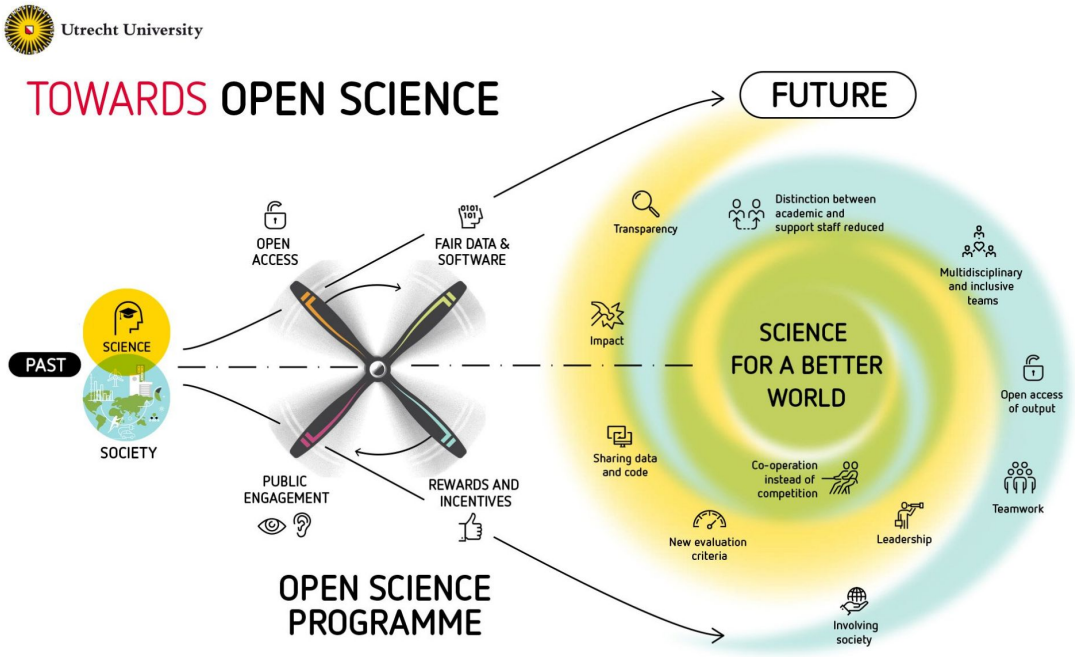
Open Science and academic recognition and rewards:

A vision from Utrecht University



for Economic Commission for Latin America and the Caribbean (ECLAC)

September 30, 2021

Transition to Open Science

Frank Miedema

Vice Rector Research, Utrecht University

Chair UU Open Science Program

https://www.uu.nl/en/research/open-science; Twitter @MiedemaF

Universiteit Utrecht

Open Science (1)

The overall aim of Open Science is to increase the quality, progress and scientific & societal impact of research and scholarship.

Transition to Open Science: why?

problems of the science system

- Competitive and non-cooperative practices
- Quality and Replication crisis
- Expensive commercial publication markets
- Privatization and problems of knowledge ownership / knowledge access
- Relationship with society

Transition to Open Science: why?

Metrics shapes Science

- *Novelty and quantity* are dominant over quality, replication, relevance and impact
- Short-termism and risk aversion because of 4-year funding cycles
- Fields with high societal impact, but low impact in the metrics system suffer (applied vs basic; SSH vs STEM)

- The national and institutional research agenda is thus not properly reflecting societal (clinical) needs and disease burden

Open Science (2)

To achieve these goals in the practice of Open Science

- Engage -when appropriate- with relevant and representative stakeholders from society to:
- Define problems to be investigated; discuss ongoing research
- Actively promote that the results of any kind provide guidance for implementation and action(s) in the specific contexts.

Open Science (3)

To achieve these goals in the practice of Open Science

- Share research results, if possible, in several stages of the work and publishing these papers Open Access
- and if possible FAIR Data and Code (Software) Open Access

Last but not least:

