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Meaningful metrics

Rewards and Incentives for Open Science: Responsible Research Assessment

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Open Science Café at Universidad Carlos III de Madrid
24 June 2021

Universiteit Leiden


Recent events do not give me hope, but they do give me purpose
---Kathleen Fitzpatrick, The Generous University

*"But I want to make clear that **this output** is much more valuable than anything I have published in my career to date. However, **the current evaluation mechanisms do not assess its true value**."*

*"I have written **manuals for students and given scientific advice** to policy makers, **but this counts for nothing in the academic world**."*

*I also **don't add my name unnecessarily to articles written by colleagues** and so my publication numbers are decreasing. **According to the current evaluation criteria, I am lazier now than I was in the past**!'*

Italian marine biologist Professor Ferdinando Boero (e-mail correspondence, 08/2017)

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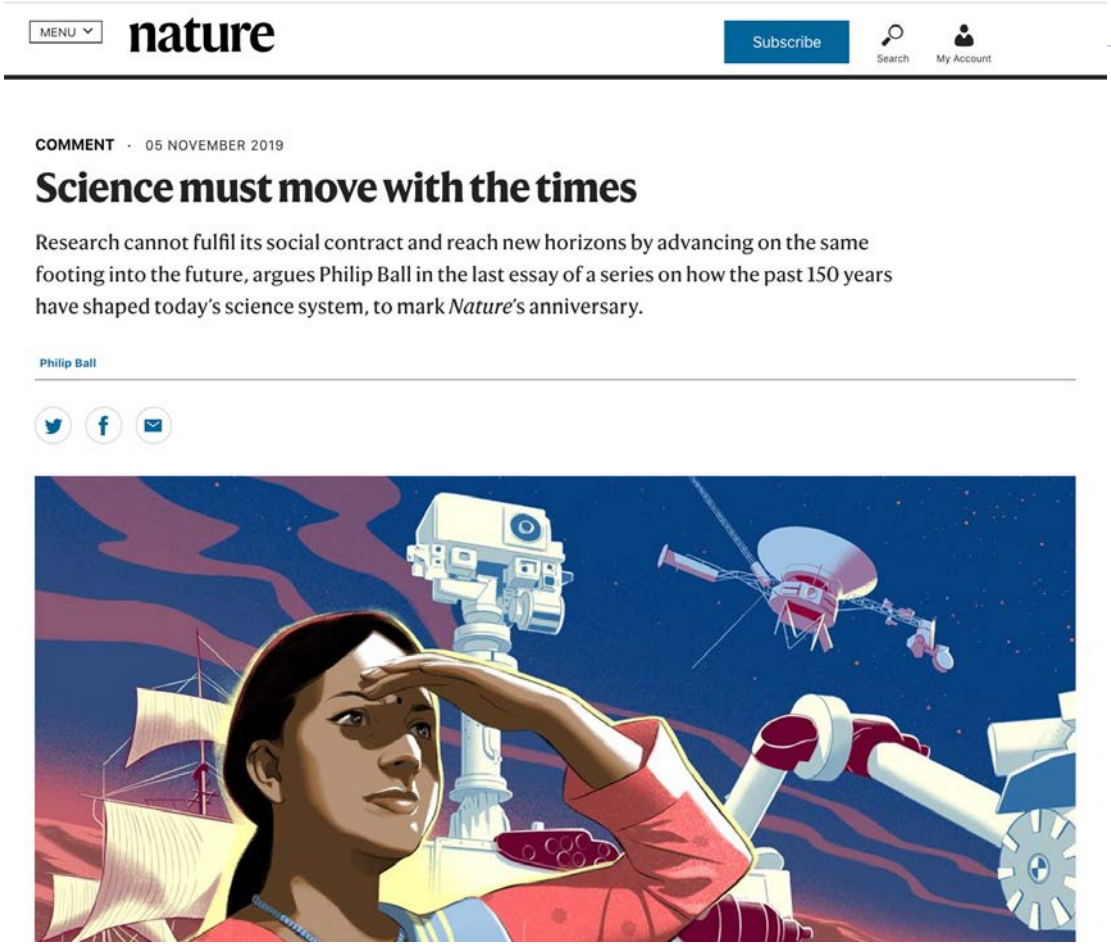

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COMMENT · 05 NOVEMBER 2019

Science must move with the times

Research cannot fulfil its social contract and reach new horizons by advancing on the same footing into the future, argues Philip Ball in the last essay of a series on how the past 150 years have shaped today's science system, to mark *Nature*'s anniversary.

