Open Science implementation dilemma

A middle-out approach to connecting recognition and assessment aims to action

Clifford Tatum, CWTS & SURF
c.c.tatum@cwts.leidenuniv.nl

Webinar: Implementing an Open Science Assessment Framework
07 September 2021

slides https://doi.org/10.5281/zenodo.5482197

Outline

- Open Science & Research Evaluation

- Openness Profile

- Implementation dilema

Open Scholarship & Research Evaluation

Denmark

Report: The merits of the future

The Danish Agency for Research and Education (google translation)

Report: The merits of the future

The Danish Agency for Research and Education (google translation)

4.2 Open Science

In the international research world, there is a movement towards a more open and collaborative research structure. Among other things, the movement is driven by an ambition to democratize research and technology and thereby support that research has the greatest possible impact and dissemination to society.

Significant scientific advances and results are achieved by collaborating across research groups, universities and nations. Lack of openness and access to data creates structural problems in research, including challenges with reproducibility, verification, reuse and use of data. In this perspective, open research can be seen as part of a larger transformation within the organization and reward of scientific efforts. In the context of merit, open research has a number of implications. For example, open research requires the maintenance of data sets, tasks in research management and international cooperation. In many cases, open research also requires a number of efforts to develop research in collaboration with civil society, authorities and companies, for example with a view to solving societal challenges in open partnerships across sectors. Therefore, there is a need for merit practice at the Danish universities to open up to the significant contributions that characterize Open Science and in this way support this.

Report: The merits of the future

The Danish Agency for Research and Education (google translation)

4.4 Recommendations

1. In order to support and promote strong research environments, the management of the universities must to a greater extent merit and recognize the breadth of significant contributions to the good research results.

- This applies, for example, to the development of data sets, experiments, programming, modeling, knowledge sharing, peer review, dissemination activities, research management, collaboration, network establishment, conference hosts, editorial work, etc.

2. In connection with employment and promotion, the university management must ensure that the assessment committee carries out a substantial and broadly oriented assessment of the applicants' academic research merits at a qualitative level.

- The emphasis on a substantial qualitative assessment means that assessments based solely on simple quantitative metrics should be rejected

- The emphasis on a broadly oriented assessment means that all significant contributions to the establishment of good research results must be meritorious, which will also support many aspects of Open Science.

- The work of the assessment committees can, for example, be supported by a clearer structuring of their work, an in-depth instruction or the implementation of instructive start-up meetings in connection with an assessment process.

Report: The merits of the future

The Danish Agency for Research and Education (google translation)

ACUMEN
academic careers understood through measurement and norms

ABOUT | DELIVERABLES | PUBLICATIONS | PORTFOLIO

ACUMEN is a European research collaboration aimed at understanding the ways in which researchers are evaluated by their peers and by institutions, and at assessing how the science system can be improved and enhanced. This FP7 project is a cooperation among nine European research institutes with Professor Paul Wouters (CWTS – Leiden University) as principal investigator.

European Commission 7th Framework

Capacities, Science in Society 2010

Grant Agreement: 266632

EUROPEAN COMMISSION

SEVENTH FRAMEWORK PROGRAMME

About ACUMEN

Project Overview

Conceptual Framework

Project Deliverables

Events Calendar

Stakeholder Workshops

Partners

Click on the links below to visit individual partner pages on this website, or see below for a summary of all partners:

- Leiden University (the Netherlands)
- Bar Ilan University (Ramat Gan, Israel)
- Agencia estatal consejo superior de investigaciones cientificas (Madrid, Spain)
- University of Wolverhampton (United Kingdom)
- Estonian Research Council (Tartu, Estonia)
- Humboldt-Universitat (Berlin, Germany)
- Technische Hochschule Wildau (Wildau, Germany)
- Danmarks Biblioteksskole (Kopenhagen, Denmark)
- eHumanities Group – KNAW (Amsterdam, Netherlands)

Referenced in:

Sharing and collaborating on knowledge must be meritorious

SURF CWTS

Report: The merits of the future

The Danish Agency for Research and Education (google translation)

ACUMEN portfolio (EC FP7, 2011-2014)

aims to give researchers a voice in evaluation

- evidence based arguments
- shift to dialog orientation
- selection of indicators
- narrative component
- Good Evaluation Practices
- envisioned as web service

http://research-acumen.eu

Open Scholarship & Research Evaluation

The Netherlands

“Knowledge sector takes major step forward in new approach to recognising and rewarding academics” (The VSNU, NFU, KNAW, NWO and ZonMw)

This calls for a system of recognition and rewards of academics and research that:

1. Enables the diversification and vitalisation of career paths, thereby promoting excellence in each of the key areas;
2. Acknowledges the independence and individual qualities and ambitions of academics as well as recognising team performances;
3. Emphasises quality of work over quantitative results (such as number of publications);
4. Encourages all aspects of open science; and
5. Encourages high-quality academic leadership.