- Change research evaluation (Incentive and Rewards) accordingly

Many initiatives and actions

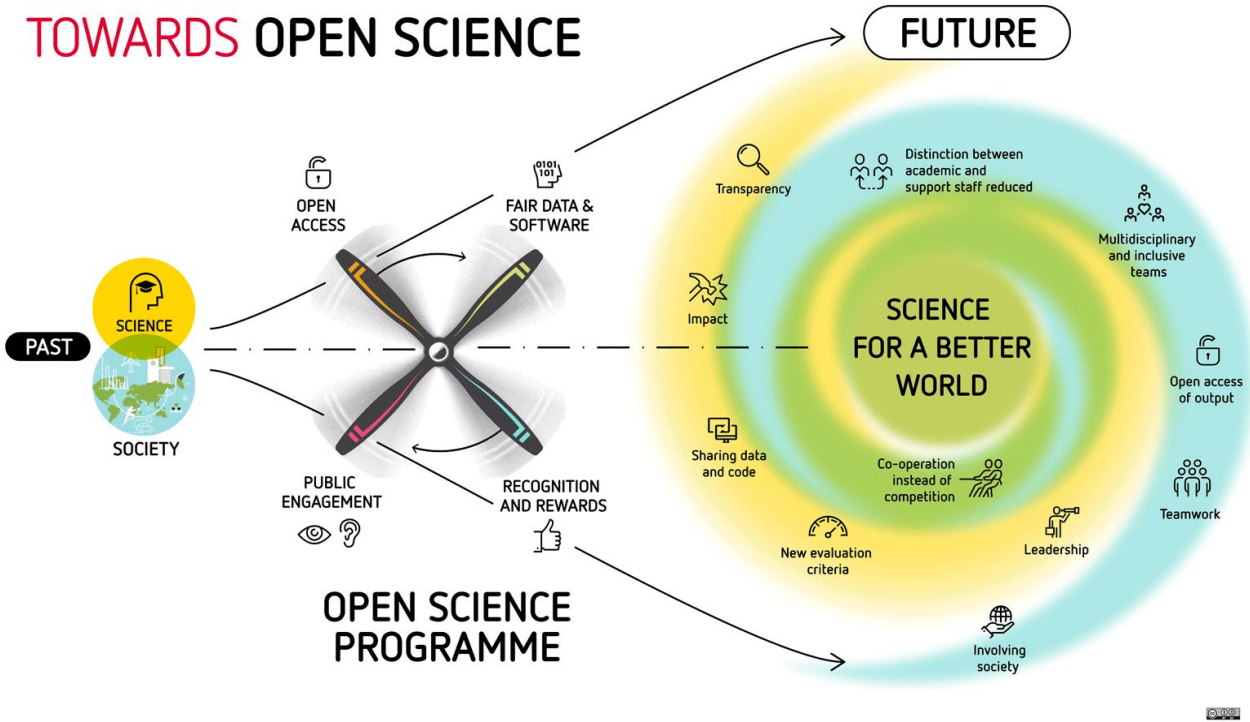
- https://sfdora.org **The San Francisco Declaration on Research Assessment**
- **2016 EU adopts Open Science as the standard for Horizon Europe 2021**
- http://ec.europa.eu/research/openscience/index.cfm?pg=open-science-policy-platform
  Including Open Science Career Advancement Matrix
- **Coalition S and Plan S**
- **UNESCO** https://en.unesco.org/science-sustainable-future/open-science
- **http://www.leidenmanifesto.org**
- http//responsiblemetrics.org
- VSNU, NWO, NFU: www.vsnu.nl/Room for Everyone's Talent;
- https://www.vsnu.nl/files/documenten/Domeinen/Onderzoek/SEP_2021-2027.pdf.

European Open Science Agenda 2016

- Rewards and Incentives
- Research Indicators and Next-Generation Metric
- OA and the Future of Scholarly Communication
- European Open Science Cloud
- FAIR Data
- Research Integrity
- Skills and Education
- Citizen Science/Public Engagement

https://www.openscience.eu/open-science-policy-platform-final-report/

TOWARDS OPEN SCIENCE



OPEN SCIENCE PROGRAMME

Open access

The goal of the open access project is to make substantial progress in order to make open access a natural part of the academic workflow.

FAIR data and software

Making relevant data fully FAIR (Findable, Accessible, Interoperable and Reusable) and also open wherever viable has many advantages.

Public engagement

Increasing public engagement helps to make science and scholarship relate more closely to societal issues and any questions that people might have.

Recognition and rewards

The available system of recognition and rewards is seen as the most important in effecting the change towards open science.

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The Scientific Field: Professional Interests, Elites, Stratification, Power Struggle, and Economics

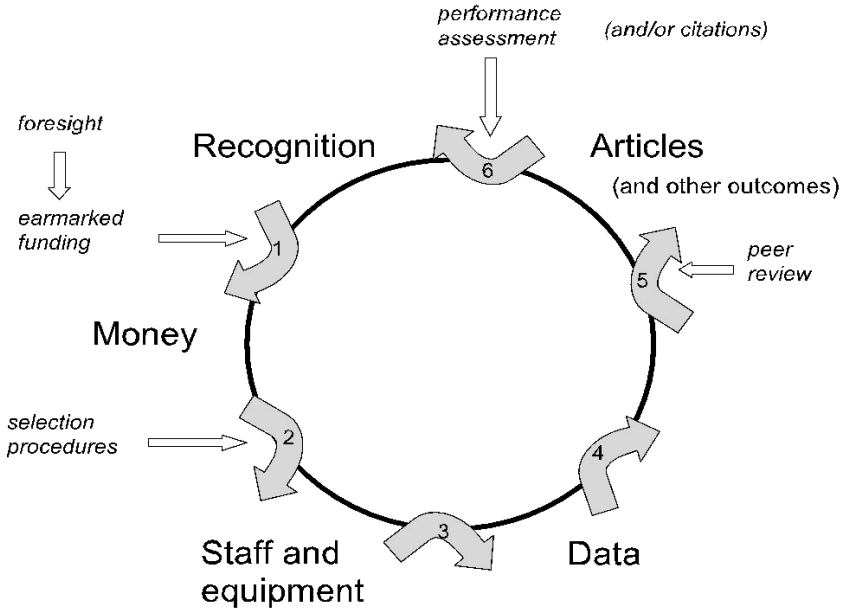


Figure 3. The credibility cycle, adapted from Latour and Woolgar (1986). Points at which organizational devices connect to the cycle are shown