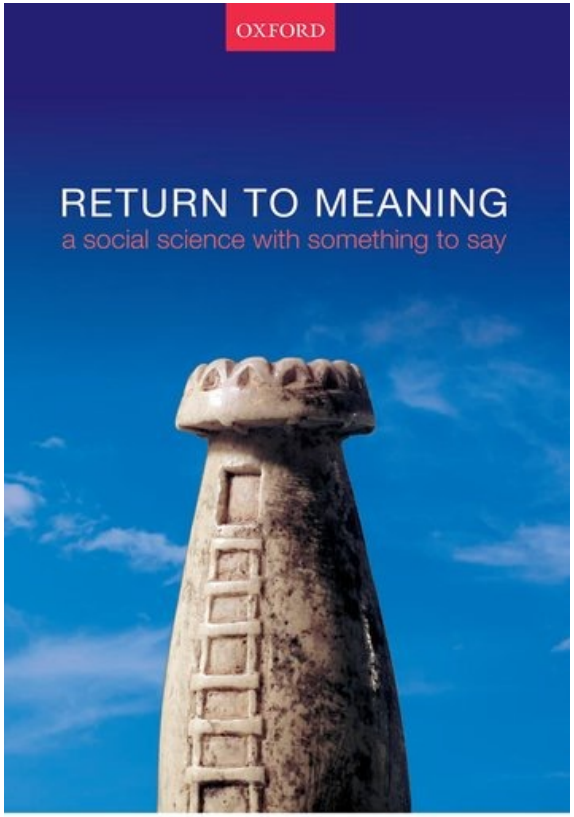
Philip Ball

"Among the ways in which science has changed over the past century and a half, three loom large.
First, it is no longer driven by lone figures labouring in their laboratories, but has become a team effort that spans labs, departments, disciplines, institutions and continents.
Second, it often relies now on data sets so vast that human brains cannot hope to hold or parse them all.
Third, it increasingly confronts issues of global reach and even existential urgency — from climate heating and the need for a carbon-neutral economy, to epidemics and water security."

Philip Ball, Nature, 5 November 2019

"The canonical scientific article, with its unified and passive voice, its closed and self-contained narrative, its seductively confident diagrams and standardized format, and its eventual metric quantification of impact, is not the only or the best vehicle for translating and disseminating today's research: for posing and then answering questions. There's scope for more variety in who does this, and how. "