Stimulating open science

More room for open science is an issue that needs to be addressed specifically. This new approach to science and academia gives others, in addition to the academics themselves, the opportunity to cooperate on, contribute to and make use of the academic process. This means, for example, that academics share the results of their research more broadly with society, that they make research results more accessible and that they can involve society in the research (such as through citizen science). Open science is bound up inextricably with the modernisation of the system of recognition and rewards. It requires time and attention from academics that cannot be automatically translated as traditional academic output such as publications, but which can have a significant impact on society, science and academia (such as sharing research data).

VSNU, NFU, KNAW, NWO and ZonMw (2019) Room for everyone’s talent: Towards a new balance in the recognition and rewards for academics

1 Academia in Motion: Recognition & Rewards at Leiden University

How can we ensure that Leiden University becomes the best possible work environment and how can we improve the quality of education, research, societal relevance[1] and leadership? 'Academia in Motion: Recognition & Rewards' has been produced by Leiden University as a contribution to the national initiative for a new approach to Recognition & Rewards in the academic community.

The position paper 'Room for everyone's talent' of the Dutch public knowledge institutions and funders (VSNU, NFU, KNAW, NWO and ZonMw) argues for a culture change, with the goals: a better balance between education, research and societal relevance; better methods of Recognition & Rewards; an open academic community; and more emphasis on teamwork. The VSNU is currently working on a framework for assessment, development and promotion that will form the basis for a new University Job Classification System (UFO). NWO and ZonMw are creating more diversity in their funding instruments, and the application forms now have a more narrative character. The Strategy Evaluation Protocol (SEP) for assessing research units will further implement the new Recognition & Rewards principles.

'Academia in Motion' shows that Leiden University takes Recognition & Rewards seriously. Our aim is to engage in dialogue with the academic community so that together we can create a better form of Recognition & Rewards. We also want to keep everyone informed about the latest developments in the academic world in the area of Recognition & Rewards. This document sets out what the basic principles are, what we aim to work on, what is already happening at Leiden University, and where the challenges lie in.

[1] The terms 'impact', 'societal relevance' and 'valorisation' are used interchangeably in the Dutch debate on academic research. 'Impact' suggests a linear relationship between research and society, in which the source, target and content can be clearly delineated and identified. 'Valorisation' is seen by many as having largely economic connotations, while other ways of applying knowledge (social, cultural, technological) should also be assessed. We have therefore chosen the more neutral term 'societal relevance' here.

4 Our ambitions: Diversification in careers, transparency and leadership

Transparency

All aspects of open science need to be stimulated more, such as sharing scholarly results with society and promoting the accessibility of research results. This will enable valuable knowledge to be used by researchers, companies and public organisations.

The NWO's **Open Science policy** stipulates that all publications based on NWO-funded research must be immediately available via open access, and open science is now on the agenda of all universities. The Leiden University **'Open Science'** steering group, led by Paul Wouters (Dean of the Faculty of Social & Behavioural Sciences), is developing a vision on open science to encourage researchers to put open science into practice and to commit to the **national** and **European** open science policies.

An open academic culture also involves transparency in career options, appointments, remunerations, promotions and the right to supervise PhDs. There must be more clarity about career prospects, conditions for permanent appointment and criteria for promotion. It is also important here that individual ambitions and goals should be aligned with the institution's overarching goals. Good examples of the kind of transparency we hope to achieve include the possibility of choosing between career paths and the promotion of associate professors on the basis of teaching performance.

CWTS (Leiden University) open science policy

principles

1. As open as possible, as closed as necessary
2. Openness is not always easy
3. Openness takes time
4. Openness is a joint responsibility
5. Openness should not become a straightjacket

—> e.g. open data operationalized in Data Management Plan

Openness Profile

Policy:

Implementation of top-down open science policy initiatives, relies on vast cultural change associated with established recognition and reward systems.

