The Library and the Researcher: Can two walk together?

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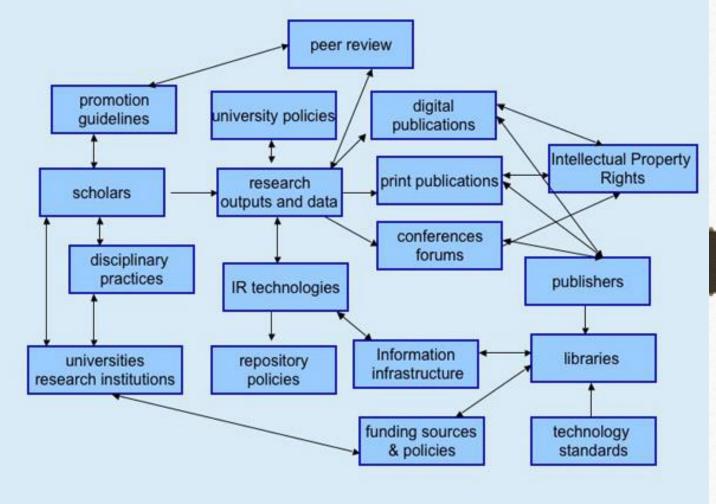
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Library as Institutional Repositories (IR)

- An archive for collecting, preserving, and disseminating digital copies of the intellectual output of an institution, particularly a research institution.
- A university-based IR is a set of services that a university offers her members for the management and dissemination of digital materials or assets created by the institution and her community members:
 - monographs, journal articles (preprints & postprints), electronic theses and dissertations, datasets, administrative documents, course notes, learning objects, or conference proceedings. [Clifford Lynch, 2013]
 - must ensure long-term preservation, proper organization and access or distribution

Institutional Repositories, IRs activities

- Knowledge management
- Research assessment
- Dissemination of research output.



Rieger, O. Y. (2008). Opening up institutional repositories: social construction of innovation in scholarly communication. *Journal of Electronic Publishing*, 13(3).

Academic researchers at different levels:

- PhD, MSc and BSc students
- postdoctoral researchers, and professors;
- researchers working for governments;
- researchers working for inter/national organizations;
- researchers working for commercial enterprises.

Diverse Requirements, Different Needs!!!

Research Ecosystem

Assessment

- Comment / peer review
- Determine impact of research output
- Determine impact of researchers

Preparation

- Define & crowdsource research priorities
- · Organize project, team, collaborations
- Get funding / contract

Discovery

- Search literature / data / code / ...
- Get access
- Get alerts / recommendations
- Read / view
- Annotate

Outreach

- Archive/share posters
- Archive/share presentations
- · Tell about research outside academia
- · Researcher profiles/networks

Analysis

- Collect, mine, extract data / experiment
- · Share protocols / notebooks / workflows
- Analyze