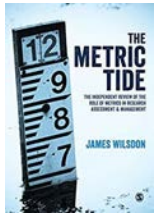
Philip Ball, Nature, 5 November 2019



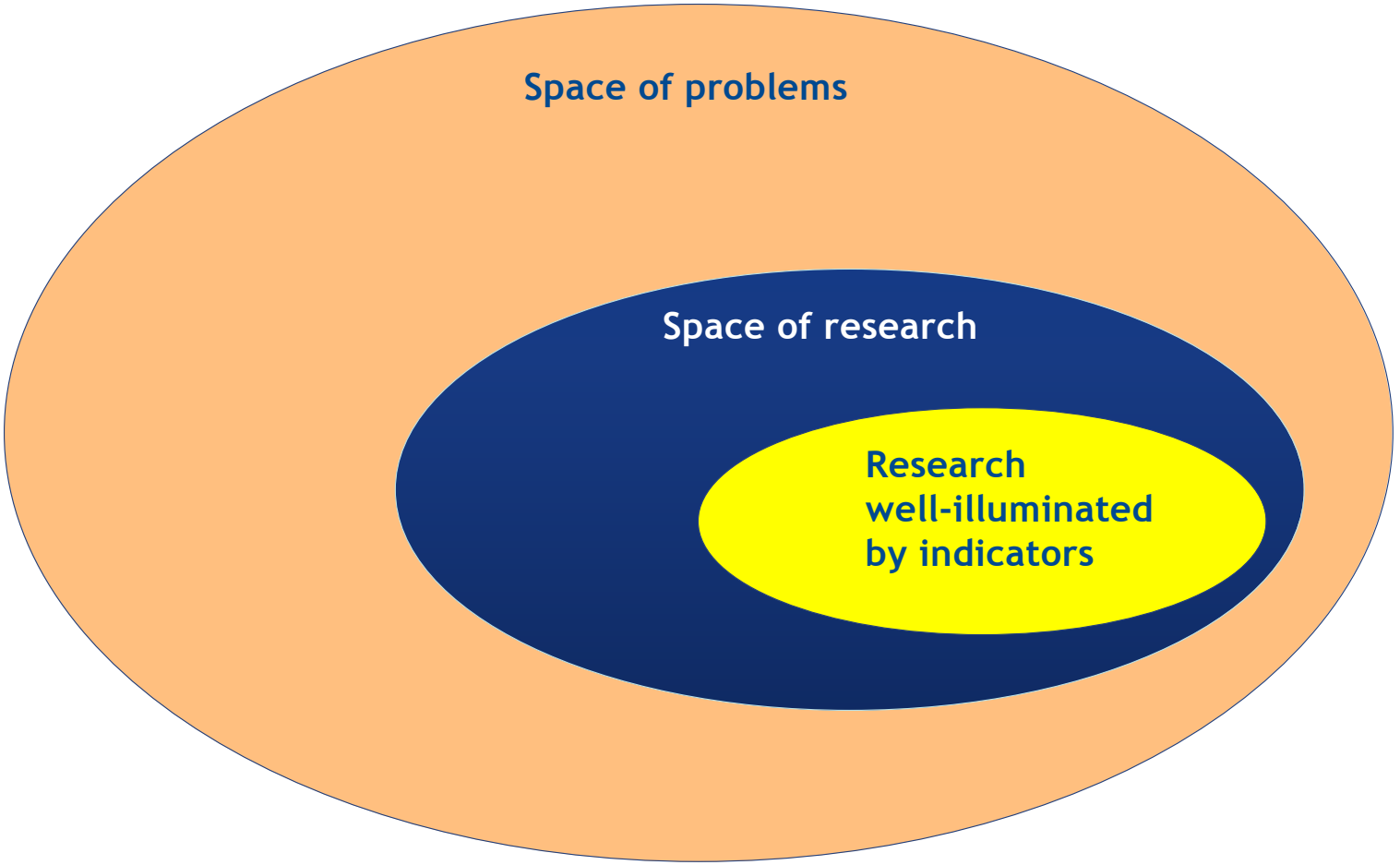
"Never before in the history of humanity have so many written so much while having so little to say to so few"