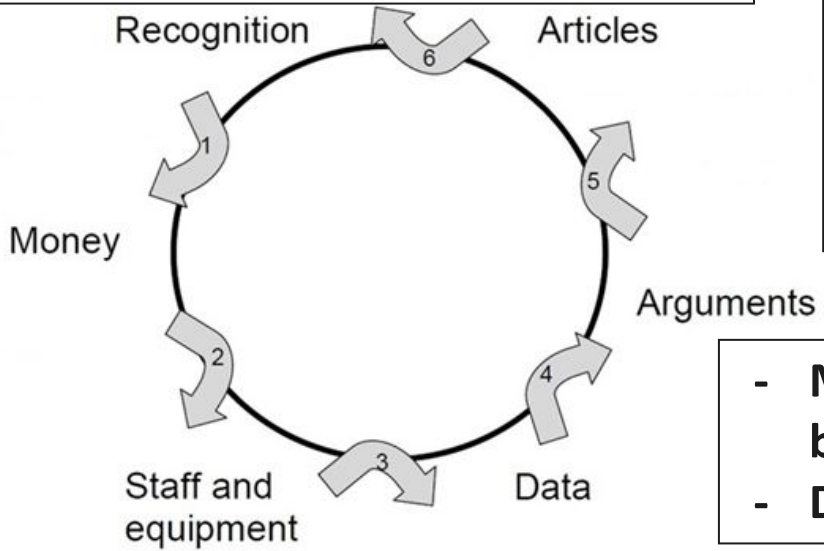
Pierre Bourdieu, 1975 & 2004, Latour and Woolgar 1979

Problems of the Current Reward System in Science

Society is largely absent from the *credibility cycle*

Hypercompetition for limited funds

Too little room for Team-Science, Multidisciplinarity & Diversity

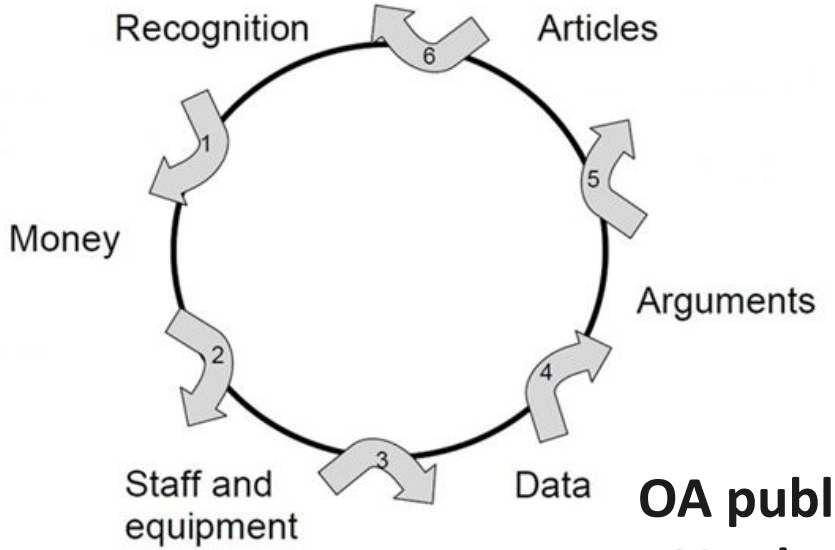


Quality in Quantitative terms: -
- number of articles, journal impact factor, citations, H-index
- amount of funding obtained