Publication

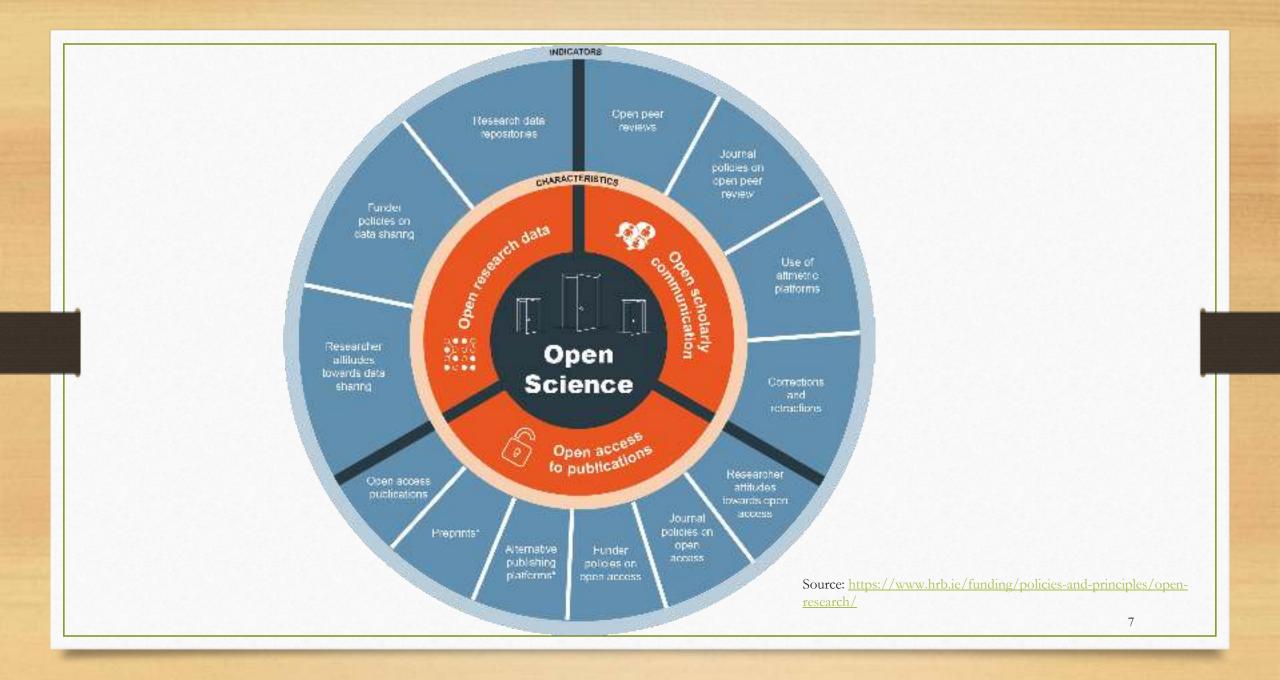
- Archive / share publications
- Archive / share data & code
- · Select journal to submit to
- Publish

Writing

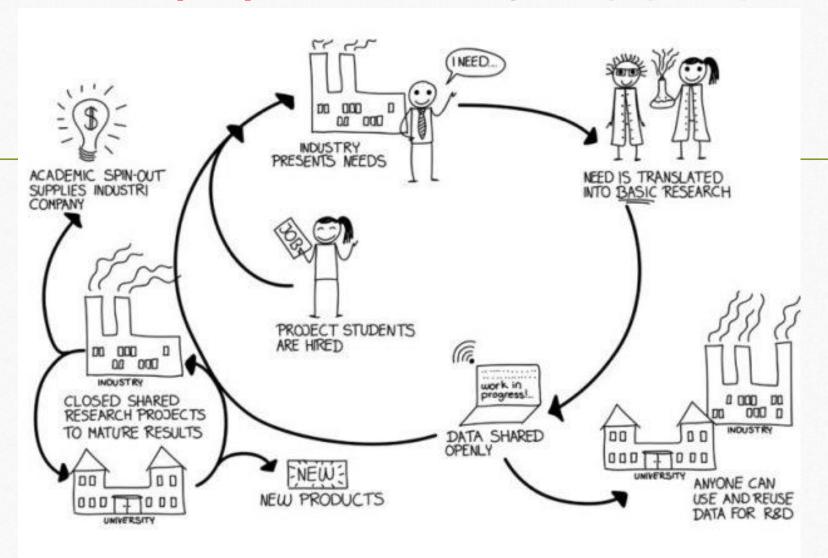
- Write / code
- Visualize
- Cite
- Translate