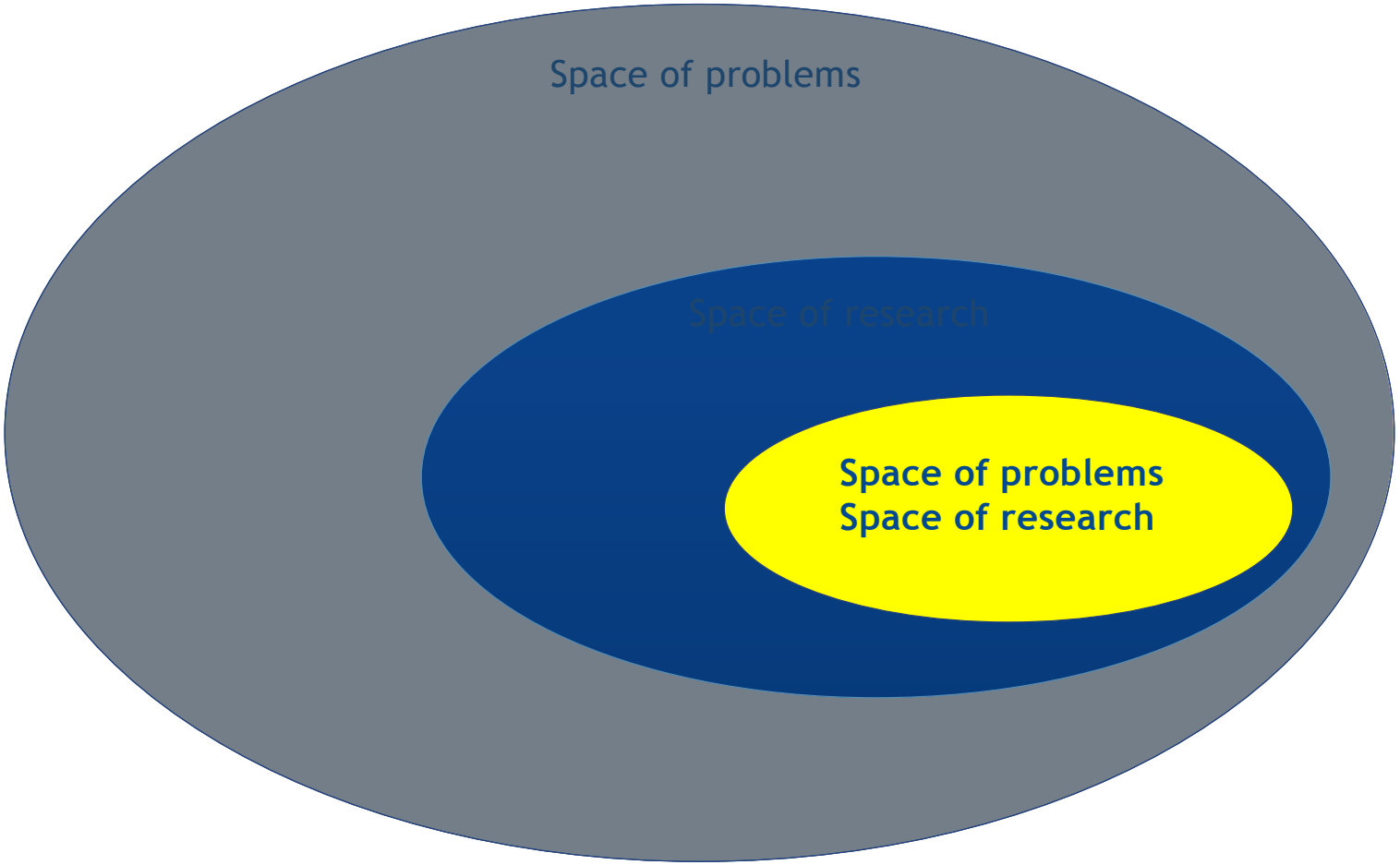
A moment of opportunity? Concern has intensified

- the **misapplication of narrow criteria and indicators of research quality or impact**
- has **reduced the diversity of research missions and purposes**
- the **systemic biases against those who do not meet - or choose not to prioritise - narrow criteria and indicators of quality or impact**
- these biases have **reduced the diversity, vitality and representative legitimacy of the research community**
- a **diversion of policy & managerial attention to things that can be measured**, at the expense of less tangible or quantifiable qualities, impacts, assets and values



