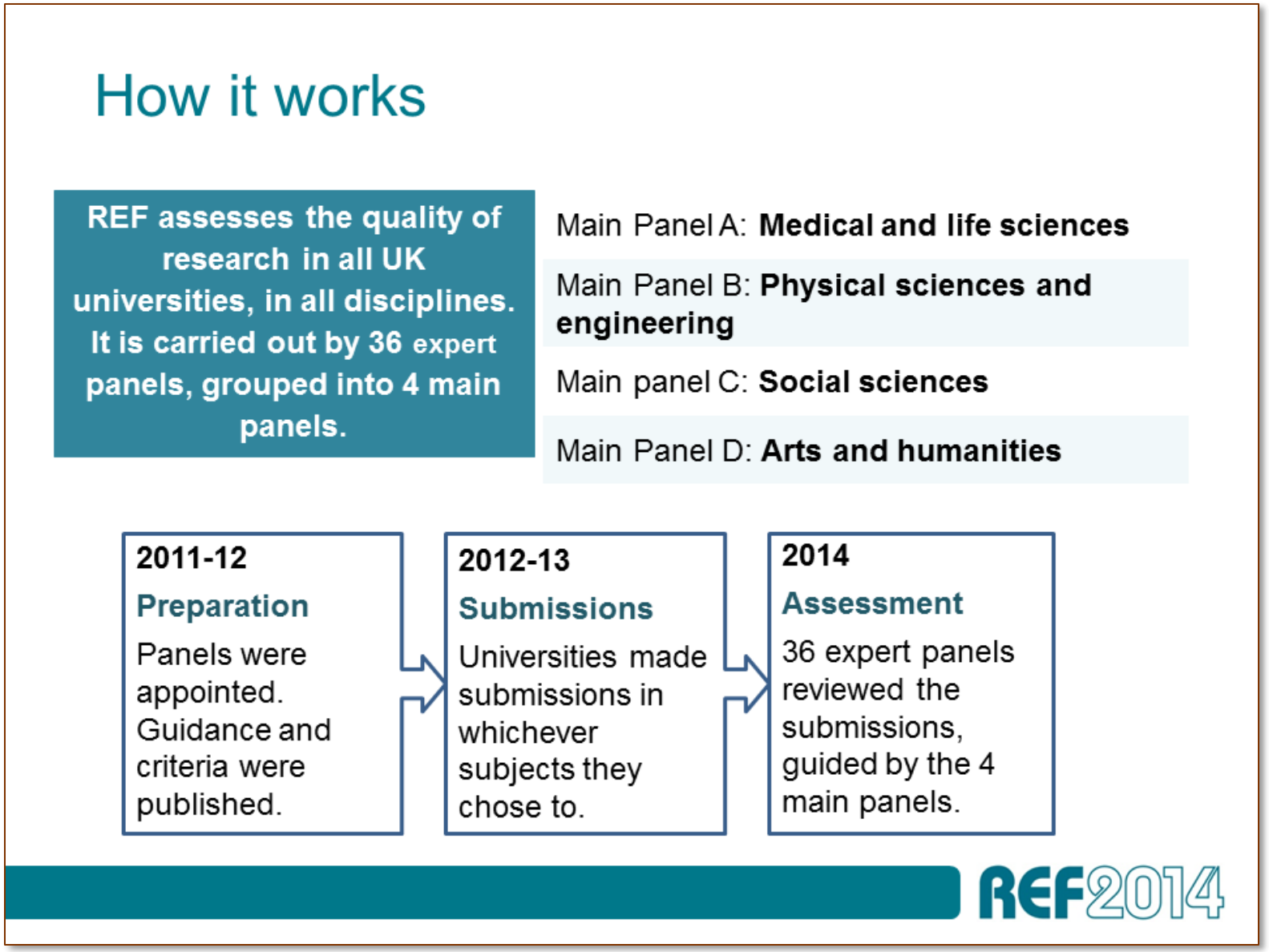
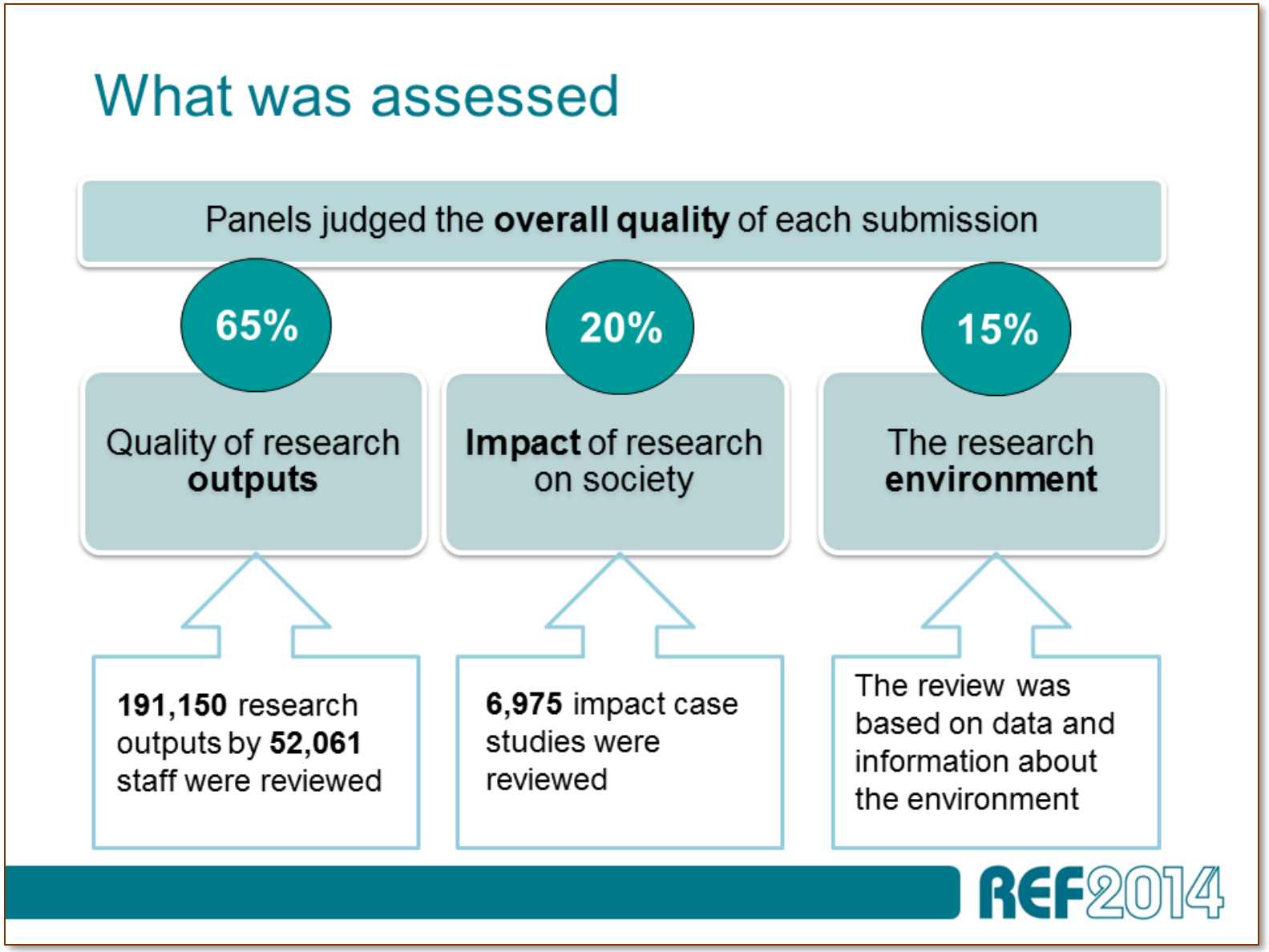
UKRI Research England