- **Most papers still behind paywalls**
- **Data not shared**

Systemic Interventions to improve quality, impact and integrity at all levels

Engagement of societal stakeholders in problem choice research and evaluation



Inclusive indicators

Quality (DORA)
Societal Impact
Academic Leadership and Culture
EDI

OPEN PEER REVIEW
POST PUB PEER REVIEW

OA publishing
FAIR data sharing

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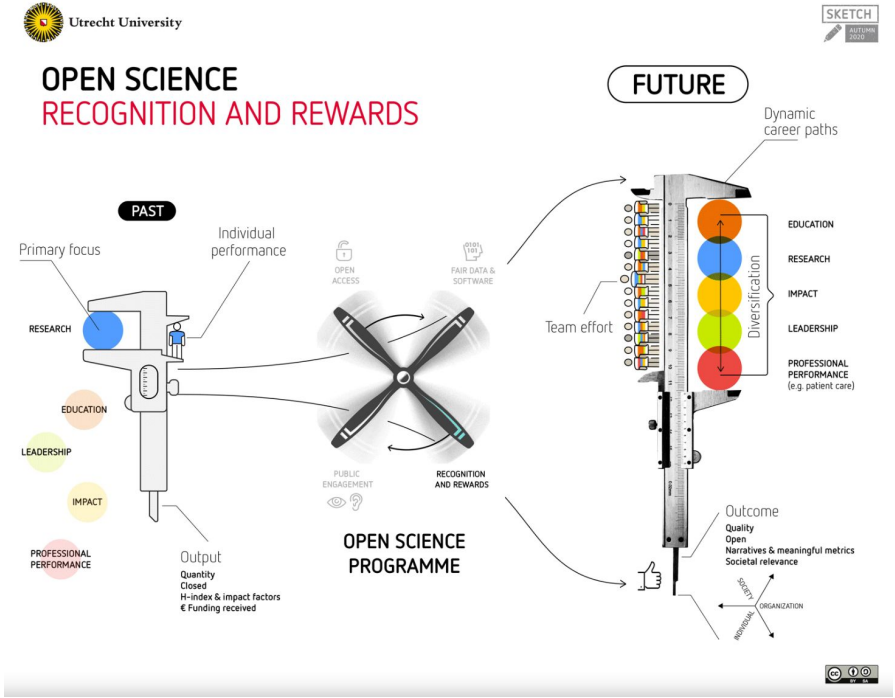
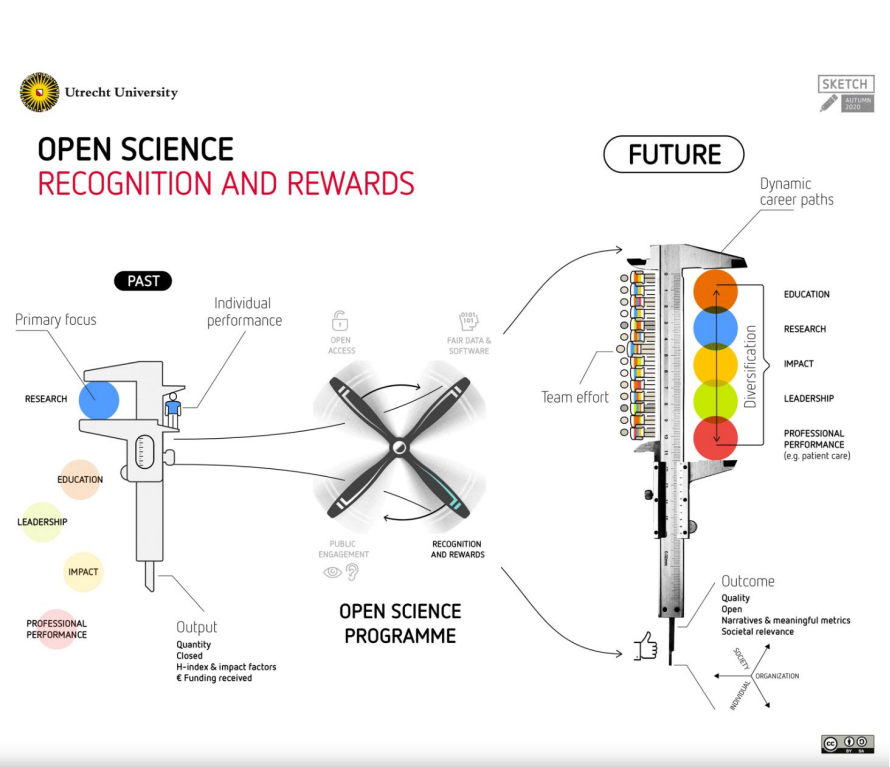
Recognition and rewards



Bianca Kramer [@MsPhelps](https://twitter.com/MsPhelps)
Utrecht University Library
Recognition & rewards, Utrecht
Open Science Programme

Recognition and rewards



Rewards change focuses on **what** is rewarded and on the **level** at which evaluations take place

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CAREER NEWS | 25 June 2021

Impact factor abandoned by Dutch university in hiring and promotion decisions

Faculty and staff members at Utrecht University will be evaluated by their commitment to open science.

Utrecht University
Recognition and Rewards Vision

By embracing Open Science as one of its five core principles[1], Utrecht University aims to accelerate and improve science and scholarship and its societal impact. Open science calls for a full commitment to openness, based on a comprehensive vision regarding the relationship with society. This ongoing transition to Open Science requires us to reconsider the way in which we recognize and reward members of the academic community. It should value teamwork over individualism and calls for an open academic culture that promotes accountability, reproducibility, integrity and transparency, and where sharing (open access, FAIR data and software) and public engagement are normal daily practice. In this transition we closely align ourselves with the national VSNU program as well as developments on the international level.

Really implementing these changes in policies attracts a lot of **attention/discussion**

DORA - Declaration on Research Assessment

“Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist’s contributions, or in hiring, promotion, or funding decisions.”

General recommendation from the San Francisco Declaration on Research Assessment

The trouble with… the Journal Impact Factor (JIF)

Why Journal Impact Factor (JIF) should not be used to assess individual researchers

Journal Impact Factor (JIF):
Yearly average number of citations of articles published in the last two years in a given journal

- A minority of very highly cited papers in a journal can increase its JIF dramatically
- JIF does not correlate with quality nor reliability of research
- JIF is heavily affected by gatekeeping and human and systemic biases
- Some types of publications, e.g. review articles and new discoveries, are more likely to be cited
- Truly original work usually takes longer than 2 years to be appreciated
- Citation-based metrics like JIF are biased towards positive study results

For references and further information, please refer to "Quality is Key" by Esther Plomp on openworking.wordpress.com
Icons from the Noun Project: years by Umer Younas, Undo by Sudarto Wasmad, message quote by Wolf Böse, scales by Symbolon, positive by Adrien Coquet

OSCD Open Science Community Delft

The trouble with… h-index

Why h-index should not be used to assess individual researchers

A researcher has an **h-index** of x when they published x papers which were cited at least x times each

The h-index favours those who publish more

The h-index does not take into account the individual's placement in the author list, which in some fields is important

The number of papers that researchers produce is field-dependent

Some disciplines cite more extensively than others, which artificially increasing the h-index

For references and further information, please refer to "Quality is Key" by Esther Plomp on openworking.wordpress.com
Icons from the Noun Project: papers by Margarita Rudenko, increase by Alice Design, message quote by Wolf Böse, List by Gregor Cresnar

OSCD Open Science Community Delft

“I am not my h-index (or myJIFs)”

https://twitter.com/stephen_curry/status/1006539579426508802

DORA - Declaration on Research Assessment

"For the purposes of research assessment, consider the **value and impact of all research outputs** (including datasets and software) in addition to research publications, and consider a **broad range of impact measures** including qualitative indicators of research impact, such as influence on policy and practice."