Streetlight effect indicators


Space of problems
Space of research
Research
well-illuminated
by indicators


Space of problems
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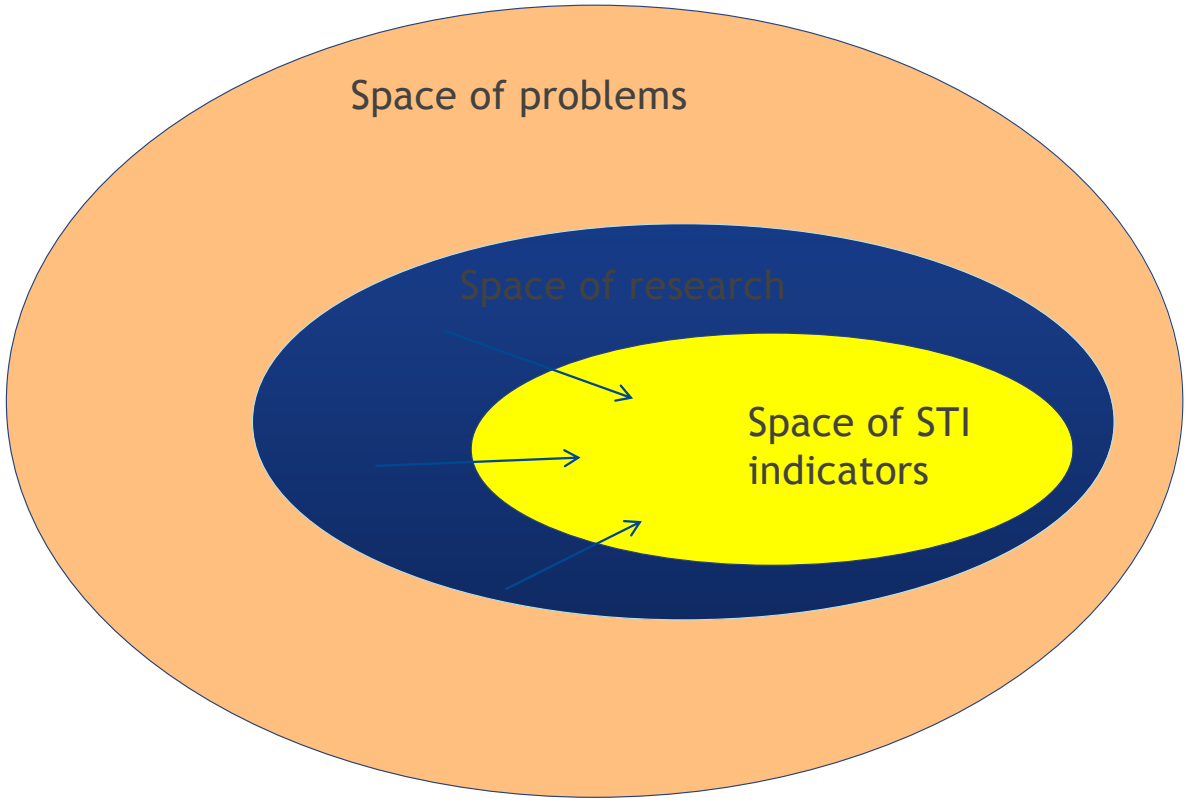
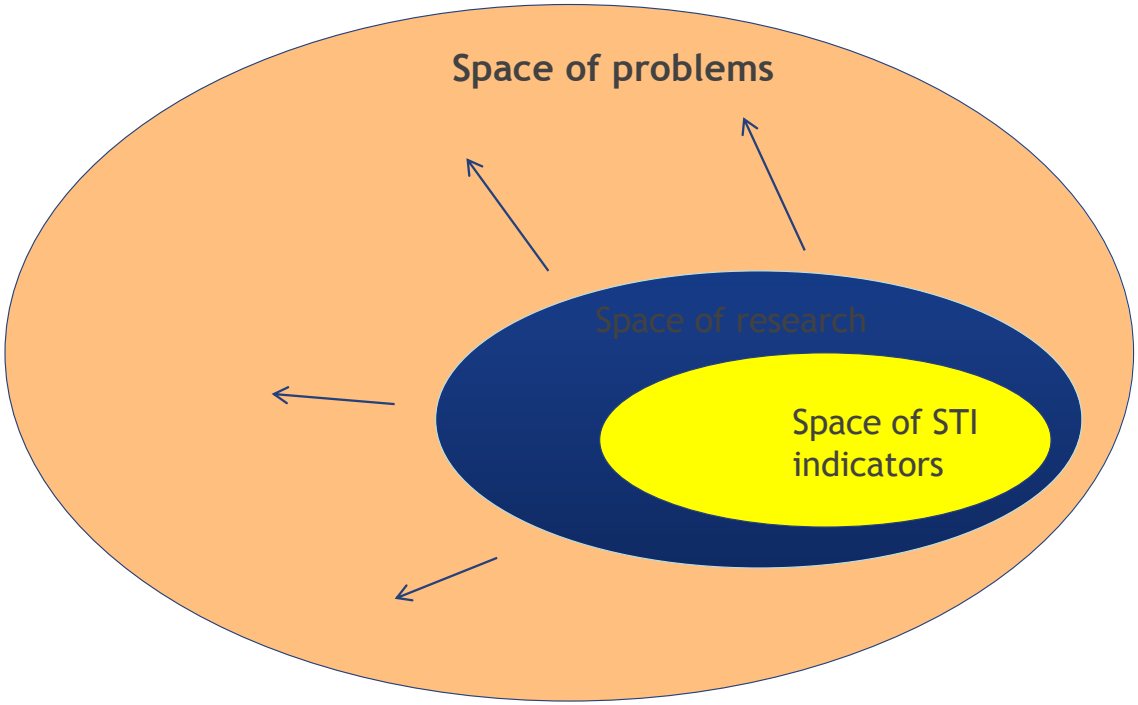
Reduced diversity of research efforts...

