OPEN ASIA
UNIFYING SCIENCE, EMPOWERING INNOVATION

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Capacity Building Workshop :
OPEN SCIENCE

16.4.2024

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Current areas of expertise: Open Science, Responsible Assessment of a Research and a Researcher and Research Impact

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OPEN SCIENCE WEBPAGE

https://www.utu.fi/en/research/open-science

OPEN SCIECE ACCELERATOR

https://sites.utu.fi/openutu/

Instagram: @utu_openscience
Twitter: @UTU_openscience

TURUN YLIOPISTO

Key drivers for developing Open Science

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International level

UNESCO Recommendation on Open Science, The Eight Ambitions of Open Science (European Commission), Plan S, The Declaration on Research Assessment (DORA), Leiden Manifest, The Hong Kong Principles for Assessing Researchers, Coalition for Advancing Research Assessment (CoARA), EOSC Declaration, FAIR data, the Research Data Alliance (RDA)

National level

Declaration for Open Science and Research 2020-2025, Recommendations on Open Scholarship, Recommendations on Open access to research data and methods, Recommendations on Open Access to scholarly publications, Recommendations on Open Education, Recommendation for the responsible evaluation of a researcher in Finland, Researcher's Curriculum Vitae Template (Recommendation of the Finnish National Board on Research Integrity)

Local level

Strategy 2021-2030 of University of Turku, Policies that specify how openness will become part of the daily life of researchers (e.g. The Open Research Policy; Publication Policy; Data Policy), Open Science Accelerator, Open Science Community Turku

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The Open Science and Research Reference Architecture 2024–2030

The Open Science and Research Reference Architecture 2024–2030 provides an overview of the national target state for open science and research in 2030 and assesses its current state.

The reference architecture was created by a working group operating under the Finnish Open Science Coordination (AVOTT) in 2021–2023 on the initiative of the National Open Science and Research Steering Group and the Ministry of Education and Culture.

Open Science and Research Reference Architecture 2024–2030

Open Science and Research Reference Architecture 2024–2030 in a Nutshell

Open Science and Research Reference Architecture 2024 page

THE STRATEGY OF THE UNIVERSITY OF TURKU is based on the University's basic missions in research, education, and societal interaction as well as on how we wish to impact our changing world.

UNDERLINING THEMES:

*internationality, multidisciplinarity, **open science and impact**, responsibility and sustainable development, collaboration and interaction, digitalisation, well-being.*

POLICY PROGRAMME OF THE STRATEGY 2021–2030:

- GOAL / **We cultivate an engaging and exceptional research environment**
- POLICY (5) / **Responsible research with significant impact**
- ACTIONS

(5.2) Specifying the organisation and objectives of open science at the University of Turku. Updating the University's open science policies and related action plans.

(5.3) Developing the methods of research assessment and **creating and implementing recommendations for the responsible assessment of research and researchers**. The research assessment of the University is planned and executed together with the participating units.

(5.1) Responsible research is promoted by increasing training as well as by **creating and supporting practices that increase open science and research ethics**. The processes of ethical review are developed.

(5.5) **Citizen science** is developed by increasing researchers' competence in citizen science and the public's opportunities to participate in conducting research.

(1.3) Increasing students' opportunities to complete versatile and multidisciplinary studies in sustainable development. Students' opportunities to complete studies in responsible research are also increased by offering courses in e.g. data management, **open science**, and research ethics. (POLICY (1) / Versatile and high-quality learning and teaching contents)

RI4C2
Research & Innovation
For Cities & Citizens

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EC2U
European Campus of City-Universities

RI4C2
Research & Innovation for Cities & Citizens

UNIVERSIDADE D COIMBRA
UNIVERSITATEA „ALEXANDRU IOAN CUZA“ din IAȘI
FRIEDRICH-SCHILLER-UNIVERSITÄT JENA
UNIVERSITÀ DI PAVIA
Université de Poitiers
VNiVERSiDAD D SALAMANCA
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Open Science competencies

STRENGTHENING COMPETENCIES RELATED TO OPEN SCIENCE BY DEVELOPING SUPPORTIVE STRUCTURES AND RESOURCES:

- Case descriptions on Open Science
- Open Science practices: Case synthesis
- Interviews of Open Science champions
- Open Science Guidebook
- Masterclasses on Open Science

https://ec2u.eu/ri4c2/work-package-7-open-ec2u/

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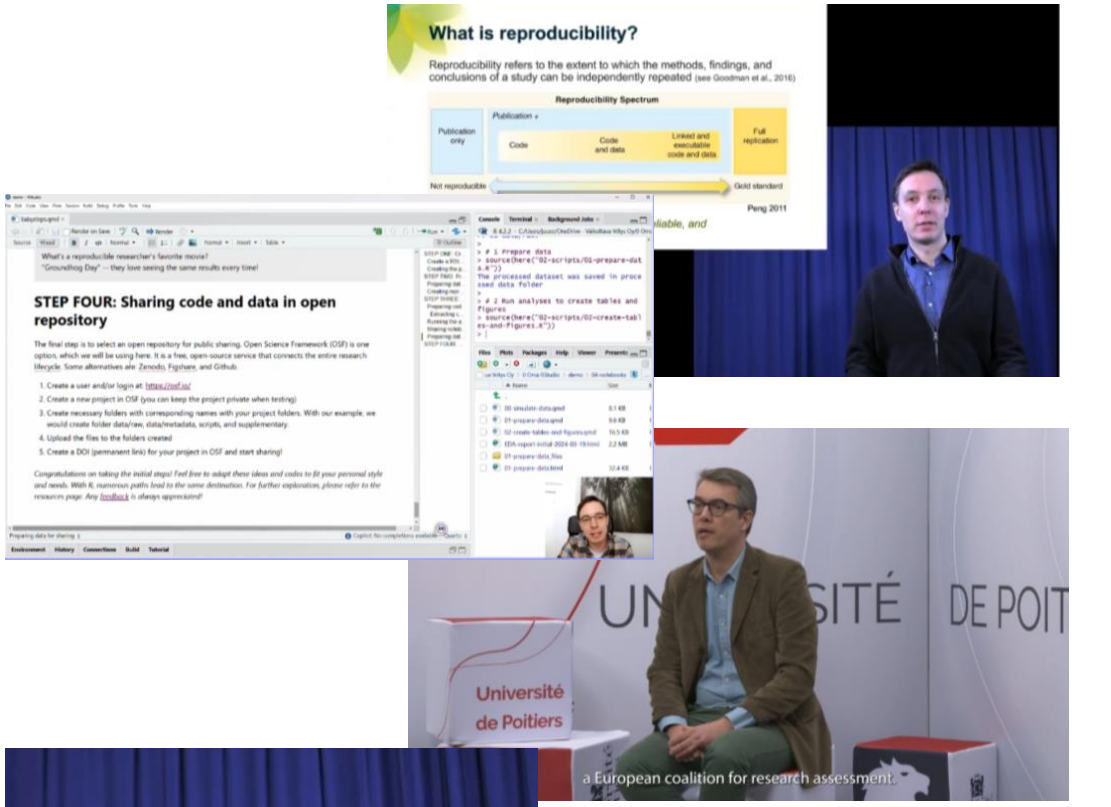

A collection of Open Educational Resources:

Wow, what an impact! -podcast

- How to make science more tangible for a broader audience - Ties Fakkel
- How open workflows increase impact and enhance open science? - Caspar van Lissa

Why is open science important - joint multilingual video with EC2U alliance partners (video)

Open science for scientists and opening science for non-scientists - Smriti Mehta (video)

Baby steps for reproducible workflow in R – part 1: Introduction - Juuso Repo (video)

Baby steps for reproducible workflow in R – part 2: Demo - Juuso Repo (video)

Pre-registration: What does it actually bring us? – Lydia Laninga-Wijnen (video)