Recommendation for institutions from the San Francisco Declaration on Research Assessment

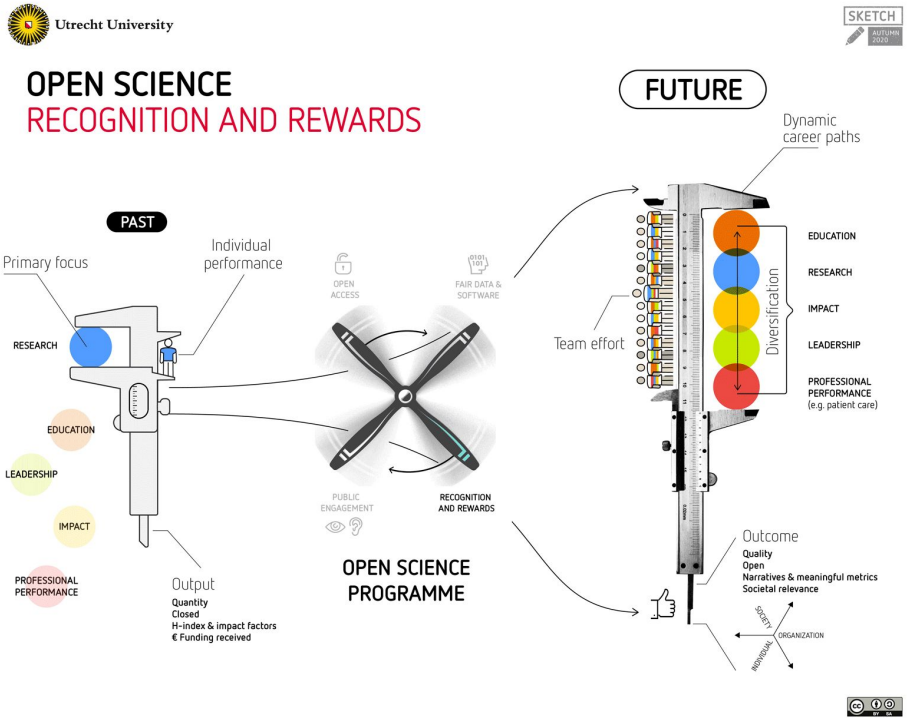
Utrecht University - TRIPLE model

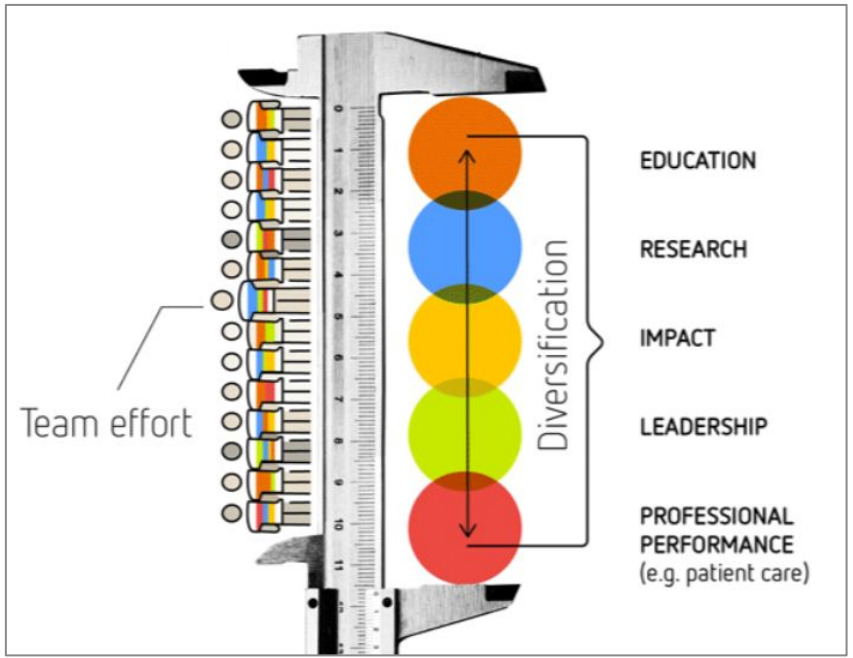
TRIPLE: Team Spirit as the default approach to working in academia