*The idea of open science entails **systemic change** across all stakeholders, **towards sharing and using all available knowledge at an earlier stage in the research process**. (EC 2016)*

*vast cultural change is needed in the transition to **a more comprehensive recognition and reward system incorporating Open Science** (EC July 2017)*

*It is **imperative to strike a balance between top-down efforts** to incentivise open scholarship **and bottom-up resources*** [associated with] *needs, expectations and background knowledge of users on the ground. (EC/Leonelli November 2017)*

Open Science Career Assessment Matrix (OS-CAM)

Open Science Career Assessment Matrix (OS-CAM)	
Open Science activities	*Possible evaluation criteria*
RESEARCH OUTPUT	
Research activity	Pushing forward the boundaries of open science as a research topic
Publications	Publishing in open access journals Self-archiving in open access repositories
Datasets and research results	Using the FAIR data principles Adopting quality standards in open data management and open datasets Making use of open data from other researchers
Open source	Using open source software and other open tools Developing new software and tools that are open to other users
Funding	Securing funding for open science activities
RESEARCH PROCESS	
Stakeholder engagement / citizen science	Actively engaging society and research users in the research process Sharing provisional research results with stakeholders through open platforms (e.g. Arxiv, Figshare) Involving stakeholders in peer review processes
Collaboration and Interdisciplinarity	Widening participation in research through open collaborative projects Engaging in team science through diverse cross-disciplinary teams
Research integrity	Being aware of the ethical and legal issues relating to data sharing, confidentiality, attribution and environmental impact of open science activities Fully recognizing the contribution of others in research projects, including collaborators, co-authors, citizens, open data providers
Risk management	Taking account of the risks involved in open science
SERVICE AND LEADERSHIP	
Leadership	Developing a vision and strategy on how to integrate OS practices in the normal practice of doing research Driving policy and practice in open science Being a role model in practicing open science
Academic standing	Developing an international or national profile for open science activities Contributing as editor or advisor for open science journals or bodies
Peer review	Contributing to open peer review processes Examining or assessing open research
Networking	Participating in national and international networks relating to open science

RESEARCH IMPACT	
Communication and Dissemination	Participating in public engagement activities Sharing research results through non-academic dissemination channels Translating research into a language suitable for public understanding
IP (patents, licenses)	Being knowledgeable on the legal and ethical issues relating to IPR Transferring IP to the wider economy
Societal impact	Evidence of use of research by societal groups Recognition from societal groups or for societal activities
Knowledge exchange	Engaging in open innovation with partners beyond academia
TEACHING AND SUPERVISION	
Teaching	Training other researchers in open science principles and methods Developing curricula and programs in open science methods, including open science data management Raising awareness and understanding in open science in undergraduate and masters' programs
Mentoring	Mentoring and encouraging others in developing their open science capabilities
Supervision	Supporting early stage researchers to adopt an open science approach
PROFESSIONAL EXPERIENCE	
Continuing professional development	Investing in own professional development to build open science capabilities
Project management	Successfully delivering open science projects involving diverse research teams
Personal qualities	Demonstrating the personal qualities to engage society and research users with open science Showing the flexibility and perseverance to respond to the challenges of conducting open science

Openness Profile (research)

Focus: Openness Profile context & utility

- 20 semi-structured interviews
- Stakeholders: focused on those already contributing to open scholarship
  - Researchers, early/mid/senior career stage
  - Librarians / publishers
  - Infrastructure / technology / data
  - Funders / evaluators / policy makers
- Interviews: openness practices, research evaluation, utility of the Openness Profile
- Qualitative analysis: coding in Atlas.ti
- Research followed up with plenary workshop and focus groups (report forthcoming)

Research report: here

Follow-up report: forthcoming

Research: key observations

- Substantial enthusiasm for open scholarship
- Frustration with current incentive structures and cultural inertia,
- desire for systemic change in how contributions to scholarship are valued
- emerging OP use cases: annual review, to inform decision making, create incentives

Openness Profile (aims)