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OPEN ACCESS PUBLISHING 1/2

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- Over the years, complementary but parallel forms to OA have been advocated.
- Some research funders give recommendations and restrictions related to OA publishing in their funding terms.
- Several countries have separate national recommendations and research organizations may also have their own policy guidelines in relation to different forms of OA publishing.
- Currently researchers can choose from the following forms of OA publishing:
  - **Green OA** publishing refers to the self-archiving of published or prepublication works for free public use. Authors provide access to preprints or post prints (with publisher's permission) in an institutional or disciplinary archive.
  - **Gold OA** publishing refers to works published in an open access journal and accessed via the journal's or publisher's website. APCs are paid by the author.
  - **Hybrid OA** offers authors the option of making their articles open access, for a fee. Journals that offer hybrid OA are still fundamentally subscription journals with an open access option for individual articles. They are not true open access journals.
  - **Diamond OA** publishing describes journals that are completely free to publish and to read. The costs of maintaining and publishing the journal are usually borne by the organization that sponsors the journal. Diamond OA status has no impact on the journal's peer review process. By making articles completely free both to publish and to read, Diamond OA best approaches the goals of democratizing and widely distributing academic scholarship.

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OPEN ACCESS PUBLISHING 2/2

- For those who are interested in open access (OA) publishing, it would be useful to note the following points:
  - Open access publishing covers all types of peer-reviewed publications, both journal articles and books (monographs).
  - Be aware of your funder's requirements related to open access. Many funders require immediate open access and use of open licenses.
  - A digital object identifier (DOI) is a unique text character sequence that is used to identify digital objects, such as journal articles. Make sure that you receive a DOI also for your preprint.
  - Place your works under an open content licence, such as a Creative Commons licence, if you publish them in Open Access to make them widely reusable.
  - Through a range of tools and practical recourses you may identify trusted journals and publishers. There are various databases available to assist in choosing a reliable publication channel, e.g., Directory of Open Access Journals (DOAJ), Directory of Open Access Books (DOAB), Web of Science and Scopus.
  - Use open institutional or discipline-specific archives/repositories for self-archiving and use social media and social networks to disseminate the links to your research work in open archives.

OPEN ACCESS PUBLISHING: RESOURCES AND FURTHER READING

- An open access initiative by major research funders, Plan S website:
  - https://www.coalition-s.org/why-plan-s/
- Directory of Open Access Journals (DOAJ) website:
  - https://doaj.org/
- Sherpa Romeo (database of publishers' and journals' OA policies):
  - https://v2.sherpa.ac.uk/romeo/
- Directory of Open Access Books (DOAB) website:
  - https://www.doabooks.org/
- Directory of Open Access Scholarly Resources (ROAD) website:
  - https://www.issn.org/services/online-services/road-the-directory-of-open-access-scholarly-resources/
- Tool to identify trusted journals and publishers:
  - https://thinkchecksubmit.org/

- Open Access Scholarly Publishing Association (OASPA) website:
  - https://oaspa.org/principles-of-transparency-and-best-practice-in-scholarly-publishing/
- Committee on Publication Ethics (COPE) website:

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OPEN RESEARCH DATA 1/3

- Research data is the foundation of scientific knowledge and, therefore, it is also widely acknowledged to be a valuable outcome of research. It underpins the results of scientific research and enables derivation of theoretical or applied findings.
- The demand for open research data has grown rapidly as various funders, publishers and institutions increasingly require researchers to open their research data.
- More mechanical, managerial, and technical handling of research data has increasingly become as important a part of a researchers work as methodological or analytical data processing. Therefore, there are several different issues associated with opening data, which researchers should consider during the entire research life cycle.

"As open as possible, as closed as necessary"

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OPEN RESEARCH DATA 2/3

- For those who are interested in generating or sharing open research data, it would be useful to note the following points:
  - **Data Management Planning**
    - Research data management (RDM) is a process which needs investments of time and resources and it consists of several components such as knowing and describing your data, following ethical and legal principles, and understanding the workflows related to securing, storing, sharing, archiving, opening, and publishing your data, which must be considered at different stages of the research process.
    - A data management plan (DMP) is a useful tool that helps you to plan, collect and archive your data efficiently and systematically.
    - When generating open research data, try to view the documentation of your data from the perspective of the further users and your future self.
    - To make research replicable, reproducible or reusable research data should be as open and FAIR (findable, accessible, interoperable and reusable) as possible, while considering ethical, commercial, and privacy constraints with sensitive data or proprietary data.
    - Sometimes the data cannot be opened for example because the researcher is not the owner of the data in the first place, or the data is too sensitive to be published. Although, whatever the reason is, it is always possible to open the description of the data (metadata) because the fact that the existence of the data is known is essential from the point of Open Science.