... contraction of research space



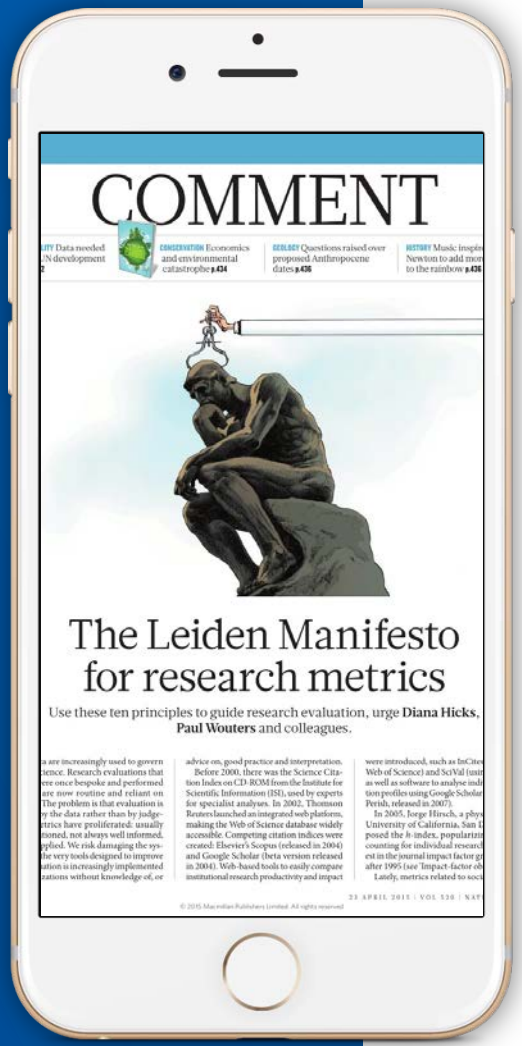
This is the move we should facilitate



Use these 10 principles to guide research evaluation

Diana Hicks, Paul Wouters, Ludo Waltman, Sarah de Rijcke, Ismael Rafols

Nature, April 23, 2015, 520:429-431, doi:10.1038/520429a.



The 10 Principles

1. Quantitative evaluation should support qualitative, expert assessment
2. Measure performance against the research missions of the institution, group or researcher
3. Protect Excellence in locally relevant research
4. Keep data collection and analytical processes open, transparent and simple
5. Allow those evaluated to verify data and analysis
6. Account for variation by field in publication and citation practices
7. Base assessment of individual researchers on a qualitative judgement of their portfolio
8. Avoid misplaced concreteness and false precision
9. Recognize the systemic effects of assessment and indicators
10. Scrutinize indicators regularly and update them