Research in the 21st century

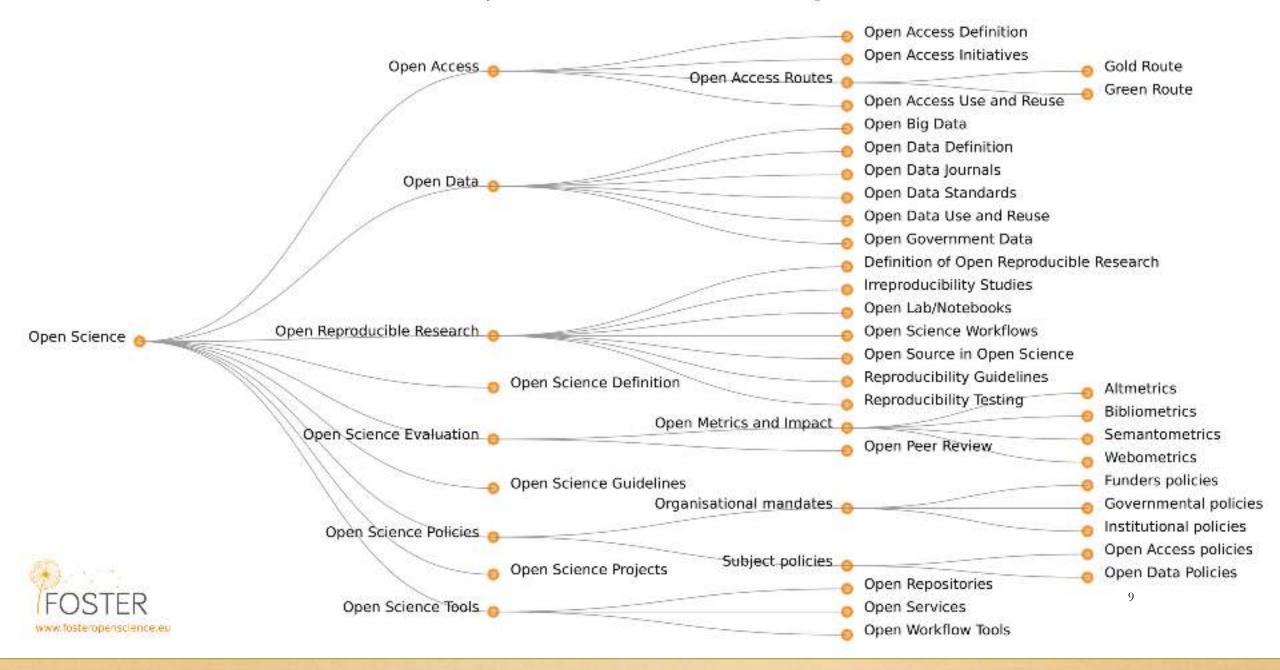
- Highly data-driven and computation-demanding
- Systemic change in how researchers work, collaborate, share ideas, disseminate and reuse results
- All research data and the associated tools and services should be Findable, Accessible, Interoperable and Reusable (i.e. FAIR) the concept of Open Science.



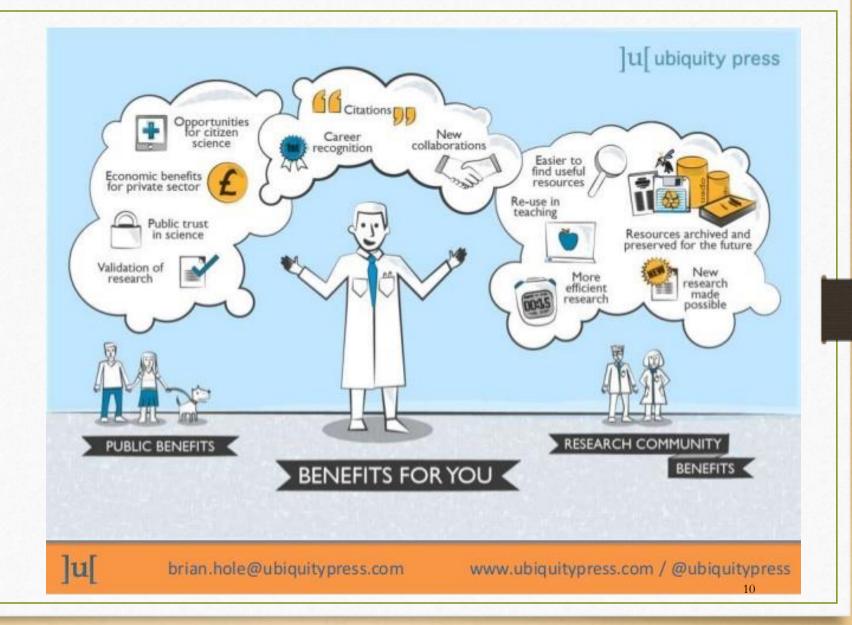
The Concept of Open Science, from the SPOMAN project, at http://spoman-os.org/about-os/