—disrupts notion of authorship in relation to evaluation

—links contributions to contemporary RI infrastructure

—format for documenting contributions to OS

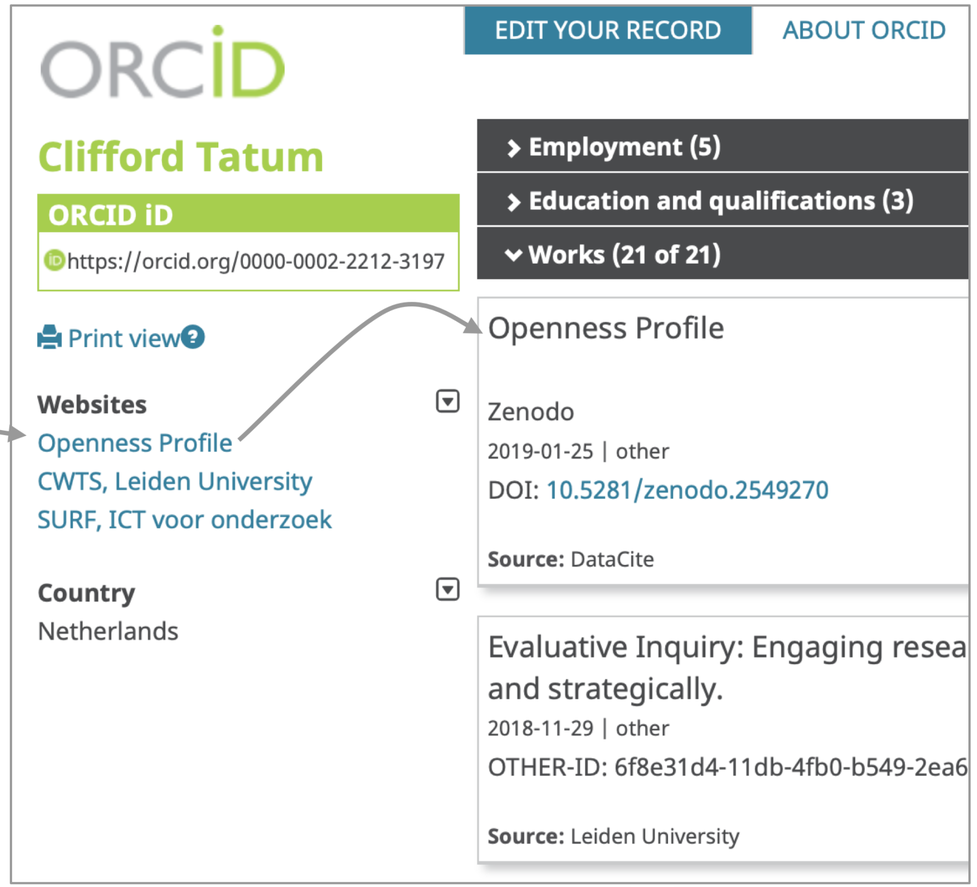
—procedures for self-publishing contributions with DOI

—taxonomy of tools and contributions

—links to ORCID record (works):
--> findable
--> human readable
--> machine readable

—resources for those already doing open scholarship

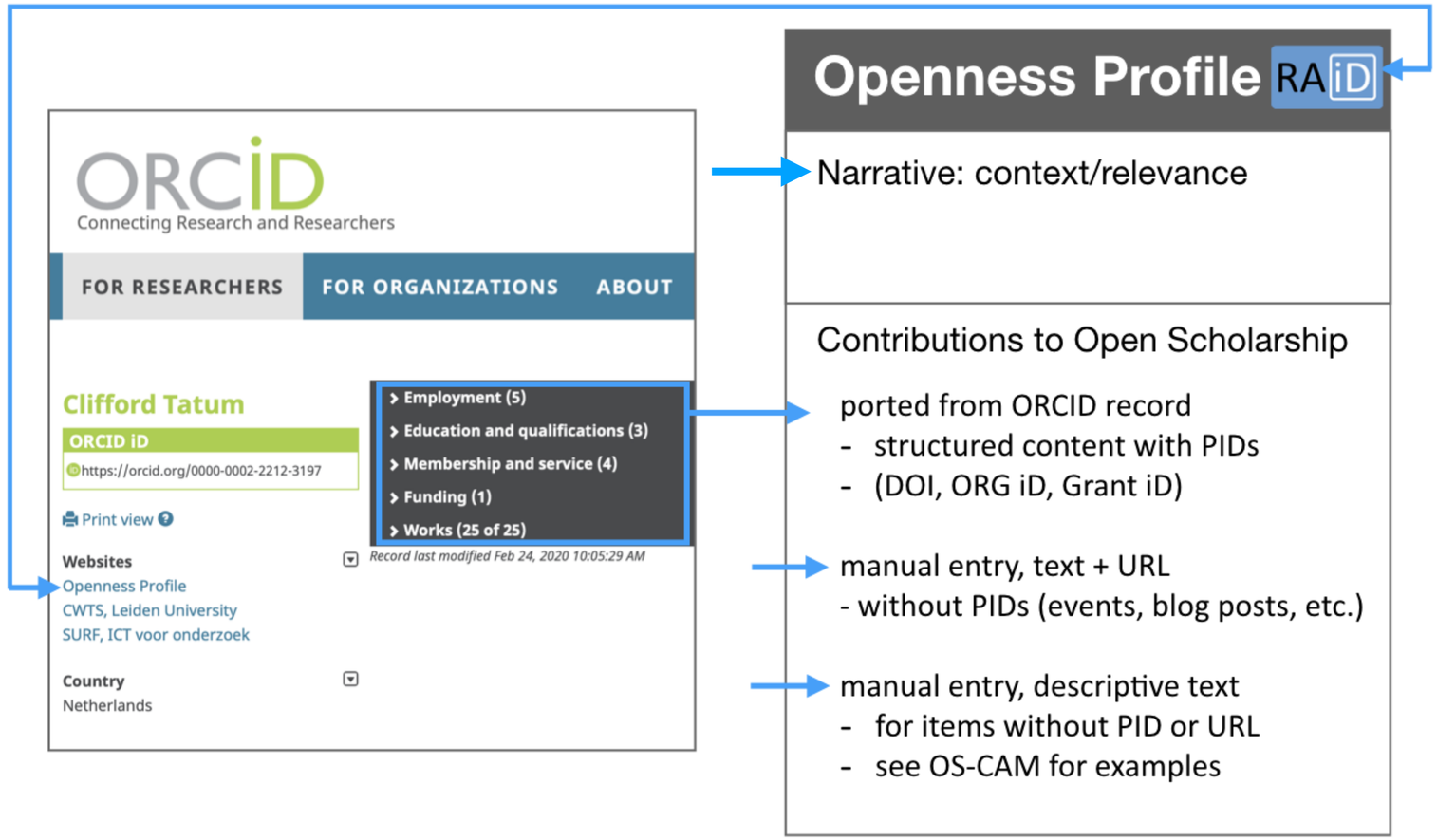
—while also being available for and adaptable to future changes enacted by top-down research policy initiatives