REF overview



UKRI Research England

REF overview

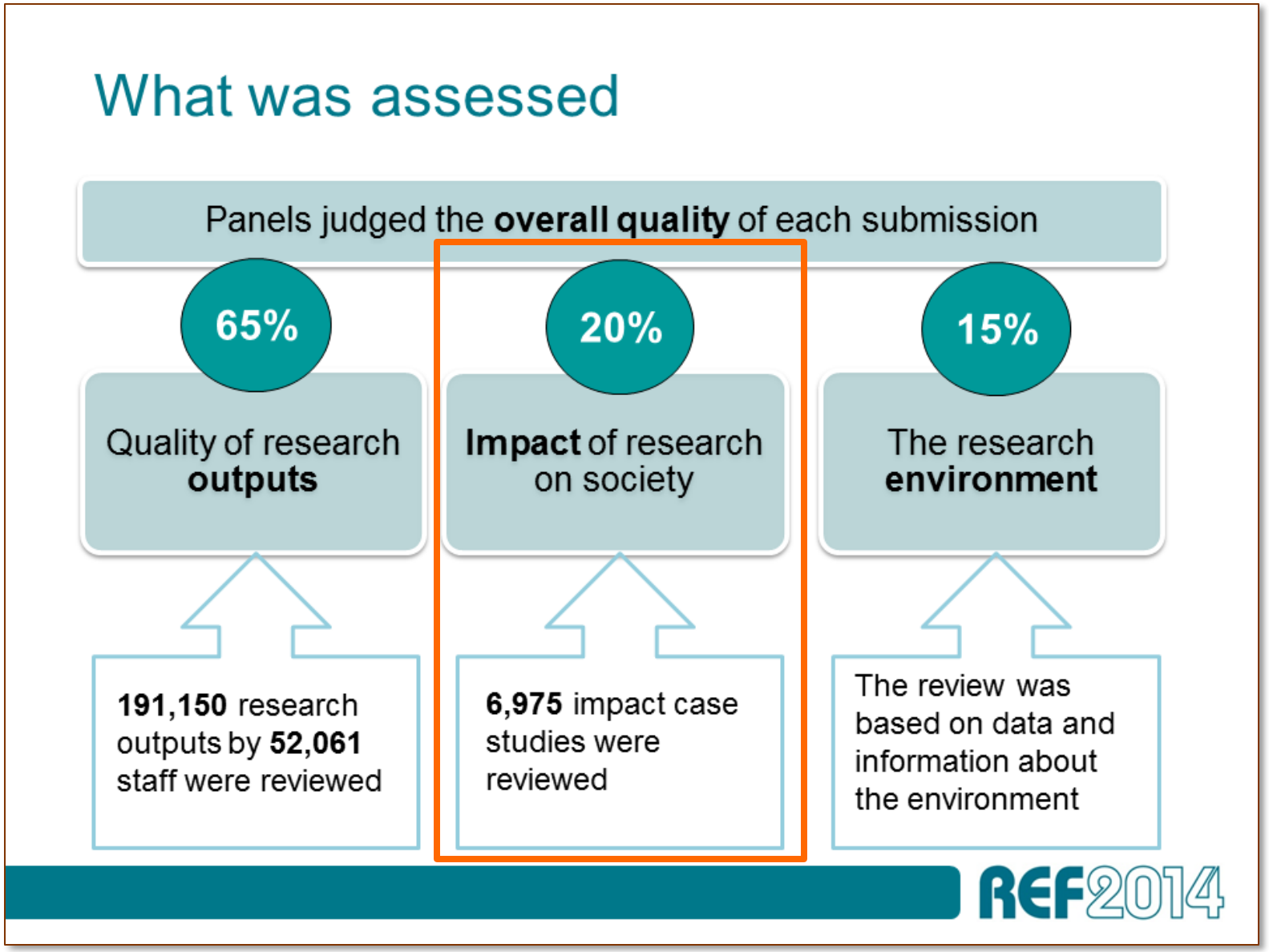


UKRI Research England

Impact and academic quality go hand-in-hand

UKRI Research England

REF overview

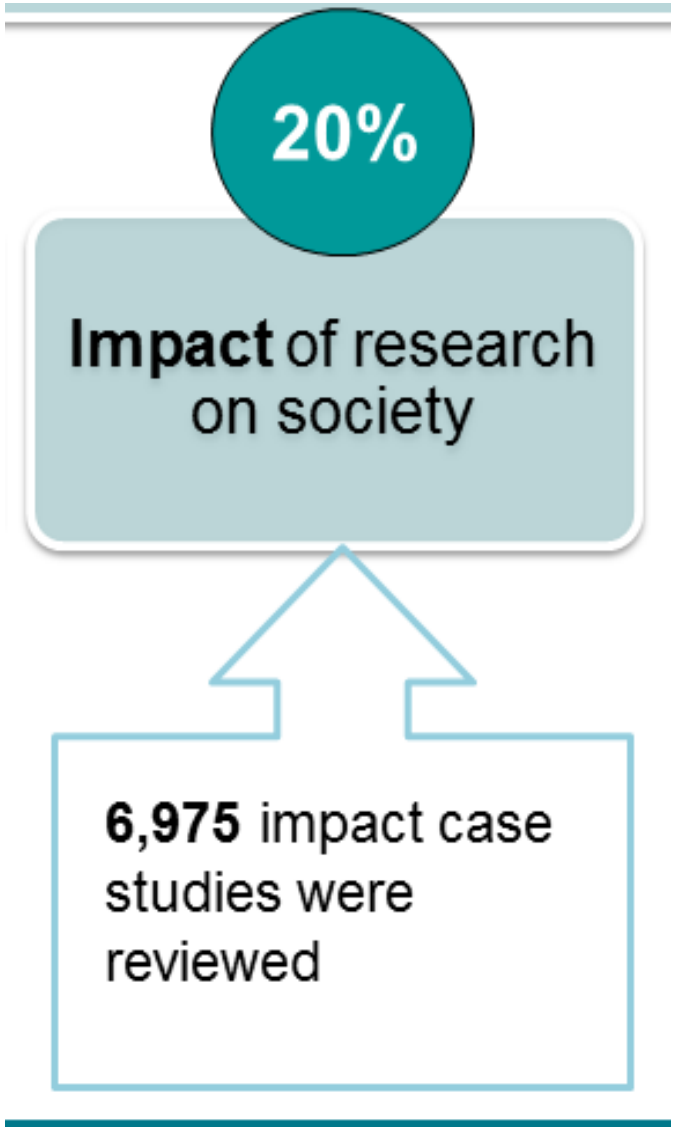


UKRI Research England

REF overview

“an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia”

- 4-page narrative
- ‘underpinning research’
- evidence and corroboration
- assessment by academics and research users



UKRI Research England

Institution: University of Manchester

Unit of Assessment: 19 (Business and Management Studies)

Title of case study: Knowledge Intensive Business Services (KIBS) as Innovators and Catalysts of Innovation in 'Systems of Innovation'

1. Summary of the Impact

Knowledge Intensive Business Services are a sub-set of business service firms that are now recognised as being especially innovative and dynamic and, more importantly, act as intermediaries and catalysers of innovation within wider 'systems of innovation. As such, they largely complement the knowledge development and diffusion roles of universities and the public science base. Professor Ian Miles at the University of Manchester was the first to research Knowledge Intensive Business Services (KIBS) and their systemic roles, which have been recognised and adopted into industrial and innovation policies by the UK Government, the European Commission, the OECD, Tekes in Finland, and others.

2. Underpinning research

In 1993, Miles (Associate/Executive Director, 1990-date) of the University of Manchester wrote a paper for the journal *Futures* on "Services in the New Industrial Economy" [1], in which he first identified the significance for innovation of a particular set of service firms, which he termed 'Knowledge Intensive Business Services' (KIBS). Specifically, Miles recognised the importance of these firms for the production, distribution and use of new knowledge, including through the co-production of knowledge with clients. The article led to a European Commission contract to further develop the concept, which Miles undertook with Manchester and Dutch colleagues (reporting in 1995).