- TEAM
- RESEARCH
- IMPACT
- PROFESSIONAL PERFORMANCE
- LEADERSHIP
- EDUCATION

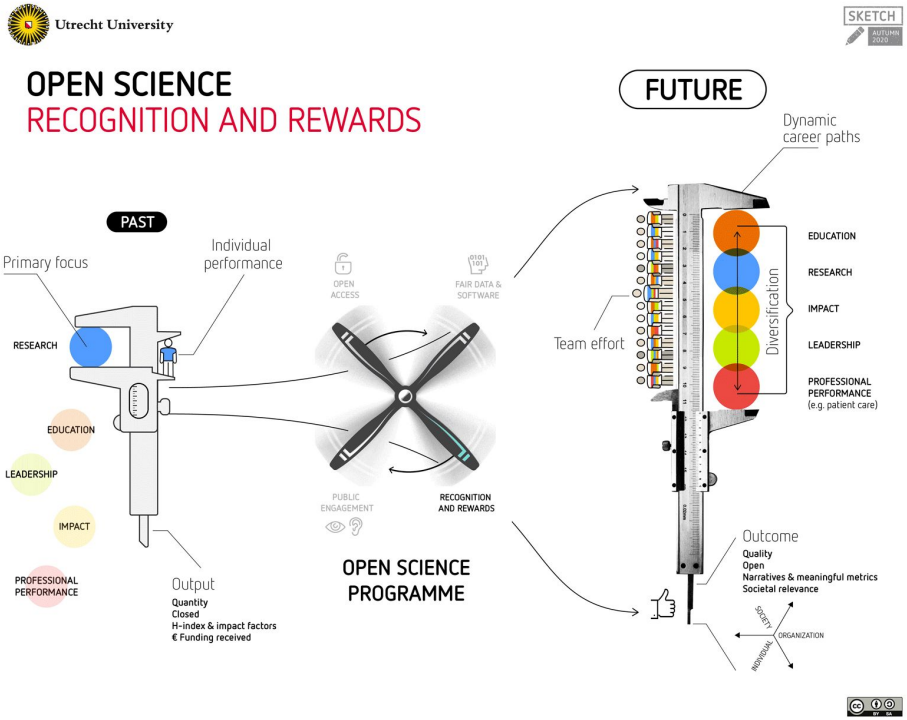
TRIPLE MODEL

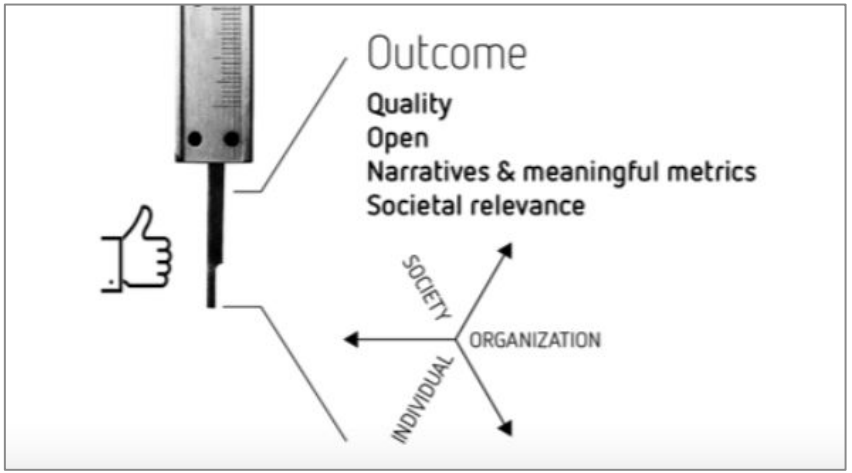
Recognition and rewards - broadening





Recognition and rewards - deepening





Recognition and rewards - context / situatedness

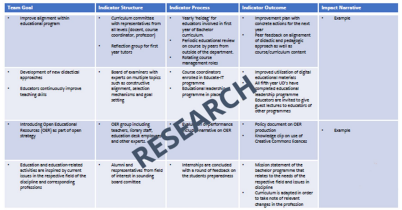
Linked to ambition / strategy

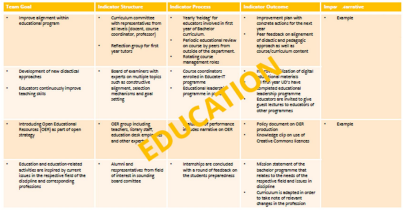
The way ambitions/goals are realized (structures)

The way ambitions/goals are realized (process)

Outputs and indicators of quality & impact

Goals	Structure	Process	Outcomes	Impact narrative
…				
…				
…				





UU guiding principles for recognition and rewards

- Collective as point of departure
- Invest in leadership on all levels
- Diversification in profiles and dynamic career paths
- Recognize and reward openness in all domains
- Recognize and reward quality over quantity

Guiding principles - what it can mean for research

- Collective as point of departure
  - focus more on collaboration, less on competition (also within teams);
  - involve stakeholders in all aspects of research
- Invest in leadership on all levels
  - involve people in decision making; agency
- Diversification in profiles and dynamic career paths
  - recognize different contributions to research and research dissemination

Guiding principles - what it can mean for research?

- Recognize and reward openness in all domains
  - consider openness in all aspects of research
- Recognize and reward quality over quantity
  - reduce publication pressure
  - recognize methodological quality over impact of positive results,
  - value the story behind the numbers in impact assessment

Use of metrics / indicators

- Putting qualitative measures, narrative and strategy first
- Quantitative indicators can illustrate, complement or enrich this approach.
- No aggregate metrics like h-index and journal impact factor