UNESCO Recommendation on Open Science

A consequential instrument that takes Open Science to the global level

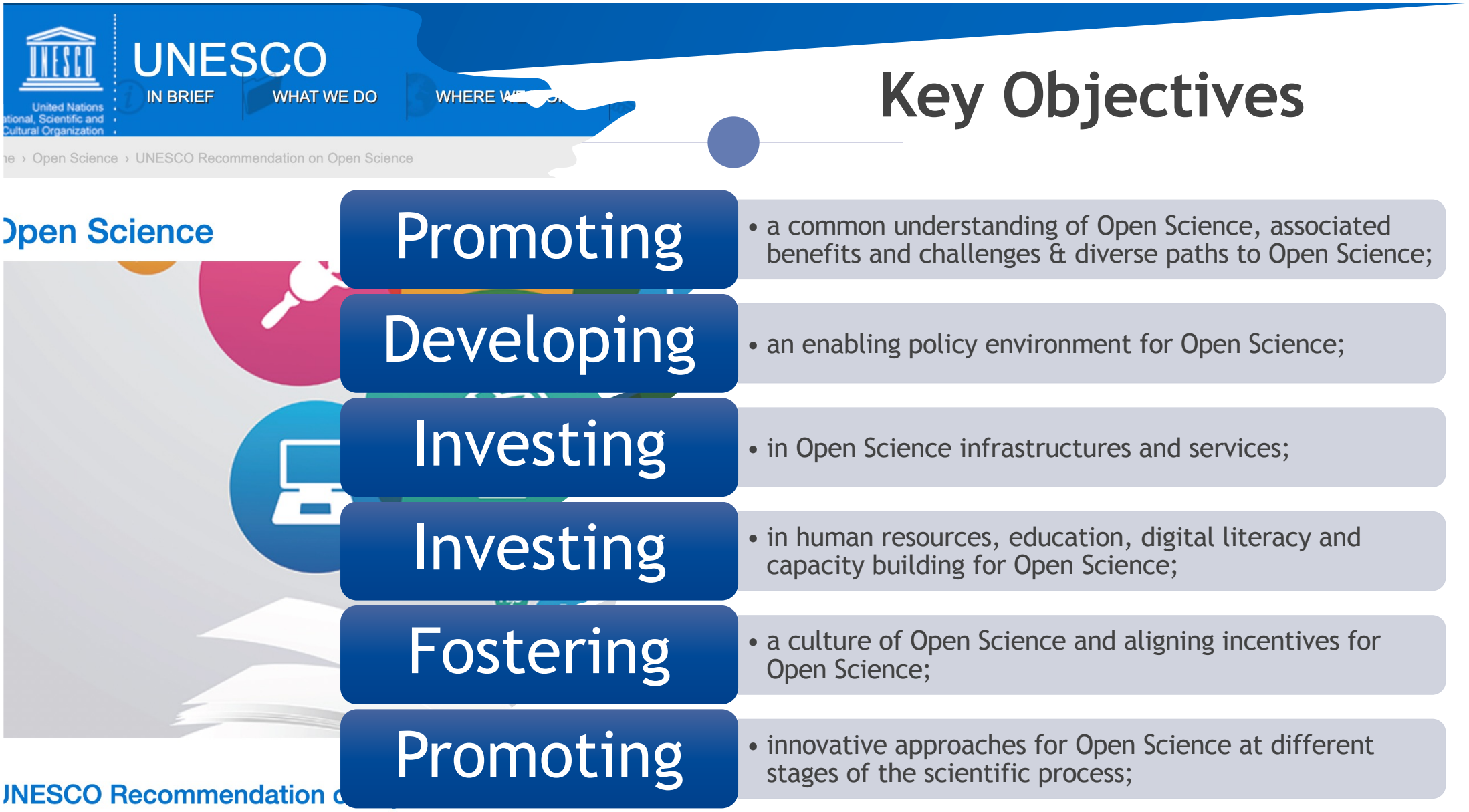
Breaks the barriers in the way we assess researchers

Definition of Open Science

- an inclusive construct that combines various movements and practices aiming to make scientific knowledge openly available, accessible and reusable for everyone
- to increase scientific collaborations and sharing of information for the benefits of science and society
- and to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community

5 key pillars

1. open access to scientific knowledge
2. open infrastructures
3. open communication
4. open engagement of societal actors
5. open dialogue with other knowledge systems



Key Objectives

Promoting	• a common understanding of Open Science, associated benefits and challenges & diverse paths to Open Science;
Developing	• an enabling policy environment for Open Science;
Investing	• in Open Science infrastructures and services;
Investing	• in human resources, education, digital literacy and capacity building for Open Science;
Fostering	• a culture of Open Science and aligning incentives for Open Science;
Promoting	• innovative approaches for Open Science at different stages of the scientific process;

Key Objective (v): Fostering a culture of Open Science and aligning incentives for Open Science

Combine efforts of many different stakeholders

Review assessment & career evaluation systems to align with Open Science

Promote responsible evaluation and assessment systems

quality over quantity
all relevant research activities and scientific outputs
evidence of impact and exchange
diversity of disciplines and different career stages

Key Objective (v): Fostering a culture of Open Science and aligning incentives for Open Science

Ensure that the practice of Open Science is a known, well-understood and standardized element in academic recruitment and promotion criteria

Encourage funders, institutions, editorial boards, learned societies and publishers to adopt policies that require and reward the open access to scientific knowledge

Ensure diversity in scholarly communications with adherence to the principles of open, transparent and equitable access; supporting non-commercial and collaborative publishing models with no APCs or book processing charges

Timeline UNESCO Recommendation

- UNESCO's General Conference decided to elaborate a draft Recommendation in Nov 2019
- The first draft was sent to UNESCO Member States in September 2020
- Final draft sent to UNESCO Member States in March 2021
- Examination by technical and legal experts in May 2021
- Approved draft approved will be submitted to Member States in August 2021, with a view to its adoption by the General Conference at its 41st session in November 2021


Open Science: from an initial focus on open access to a more holistic focus on fostering a healthy research culture

Thank you

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