Open Science Taxonomy



Open Science is beneficial to all stakeholders



Visibility

wider dissemination of research undertaken in Austria

higher quality of information services

Media

Public

transparent spending of tax money

Publisher

market entrance for providers from Austria

Developing Countries

self-help based on current scientific knowledge

Benefits

of Open

Research

Reproducibility

simplifying the verification of research results

Knowledge Networks

new potentials via data and text mining

Interdisciplinarity

enhances exchange between disciplines

Open Innovation

access to cutting-edge research encourages innovation

Democratisation

access independent of income

Knowledge Transfer

diffusion of knowledge into all societal areas

Education

teaching and learning according to the scientific state of the art

Citizen Science

participation of citizens in the research process

Politics

making better decisions based on current scientific knowledge

Health

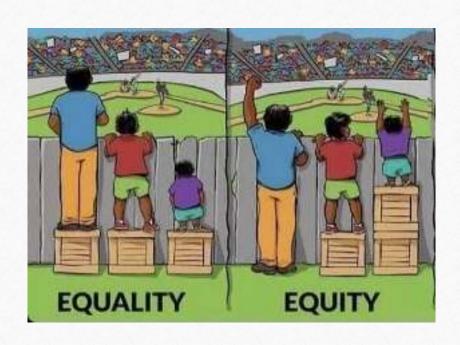
up-to-date information for doctors and patients

Research Efficiency

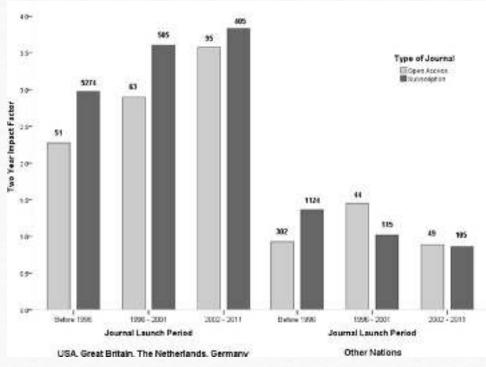
avoiding duplication and double funding

en disciplines

True equality or equity?