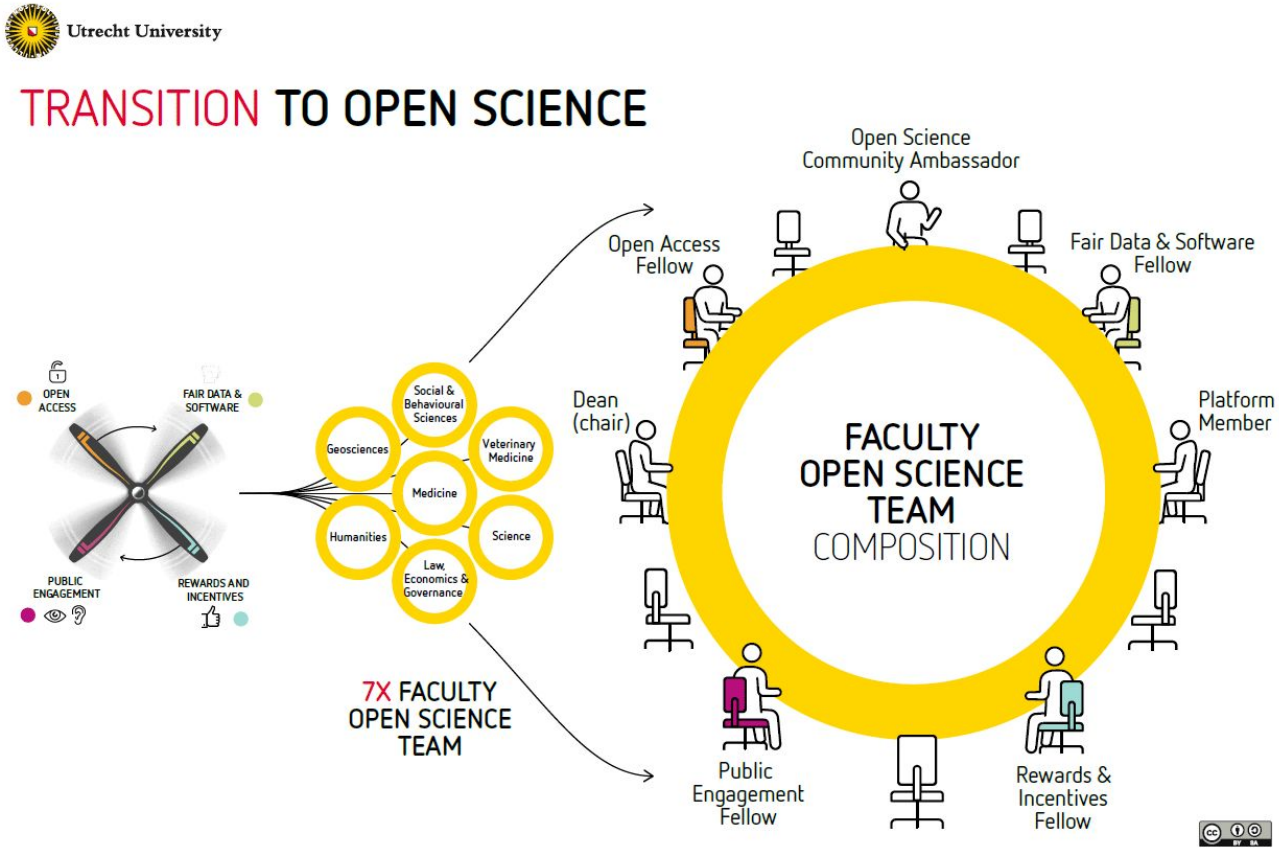
see also: https://www.uu.nl/en/research/open-science/faq/recognition-and-rewards

SCOPE - Evaluating responsibly

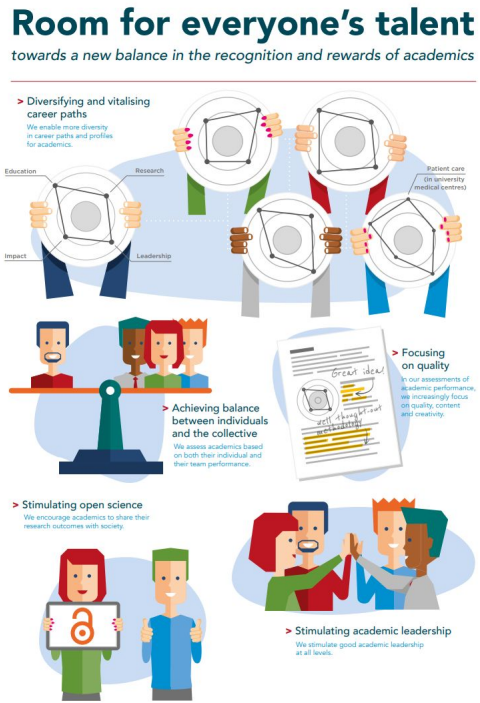
Start with what you value	Not with what others value (external drivers) Not with available data sources (the 'Streetlight Effect')
Context considerations	WHO are you evaluating? (Entity size) WHY are you evaluating? Do you need to evaluate at all?
Options for evaluating	Consider both quantitative and qualitative options Be careful when using quantities to indicate qualities Evaluate with the evaluated
Probe deeply	WHO might your evaluation approach discriminate against? HOW might your evaluation approach be gamed? WHAT might the unintended consequences be? Does the cost outweigh the benefit?
Evaluate your evaluation	Did your evaluation achieve its aims? Was it formative as well as summative? Keep your approach under review

INORMS Research Evaluation Working Group (UK) (2019)
SCOPE – a five-stage process for evaluating responsibly