Knowledge Exchange

SURF CWTS

Openness Profile (concept)



Openness Profile (content categories)

Category	Content	Source
Narrative	The narrative enables the contributor to provide a more textured account of their contributions by for example developing an evidence-based argument about the relevance of the provided content	User
Sample items ported from one's ORCID record.	DOI – OA Publication DOI – OA presentation DOI – OA Dataset Org ID – service contribution Org ID – OS affiliation Grant ID – OS project Open Peer review	ORCID record: works ORCID record: service ORCID record: affiliation ORCID record: Grant awards ORCID record: peer review
Sample user-entered items with URLs that point to the contribution	URL – software URL – OS tools URL – event URL – course curriculum URL – art exhibit URL – (social) media mentions	e.g. Git Hub e.g. website, repository e.g. webpage, blog post, etc. Institution webpage Institution, persona webpage Various
Sample user-entered items that cannot be evidenced with public documentation	Descriptive text; provide references as appropriate	see OS-CAM matrix (page 15) for contribution types that may not have a URL

Openness Profile (PID collaborators)

Implementation Dilema

Evolving research evaluation landscape (sample of bottom-up initiatives)

Principles

DORA—	stop using Journal Impact Factor for evaluation of individuals
Metric Tide—	quantitative assessment should support, not replace, expert judgment
Leiden Manifesto—	Responsible metrics

Frameworks

HuMetricsHSS—	humanities scholars evaluated on the basis of agreed values, such as: Equity, Openness, Collegiality, Quality, Community
INORM's SCOPE—	START with what you value, CONTEXT considerations, OPTIONS for measuring, PROBE deeply, EVALUATE your evaluation
Evaluative Inquriy—	CWTS framework: 'prospective', portfolio approach for group level assessment; mixed methods and engaged

Openness Profile Focus groups: key observations

- stakeholders (especially funders) identified value in multiple workflows
- already engaging with OS and grappling with how to evaluate
- provided productive refinements to the OP concept
- but also identified obstacles, especially ‘changing’ research evaluation

Final report: https://www.knowledge-exchange.info/event/openness-profile

EUA Survey: Research Assessment in the Transition to Open Science

based on 260 valid responses from universities in 32 European countries

Table 3 – Autonomy to develop and implement research assessment approaches

Based on single-choice survey questions 4 (number of respondents: 197/197), 10 (183/183) and 13 (177/177)