OPEN RESEARCH DATA 3/3

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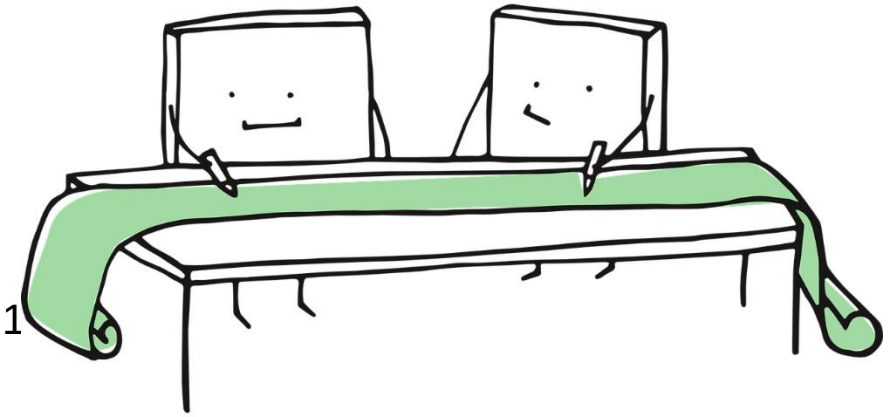
- **Ethical and legal considerations**
  - It is good to note that 'research data' means different things to different disciplines and not all research data can be made available without restrictions.
  - In research involving human participants, disclose your plans of opening the data in the participant information sheet, and obtain the participants' express consent to retain and share the data with the consent form.
  - Data anonymization helps you to protect sensitive data and the anonymized data is not subject to protection regulations.
- **Long-term preservation and sharing**
  - Licenses, such as Creative Commons (CC), can be applied to any material (e.g., sound, text, image, multimedia, software) where some exploitation or usage rights exist, and it would also be important to use standardized licenses for your research data.
  - The recommended way to store and to share data is to deposit it in a trustworthy online repository with permanent accessibility and storage of the research data.
  - Both discipline-specific and cross-disciplinary data repositories exist. Some examples of widely used generic data repositories are e.g., Zenodo and Open Science Framework (OSF).
  - When selecting a repository for your data, prefer certified repositories and ensure that the repository of your choice provides data with a persistent identifier (PID), such as digital object identifier (DOI), which facilitates searching, discovery, reuse, and citing of your research data.
  - Be mindful of your institution's policies and recommendations regarding the preferred repositories and long-term preservation and sharing of your research data.

OPEN RESEARCH DATA: RESOURCES AND FURTHER READING

- European data strategy 2020:
  - https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0066&from=EN
- EUDAT services:
  - https://eudat.eu/catalogue
- Open Knowledge Foundation: Open Data Handbook
  - https://opendatahandbook.org/
- Creative Commons website:
  - https://creativecommons.org/choose/
- Registry of Research Data Repositories:
  - https://www.re3data.org/
- FAIR data services website:
  - https://www.fairdata.fi/en/



- Know Your Data – Research Data Management (RDM) (2021) Vol. 3 No.1 https://journals.helsinki.fi/thinkopendigest/issue/view/145
- Meyer, M.N. (2018) ‘Practical Tips for Ethical Data Sharing’, Advances in Methods and Practices in Psychological

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OPEN WORKFLOWS 1/2

- On a general level, a workflow can be understood as an organized series of steps designed for achieving a particular result.

- A research workflow, then, refers to a set of actions taken, routines followed, decisions made, and tools utilized over the course of a research project.

- Open research workflows entail that researchers embrace and extend the Open Science principles to the entire research cycle and organize and carry out their work in a transparent, replicable and reproducible manner. Essentially, transparent and repeatable workflows require that each step of the research process is comprehensively documented and explicitly represented to facilitate verification and understandability of the results and reasoning behind them, to improve reuse utility of the used methods and data, and to enhance replicability and reproducibility

  of research.

- Instead of a single Open Science practice, open workflows can be understood as varying collections of behaviours with the common aim of making the research process transparent at each of its steps.