Miles and colleagues' study recognised for the first time that, within the framework of the rising knowledge intensity of advanced economies, not only were some service industries especially knowledge-intensive and highly innovative, but that they also act as innovation intermediaries for

Strengths and weaknesses of case studies

- Strengths
  - Applicable to all disciplines/all type of impact
  - Basis for robust quality evaluation
  - Rich source of insight about impact processes

UKRI Research England

Research England

Source: King's College London/Digital Science (2015) The nature, scale and beneficiaries of research impact
https://www.kcl.ac.uk/policy-institute/assets/ref-impact.pdf

Strengths and weaknesses of case studies

- Strengths
  - Applicable to all disciplines/all type of impact
  - Basis for robust quality evaluation
  - Rich source of insight about impact processes

- Weaknesses
  - Difficult to combine
  - Time-consuming to produce (and so expensive)
  - Not necessarily representative

UKRI Research England

Questions and discussion – part 1

UKRI Research England

Overview of session

- Using case study evidence to measure impact
  - Introduction to UK Research Excellence Framework (REF)
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  - Questions?

- **Quantitative indicator use in case studies**
  - What indicators are used?
  - Consistency and coverage
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- Role of altmetrics in impact assessment
  - Relationship between altmetrics and impact
  - Altmetrics as early indicators
  - Questions?

- Implications for the preparations of your case study

UKRI Research England

Quantitative indicators in the REF impact case studies

The quantitative evidence supporting claims for impact was diverse and inconsistent, suggesting that the development of robust impact metrics is unlikely

There was a large amount of numerical data (ie, c170,000 items, or c70,000 with dates removed) that was inconsistent in its use and expression and could not be synthesized. […] Given this, and based on our analysis of the impact case studies, we would reiterate the conclusion […]: 'impact indicators are not sufficiently developed and tested to be used to make funding decisions' (Grant et al, 2010).

UKRI Research England

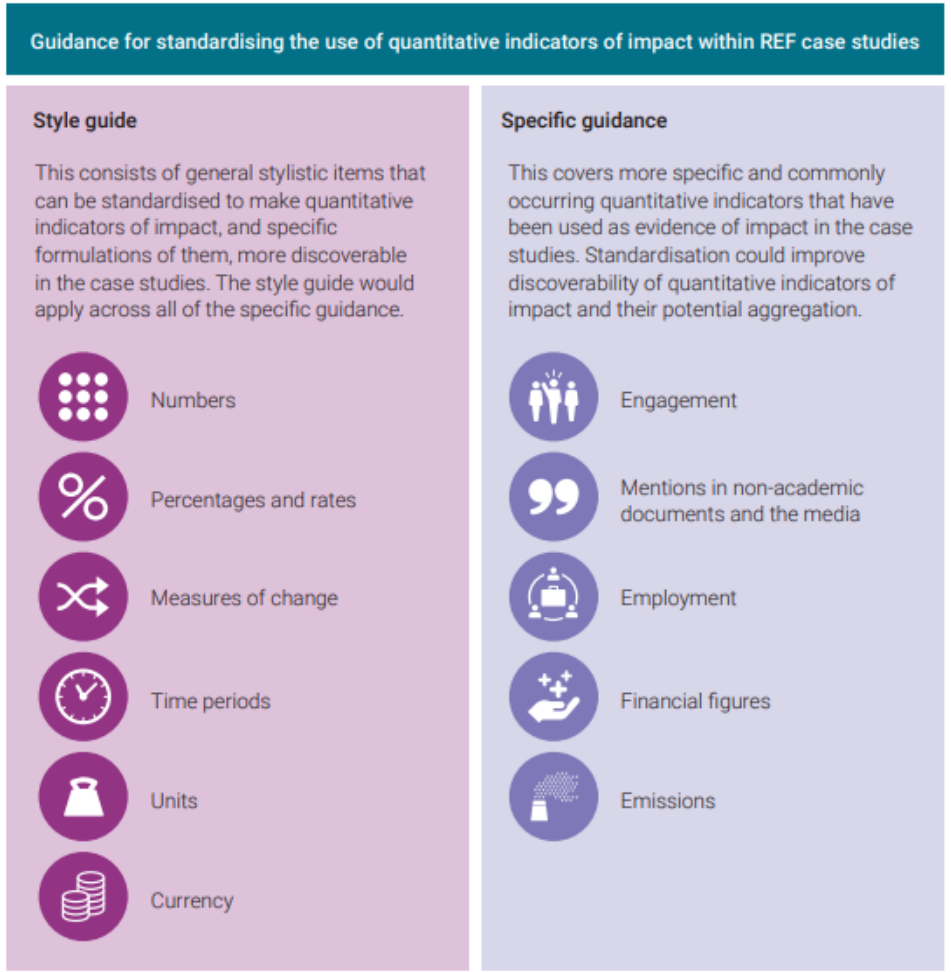
Source: King's College London/Digital Science (2015) The nature, scale and beneficiaries of research impact
https://www.kcl.ac.uk/policy-institute/assets/ref-impact.pdf