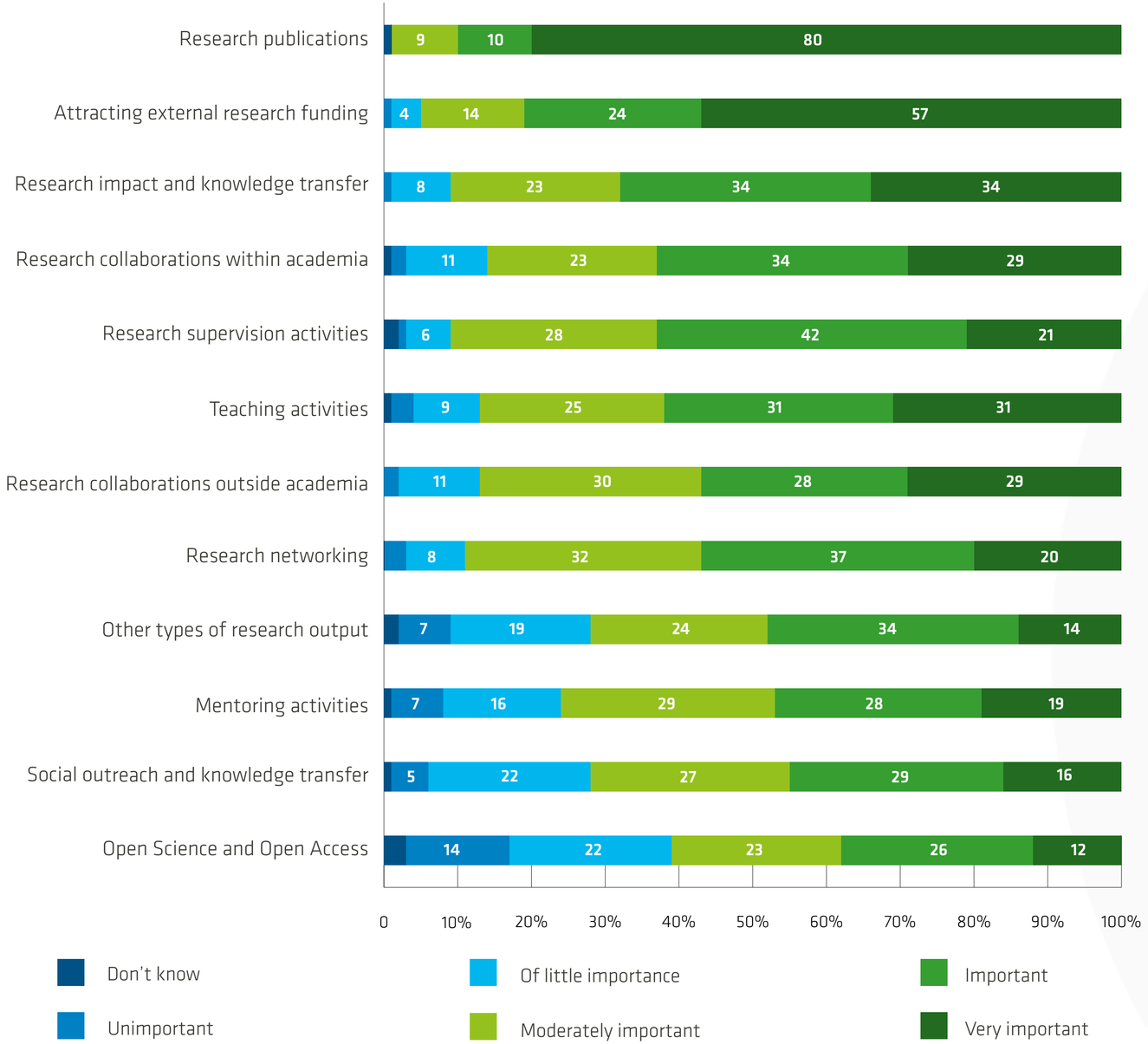
	Research careers (in %)	Performance of research units (in %)	Internal research funding allocation (in %)
Highly autonomous	38	44	55
Mostly autonomous	41	39	35
Some autonomy	17	14	9
Low autonomy	4	3	1

In summary, universities do not develop and implement research assessment procedures in isolation. While responding institutions consider themselves as having significant autonomy to develop and implement procedures, they are also keenly aware of the influence of external actors and conditions, notably governments and research funding organisations. Universities also feel the pressure of the competitive research and innovation environment, which they recognise as affecting their research assessment approaches.