Source: https://imgur.com/gallery/OR0CEJj

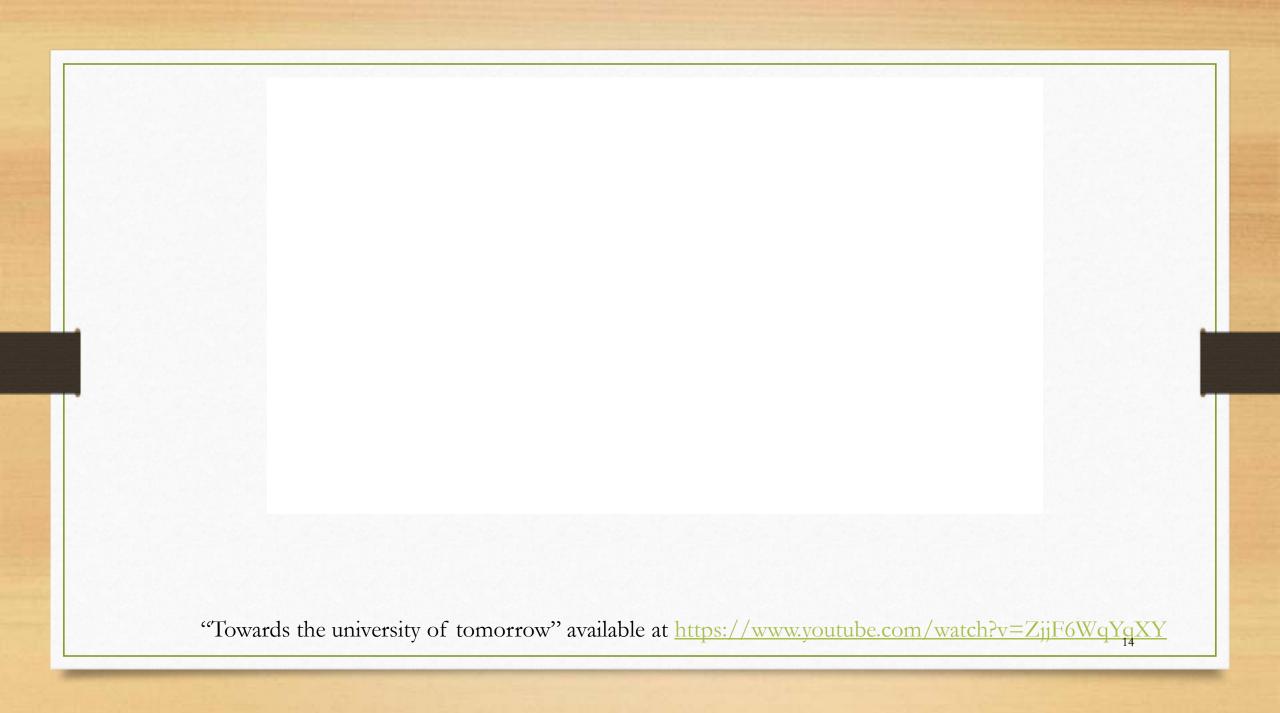


Björk, B. C., & Solomon, D. (2012). Open access versus subscription journals: a comparison of scientific impact. *BMC medicine*, 10(1), 73

Open Science, Open Research, Open?

...envisioning the future

"It's impossible," said pride. "It's risky," said experience. It's pointless," said reason. "Give it a try," whispered the HEART."



Imagining Tomorrow's University

(https://f1000research.com/articles/7-1926/v1)

- An "open research" workshop funded by NIH and NSF in March 2017
- Attended by
 - 13 mostly early-career research leaders who are building their careers around open research
 - ten university leaders (presidents, vice presidents, and vice provosts),
 - representatives from four funding agencies, and
 - eleven organizers and other stakeholders

Excerpts from "The principles of tomorrow's university"

Katz DS, Allen G, Barba LA et al. The principles of tomorrow's university [version 1; referees: 2 approved]. F1000Research 2018, 7:1926

- Re-defining scholarship, education, and institutions in an open, networked era, to uncover new opportunities for universities to create value and serve society.
- A set of 22 principles of tomorrow's university across six areas:
 - credit and attribution (personal job security, hiring, promotion etc.)
 - scholarly communities (around tools, practices, shared interests, shared data or software, or shared hashtags)
 - outreach and engagement (access to researchers builds trust in the products and processes of research)
 - education (or open research training)
 - preservation and reproducibility
 - technologies (diverse and interoperable set of tools for open research should be known, shared, and clearly documented)

Lessons: IR and the Researcher

- Open scholarship includes open science, open humanities, and open research.
 - It can be defined as opening products such as articles, data, software, educational resources, or more broadly, opening the process of scholarship.
- Costs and benefits for scholars:
 - Researchers respond to how they are evaluated, which today mostly does not reward open scholarship.
 - Sharing can lead to increased progress and knowledge, but can have a cost when it is not rewarded.

Lessons: IR and the Researcher

- Benefit to society:
 - Most research funding comes from the public, and they should be given access to the research outputs that they have supported.
 - Public involvement in the whole process of research and not just the outputs, helps them appreciate scholarship and the scientific process.
- "Glocalization"???

What are the most important challenges presented by open science for your university?

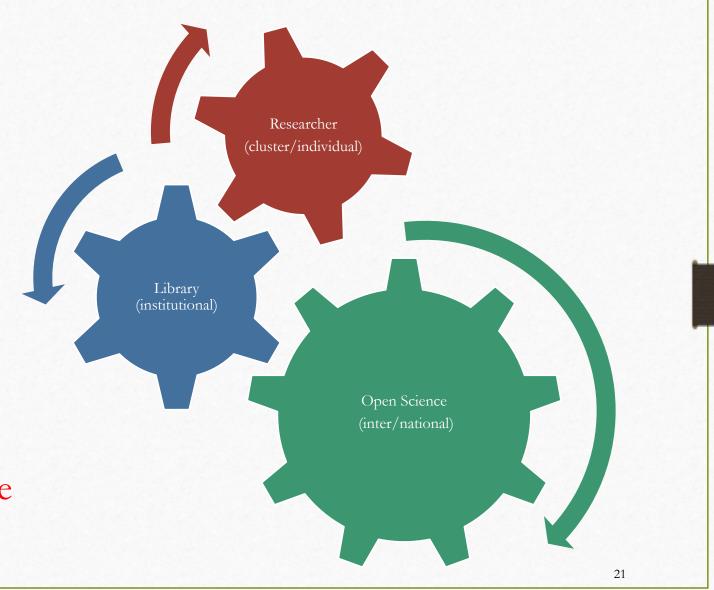
(Total number of respondents is 12)