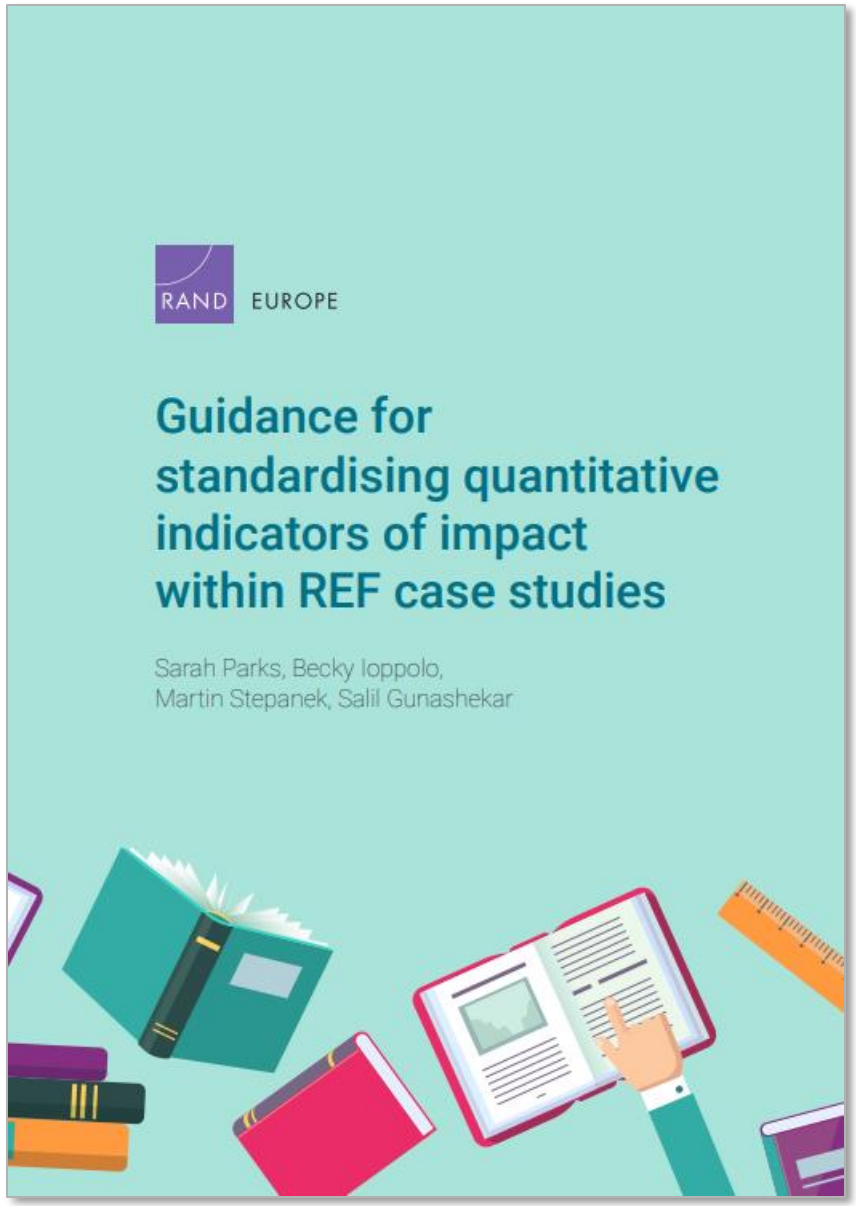
Example indicator: Quality-adjusted life years (QALY)

- Measure of health impact; can be monetized
- Used in 25 case studies
- Estimate a total net gain of around £2 billion for these case studies
- Challenges with using QALY:
    - Inconsistent use (individual vs population)
    - Varying monetization rate (£25k-£40k per QALY)
    - Further information or evidence required

UKRI Research England

Standardising impact indicators





UKRI Research England

https://www.ref.ac.uk/media/1018/guidance-for-standardising-quantitative-indicators-of-impact.pdf

Questions and discussion – part 2

UKRI Research England

Overview of session

- Using case study evidence to measure impact
  - Introduction to UK Research Excellence Framework (REF)
  - Strengths and weaknesses of case studies
  - Questions?

- Quantitative indicator use in case studies
  - What indicators are used?
  - Consistency and coverage
  - Questions?

- **Role of altmetrics in impact assessment**
  - Relationship between altmetrics and impact
  - Altmetrics as early indicators
  - Questions?

- Implications for the preparations of your case study

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What are altmetrics?

- Non-traditional metrics
    - Not citations
    - Downloads
    - Social media shares
    - Blog site mentions
    - Policy document or clinical guidance citations
    - News website mentions
    - Wikipedia citations