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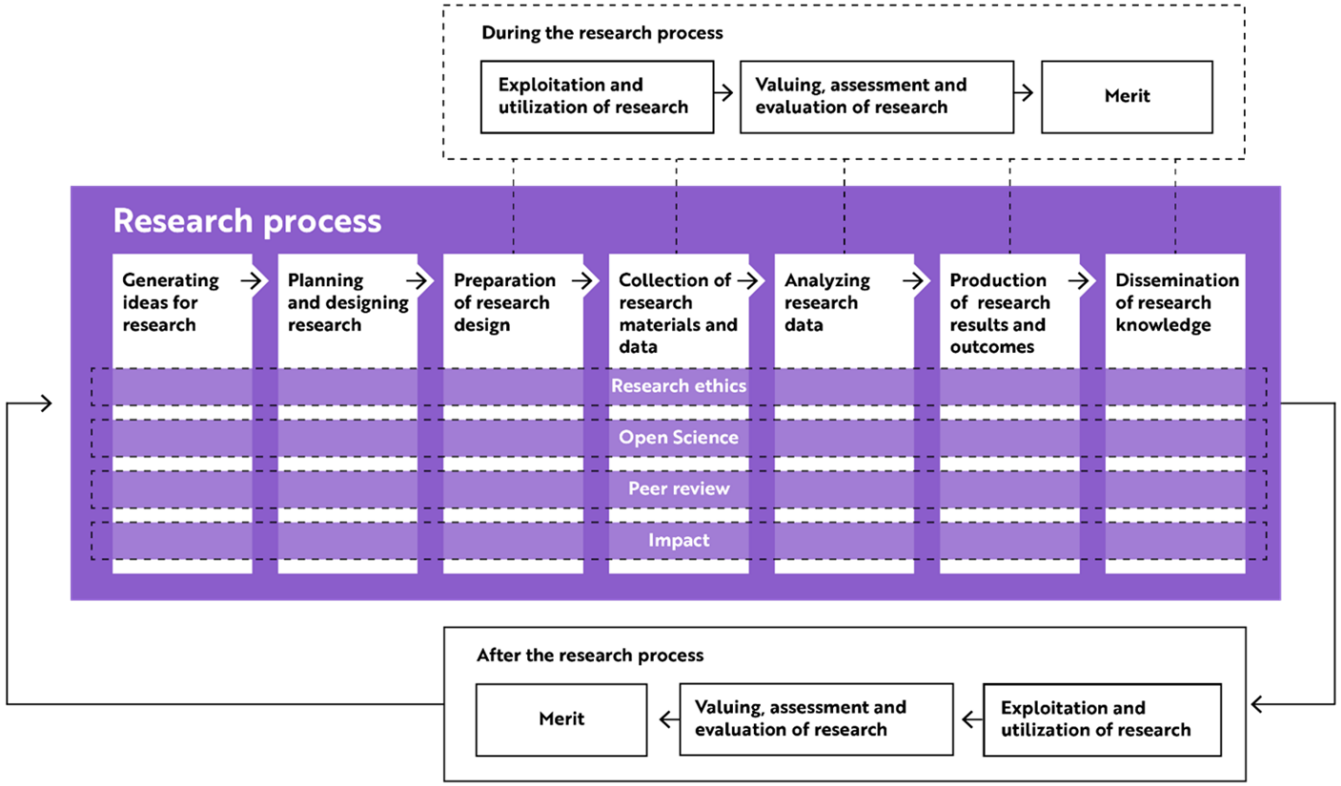
OPEN WORKFLOWS 2/2