Implementation



Developments at the national level



A national 2019 position paper on rewards & recognition creates focus

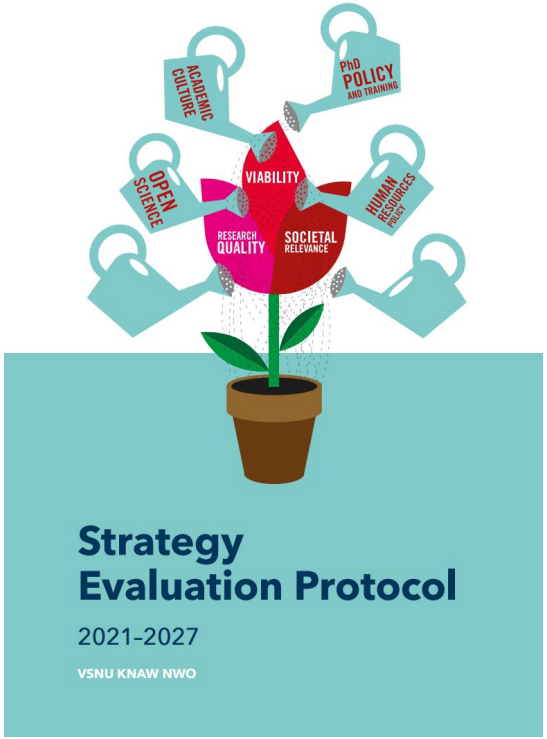
- Universities:
  Redesigning academic career paths
- Funders:
  Adapting procedures for funding allocation
- Strategy Evaluation Protocol (SEP):
  Evaluating research units at national level

National funders (NWO, ZonMW)

- Narrative CV:
  - Academic profile
  - Key outputs (not limited to publications)
- Indicate the importance of each output, how it is related to the project, and/or how it shows the applicant's abilities
- No aggregate indicators; provide context for indicators used: why is it a good measure? What does it imply?

https://sfdora.org/2019/11/14/quality-over-quantity-how-the-dutch-research-council-is-giving-researchers-the-opportunity-to-showcase-diverse-types-of-talent/

National Strategic Evaluation Protocol The Netherlands 2021–2027



National Strategic Evaluation Protocol
The Netherlands 2021–2027

The research unit:

- **Vision, strategy and aims of the research are outlined**
- **Narratives (supported by data)***
- **Free choice of indicators**

*Compatible with DORA
https://www.vsnu.nl/files/documenten/Domeinen/Onderzoek/SEP_2021-2027.pdf

National Strategic Evaluation Protocol The Netherlands 2021–2027

Evaluation is in relation to the unit's strategy

<u>Three criteria</u>:
Research Quality, Societal Impact and Viability

<u>Four Aspects</u>:

- **Open Science practices and efforts**
- **PhD policy and Training**
- **Academic Culture (Openess, Safety, Inclusiveness, Research Integrity)**
- **Human Resources Policy (Diversity, Talent Management)**

https://www.vsnu.nl/files/documenten/Domeinen/Onderzoek/SEP_2021-2027.pdf

Open Science:
Incentives and Rewards

Pluriformity of quality indicators:

- **SSH vs STEM balance**

- **Basic vs Applied science**

- **Diversity and inclusiveness**

- **Peer review, narratives are transparent (but could also be more subjective?)**

- **Open Science practices and efforts rewarded**

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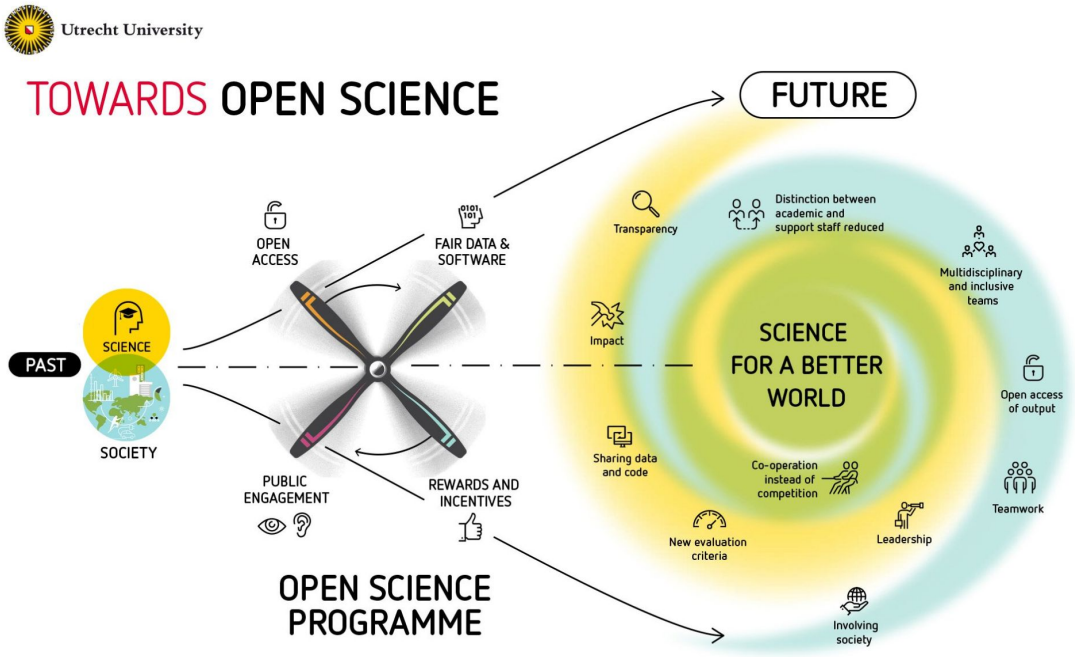

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