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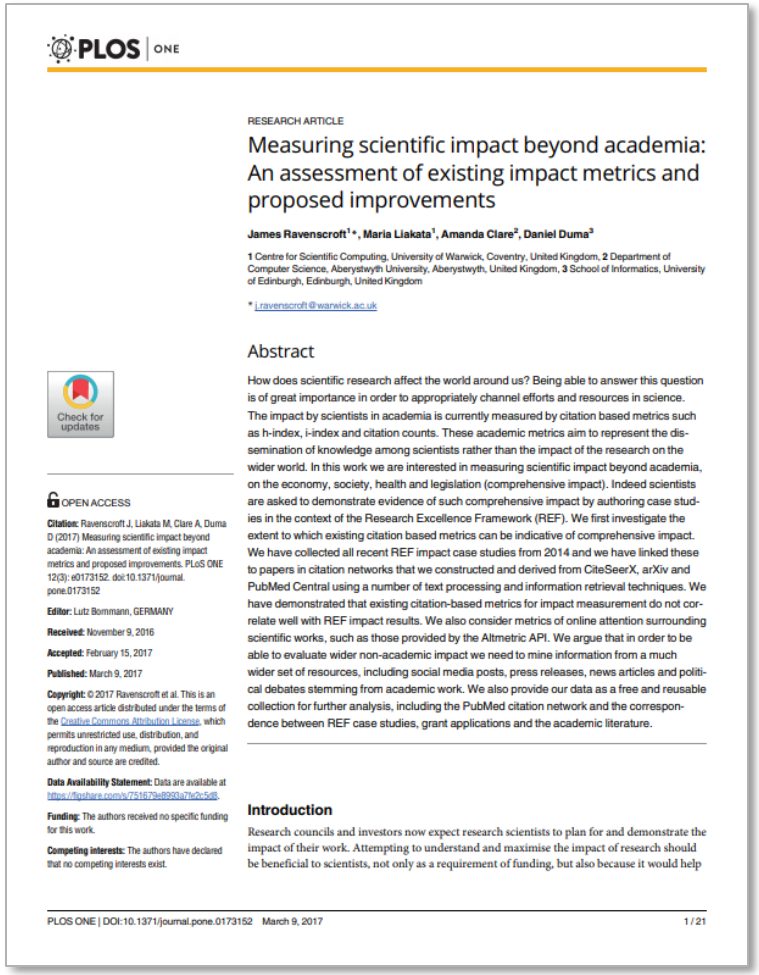
REF scores and altmetrics



PLOS ONE

RESEARCH ARTICLE

Measuring scientific impact beyond academia: An assessment of existing impact metrics and proposed improvements

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Abstract

How does scientific research affect the world around us? Being able to answer this question is of great importance in order to appropriately channel efforts and resources in science. The impact by scientists in academia is currently measured by citation based metrics such as h-index, i-index and citation counts. These academic metrics aim to represent the dissemination of knowledge among scientists rather than the impact of the research on the wider world. In this work we are interested in measuring scientific impact beyond academia, on the economy, society, health and legislation (comprehensive impact). Indeed scientists are asked to demonstrate evidence of such comprehensive impact by authoring case studies in the context of the Research Excellence Framework (REF). We first investigate the extent to which existing citation based metrics can be indicative of comprehensive impact. We have collected all recent REF impact case studies from 2014 and we have linked these to papers in citation networks that we constructed and derived from CiteSeerX, arXiv and PubMed Central using a number of text processing and information retrieval techniques. We have demonstrated that existing citation-based metrics for impact measurement do not correlate well with REF impact results. We also consider metrics of online attention surrounding scientific works, such as those provided by the Altmetric API. We argue that in order to be able to evaluate wider non-academic impact we need to mine information from a much wider set of resources, including social media posts, press releases, news articles and political debates stemming from academic work. We also provide our data as a free and reusable collection for further analysis, including the PubMed citation network and the correspondence between REF case studies, grant applications and the academic literature.

Check for updates

OPEN ACCESS

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Introduction

Research councils and investors now expect research scientists to plan for and demonstrate the impact of their work. Attempting to understand and maximise the impact of research should be beneficial to scientists, not only as a requirement of funding, but also because it would help

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Altmetric Scores: An Early Indicator of Research Impact

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In this article we test whether metrics of online attention describing research can provide information on research quality and societal impact that is not found in citation data alone. Our approach is to set up a traditional model in which the true quality or impact of a university department is determined by a panel of experts, but a citation metric is regarded as a reasonable proxy. However, the model assumes that the information contained in the scores provided by an expert panel exceeds that contained in a citation metric (HEFCE, 2015). Finally, we extend this model by including altmetric data to see if it adds information about a department's performance that cannot be gleaned from citations alone. We find the presence of altmetric data for the cited underpinning research to be highly correlated with peer review scores for societal impact. Conversely, no such connection was seen with the assessment of research quality. Our findings therefore suggest altmetric data could be useful as an aid to assessing impact.

Introduction

Within a research evaluation environment, in which there is continuous pressure on both researchers and funders to provide evidence of impact (Penfield, Baker, Scoble, & Wykes, 2013), new assessment platforms are increasingly being used to monitor research activity. Alternative metrics, often known as "altmetrics," use web scraping tools and APIs to track online media attention across a range of social, traditional media, and governmental sources. Altmetrics are relatively immature compared with traditional bibliometric indicators; however, they are starting to provide new insights into the ways people consume, share, and report research (Barnes, 2015).

Previous studies looked at the volume and frequency of data collected for the subindicators that comprise a typical altmetric. Moreover, a number of studies assess how altmetrics compare with bibliometric measures of research uptake, and demonstrate that some altmetrics are weakly correlated with traditional citation metrics (Costas, Zahedi, & Wouters, 2014; Fenner, 2014; Galligan & Dyas-Correia, 2013; Sud & Thelwall, 2014; Thelwall, Haustein, Larivière, & Sugimoto, 2013; Wilsdon et al., 2015). However, although there is a general understanding that information gleaned from altmetrics is complementary—but not identical—to that provided by traditional citation data, there is currently a lack of empirical evidence to support the notion that altmetrics contain extra information about the economic or social impact of a piece of research (Barnes, 2015; Bornmann, 2013; Costas et al., 2014).