- 10 responses To change the work culture of existing faculty and researchers
- 8 responses To reward open science work in tenure and promotion processes
- 6 responses To enhance library services for data curation and sustainability
- 5 responses To improve licensing, ownership, and other legal practices for open science
- 5 responses To develop technology infrastructure and staffing for open science

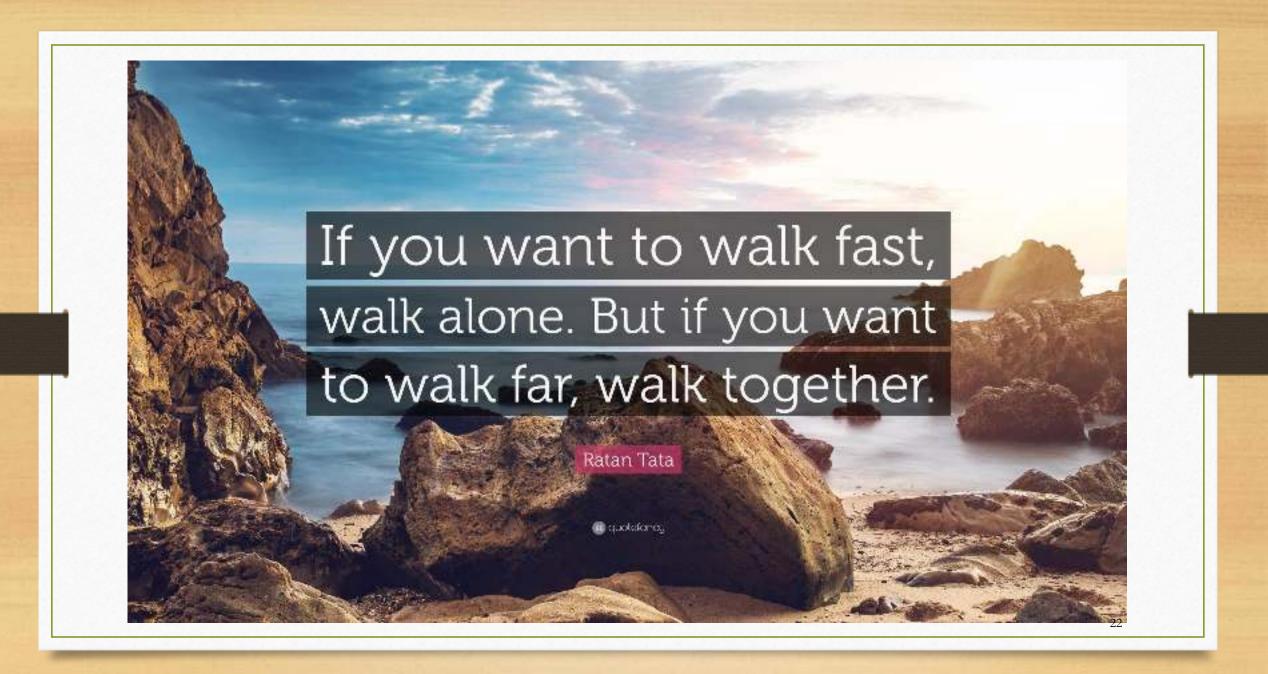
What are the most important opportunities presented by open science for your university?

(Total number of respondents is 12)

- 11 responses To gain access to the data resources necessary for research
- 9 responses To gain access to the software and tools necessary for research
- 9 responses To improve discovery processes
- 7 responses To gain access to the computational and storage infrastructure necessary for research
- 7 responses To increase industrial relationships and partnerships
- 6 responses To improve educational outcomes
- 5 responses To increase funding opportunities
- 5 responses To increase recognition/rating of the university



... the sum of the parts is always greater than the whole



Thank you!!!

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