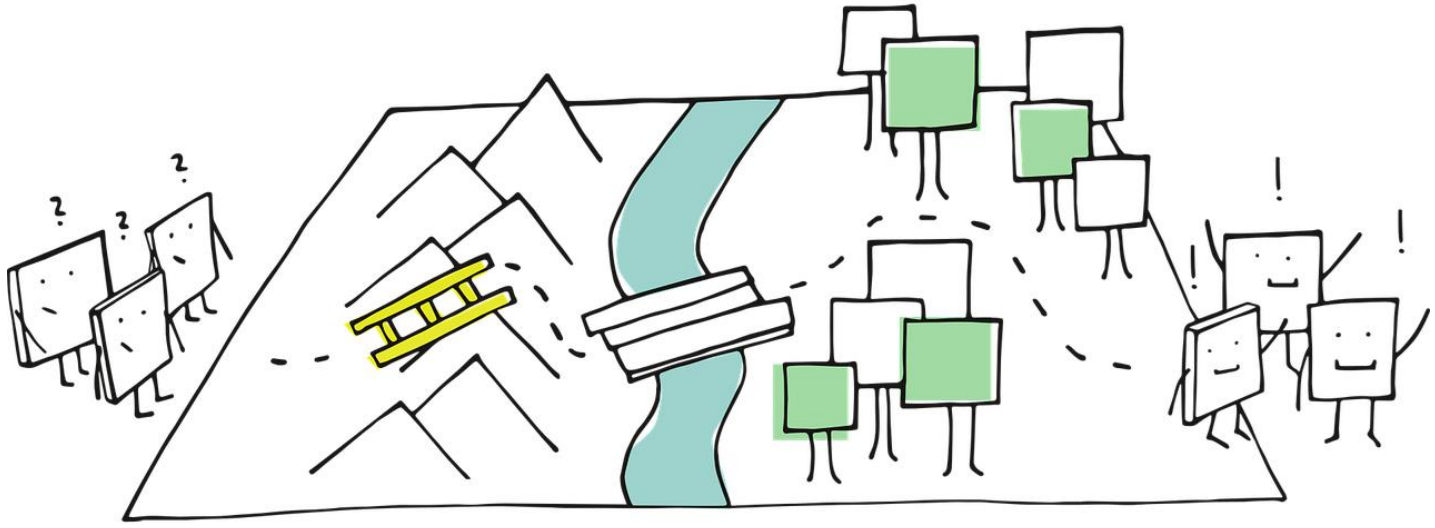
- For those who are interested in getting started with open workflows, it would be useful to note the following points:
  - As you plan the steps of your work it might be useful to centralize and organize your project management using an online platform, a central repository, or folder for all research files.
  - Workflow repositories, such as Open Science Framework (OSF) or GitHub, provide a structure for sharing your research openly and help you to manage, control access, archive, and share each step of your research project.

- Use of open licenses and persistent identifiers facilitates reuse by others and helps to protect one's work and receive credit for it.
- Using open-source software or proprietary software that uses open file formats facilitates accessibility to other researchers, supports interoperability and provides protection against future losses of valuable information due to the end of support for a particular custom file format.



OPEN WORKFLOWS: RESOURCES AND FURTHER READING

- Workflow management tools:
  - Open Science Framework:
    - https://osf.io/
  - GitHub:
    - https://github.com/
- Tool for choosing a license:
  - https://choosealicense.com/
- 101innovations website:
  - https://101innovations.wordpress.com/



- Hampton, S.E. et al. (2015) 'The Tao of open s
https://doi.org/10.1890/ES14-00402.1.

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OPEN SCIENCE COMMUNITIES 1/2

- Grassroots campaigns led by pioneering scholars are perceived to have a central role in the transition to Open Science, and particularly regarding the normalization of open research practices. Bottom-up networks promoting Open Science, also known as Open Science communities, are a single increasingly visible manifestation of this type of grassroots activity.

- OS Communities bring together researchers from across disciplines and different career stages for the purpose of facilitating adoption and mainstreaming of OS practices.

- Over the last few years, a multitude of Open Science communities with diverse emphases and approaches have emerged worldwide. Despite their differing aims and scopes, the OS communities are all jointly working towards integrating open scholarship into research community by advancing research transparency, reproducibility, and integrity through research practice reform.

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OPEN SCIENCE COMMUNITIES 2/2

- For those who are interested in participating in OS community activities or establishing a local OS community, it would be useful to note the following points:
  - OS communities are open especially to researchers in academia, but also to students, research managers and administrators, funders, publishers and citizens.
  - OS communities focus on organizing, promoting, and facilitating events and workshops for researchers to learn about and discuss open science practices, share their expertise, and build professional networks.
  - Some of the prominent examples of international umbrella organizations of OS communities are International Network of Open Science & Scholarship Communities (INOSC), Reproducibility Network (RN) and Open Knowledge Foundation (OSF).
  - The activity and success of an OS community depend on the contributions of its members.
  - When establishing a new local OS community, it is not necessary to reinvent the wheel because there are many existing bottom-up OS communities worldwide that have navigated through different obstacles and are willing to share their knowledge and experience.