In this study we use research cited in the UK's REF 2014 exercise (Ref.ac.uk, 2016) to assess how much information altmetric attention scores can provide toward the assessment of research quality and impact. To do so, we use data obtained from Clarivate's Web of Science (WoS), as well as online media counts from Altmetric.com. Altmetric.com started tracking online mentions of research activity from the latter half of 2011. The range and scope of online attention, in terms of the number of data sources tracked and the types of digital objects recorded, is continuously being improved, resulting in an ever-growing and evolving set of data (Altmetric, 2018).

Data Sources

The analysis was restricted to main panel B of the submissions, which relates to mathematics, engineering, and the physical sciences (see Table 1). Within this subject grouping, 48,815 of the submitted 49,317 research outputs were journal articles, allowing a near complete mapping of bibliometric indicators to REF scores. The research activity in this panel is subdivided into nine separate topics; however, for the purpose of this work, three of the engineering units of assessments (UOAs) were combined, as they could all be labeled as "applied engineering." The creation of this agglomerated group meant that the number of submitted outputs across the subject areas were somewhat equalized

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Do altmetrics assess societal impact in a comparable way to case studies? An empirical test of the convergent validity of altmetrics based on data from the UK research excellence framework (REF)☆

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ABSTRACT

Altmetrics have been proposed as a way to assess the societal impact of research. Although altmetrics are already in use as impact or attention metrics in different contexts, it is still not clear whether they really capture or reflect societal impact. This study is based on altmetrics, citation counts, research output and case study data from the UK Research Excellence Framework (REF), and peers' REF assessments of research output and societal impact. We investigated the convergent validity of altmetrics by using two REF datasets: publications submitted as research output (PRO) to the REF and publications referenced in case studies (PCS). Case studies, which are intended to demonstrate societal impact, should cite the most relevant research papers. We used the MHq' indicator for assessing impact – an indicator which has been introduced for count data with many zeros. The results of the first part of the analysis show that news media as well as mentions on Facebook, in blogs, in Wikipedia, and in policy-related documents have higher MHq' values for PCS than for PRO. Thus, the altmetric indicators seem to have convergent validity for these data. In the second part of the analysis, altmetrics have been correlated with REF reviewers' average scores on PCS. The negative or close to zero correlations question the convergent validity of altmetrics in that context. We suggest that they may capture a different aspect of societal impact (which can be called unknown attention) to that seen by reviewers (who are interested in the causal link between research and action in society).

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☆ This paper is based on a manuscript which was presented at the Science & Technology Indicators (STI) conference in Leiden, the Netherlands (Bornmann, Haunschild, & Adams, 2018).

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REF scores and altmetrics

Ravenscroft et al. (2017)

- Citations and altmetrics compared to impact scores in 6 disciplines

- Concluded no relationship between altmetrics and impact scores

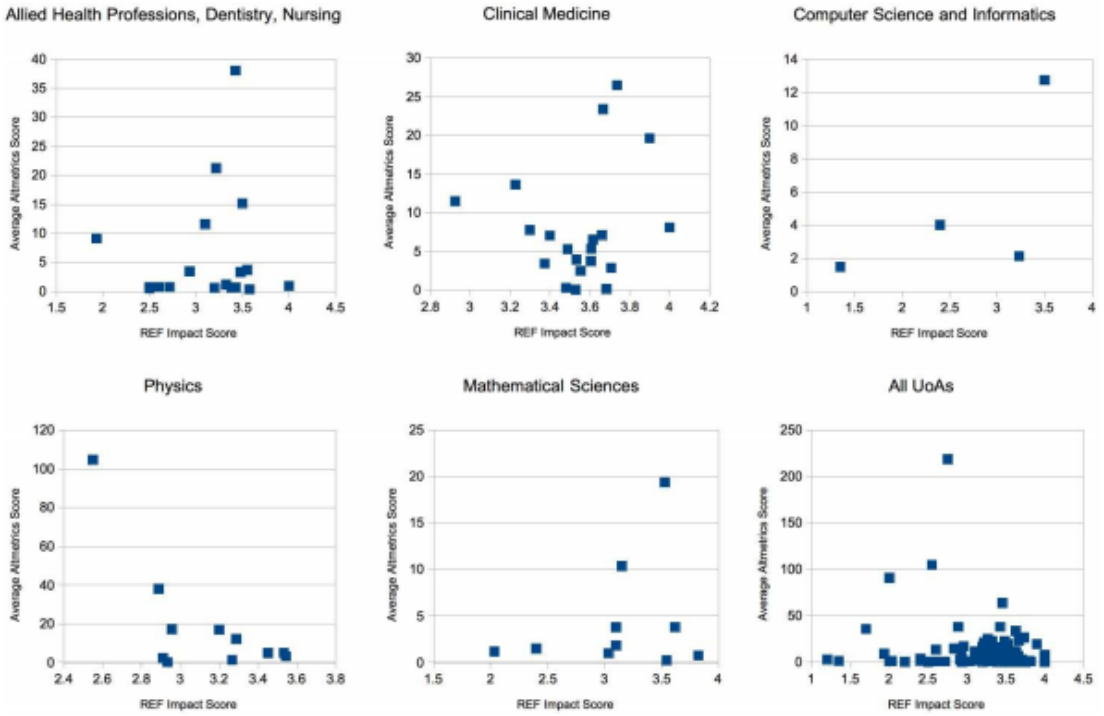

Fig 7. Average Altmetric Score vs Average REF Impact Score. For All UOAs, one outlier is not displayed at (2.75,218).