Saenen, et al. 2019. https://www.eua.eu/component/attachments/attachments.html?id=2444

Figure 9 – Importance of academic activities for research careers

Based on survey question 7, ranking question (cf. Annex 1). Number of respondents: 191-195/197



EUA Survey: Careers

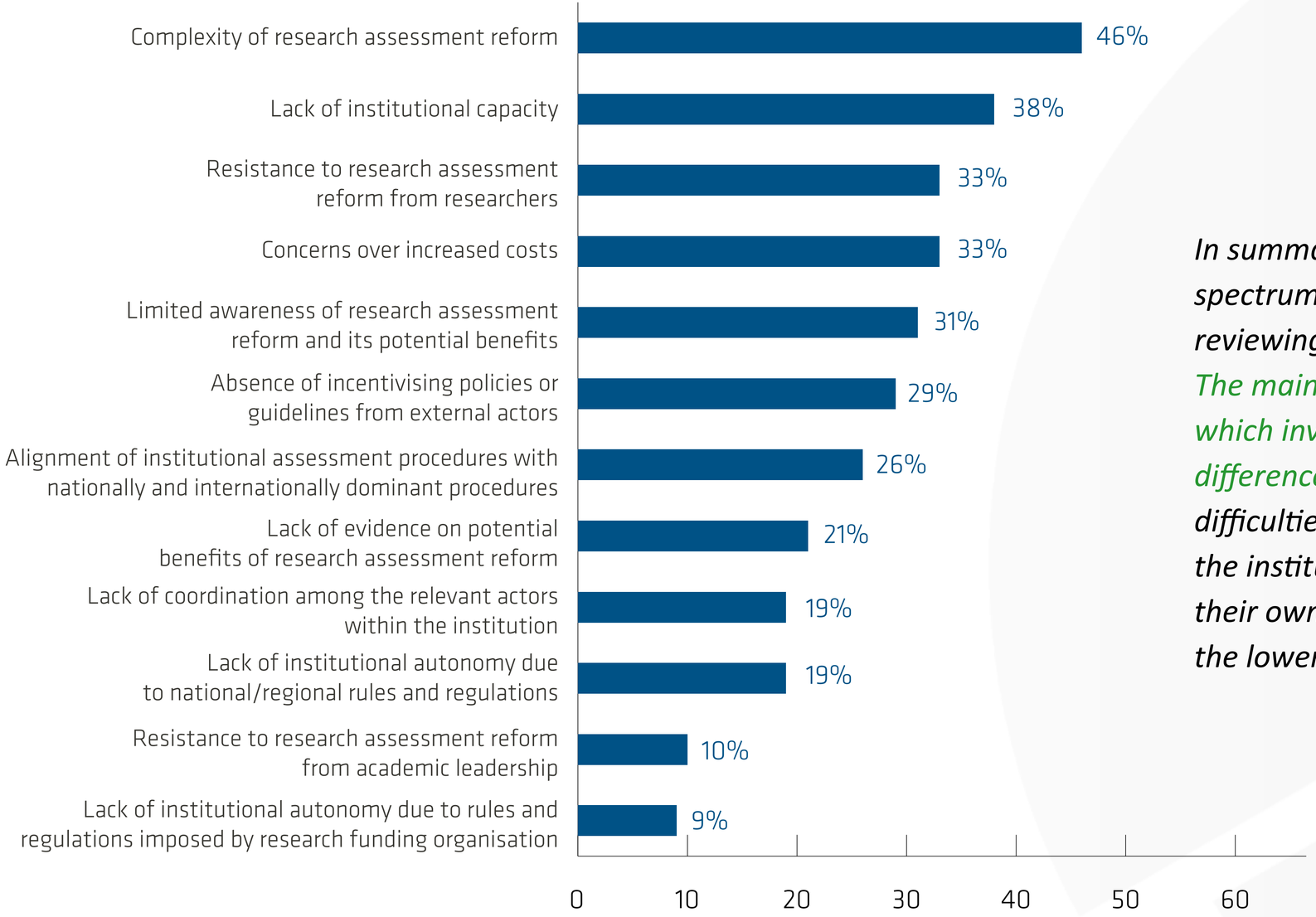
In summary, the survey results show that publishing research outcomes and attracting external research funding are the most important academic activities when it comes to building a university research career. A range of other activities such as research impact and knowledge transfer are also commonly, albeit to a lesser extent, acknowledged by respondents. Open Science and Access activities are the lowest ranked category and are only '(very) important' at just over a third of universities, which is roughly on a par with the number of institutions who give little or even no importance to this category when evaluating researchers.