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REF scores and altmetrics

Wooldridge and King (2018)

- Altmetrics compared to impact scores in 9 disciplines (physical sciences and engineering)
- Identified some ability to predict impact scores from altmetrics

TABLE 5. Predicted societal impact versus actual societal impact.

	True tertile			
Predicted tertile	T1	T2	T3	Total
T1	45	14	7	66
T2	53	76	64	193
T3	5	13	36	54
Total	103	103	107	313

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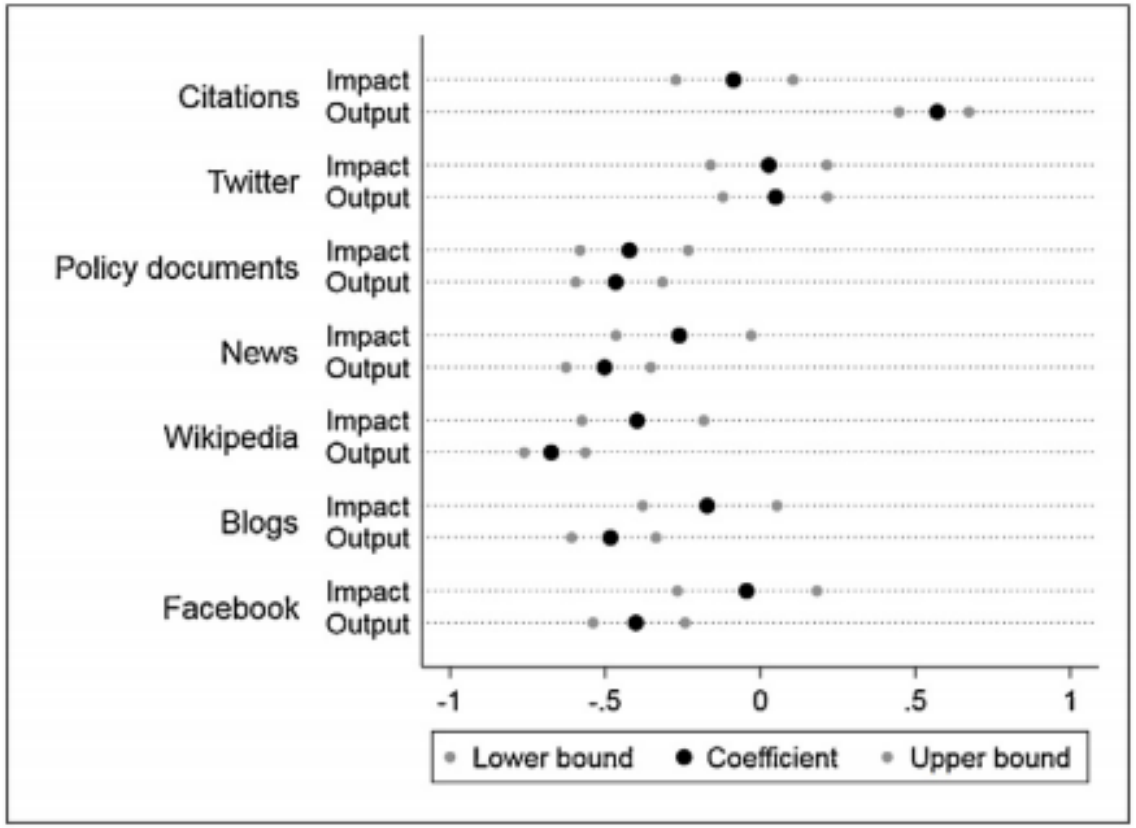
https://doi.org/10.1002/asi.24122

REF scores and altmetrics

Bornmann et al. (2019)

- Studied two groups of articles – submitted as outputs or for impact
- Compared correlations with impact and output scores
- Concluded no relationship between altmetrics and impact scores



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https://doi.org/10.1016/j.joi.2019.01.008

Potential role for altmetrics

Juergen Wastl (Digital Science)

- find research that is worth pursuing around impact based on various sources (from mention to research)

- find potential new leads (from research to mention)

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https://www.altmetric.com/blog/altmetrics-and-the-ref-part-2-using-the-altmetric-explorer-for-preparations-for-your-ref-2021-submission/

Questions and discussion – part 3

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Overview of session

- Using case study evidence to measure impact
  - Introduction to UK Research Excellence Framework (REF)
  - Strengths and weaknesses of case studies
  - Questions?
- Quantitative indicator use in case studies
  - What indicators are used?
  - Consistency and coverage
  - Questions?
- Role of altmetrics in impact assessment
  - Relationship between altmetrics and impact
  - Altmetrics as early indicators
  - Questions?
- **Implications for the preparations of your case study**

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RECAP AND REMAINING QUESTIONS

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RECEPTION

King's College
Staff room

Tomorrow we start with coffee & tea at 8:30