Saenen, et al. 2019. https://www.eua.eu/component/attachments/attachments.html?id=2444

EUA Survey: Barriers

Figure 15 – Main barriers and difficulties for reviewing approaches to research assessment

Based on survey question 19, multiple-choice (cf. Annex 1). Number of respondents: 233/254

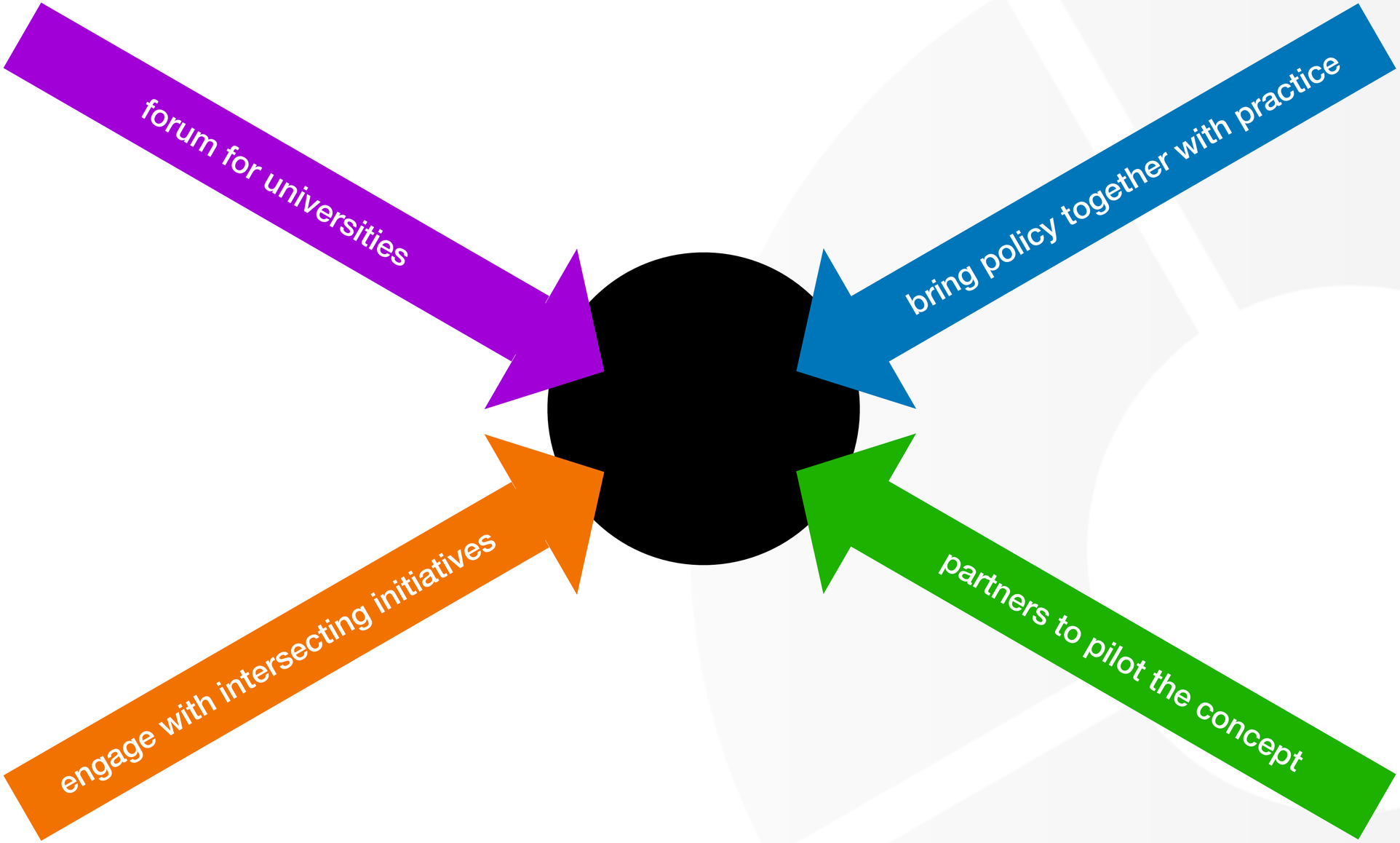


In summary, responding institutions indicated a wide spectrum of barriers and challenges when it comes to reviewing university approaches to research assessment. The main challenge is the overall complexity of this issue, which involves important disciplinary and national differences. Furthermore, the main barriers and difficulties are almost all internal, while issues related to the institutions' autonomy to develop and implement their own research assessment approaches are found at the lower end of the spectrum.

Saenen, et al. 2019. https://www.eua.eu/component/attachments/attachments.html?id=2444

In summary

- top down policy & cultural change via bottom up initiatives
- intersecting initiatives — research evaluation in transition
- openness profile, a middle-out resource (opportunities & obstacles)
- universities as strategic actors


forum for universities
bring policy together with practice
engage with intersecting initiatives
partners to pilot the concept

Thank you!

Clifford Tatum
https://orcid.org/0000-0002-2212-3197

slides https://doi.org/10.5281/zenodo.5482197

https://www.knowledge-exchange.info/event/openness-profile