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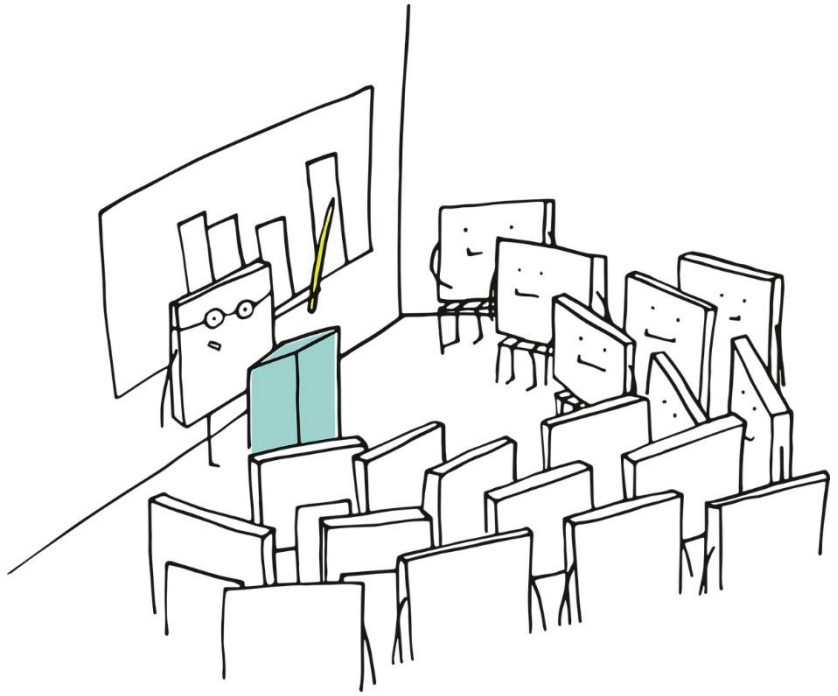
OPEN SCIENCE COMMUNITIES: RESOURCES AND FURTHER READING

- International Network of Open Science & Scholarship Communities (INOSC) website:
  - https://osc-international.com/
- Reproducibility Network (RN) country node (FI) website:
  - https://www.finnish-rn.org/
- Open Knowledge Foundation website:
  - https://okfn.org/
- Berkeley Initiative for Transparency in the Social Sciences:
  - https://www.bitss.org/



- Armeni, K. et al. (2021) 'Towards wide-scale adoption of open science practices: The role of open science communities', Scie pp. 605–611. Available at: https://doi.org/10.1093/scipol/scab039

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Open Science Community Turku

https://sites.utu.fi/osct/

The Open Science Community of Turku provides bottom-up input on Open Science **policies, infrastructure, and support services**.

The community also enables collaborations between academics and societal stakeholders.

The Open Science Community of Turku was founded in October 2022, because **science can and should be more transparent, reliable, and inclusive**.

Open Science provides the tools to put this into practice, and an open science community helps researchers to learn more about different open science practices.

The Open Science Community Turku is member of a worldwide network of Open Science Communities:
The International Network of Open Science Communities.

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REFORMATION OF RESEARCH AND RESEARCHER ASSESSMENT

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Research Assessment Reform

Responsible Research Assessment (RRA) is “an umbrella term for approaches to assessment which incentivise, reflect and reward the plural characteristics of high-quality research, in support of diverse and inclusive research cultures”: The changing role of funders (2020)

Over 600 organisations have signed CoARA Agreement on Reforming Research Assessment, and commit to:

1. Recognise the diversity of contributions to, and careers in, research in accordance with the needs and nature of the research
2. Base research assessment primarily on qualitative evaluation for which peer review is central, supported by responsible use of quantitative indicators
3. Abandon inappropriate uses in research assessment of journal- and publication-based metrics, in particular inappropriate uses of Journal Impact Factor (JIF) and h-index
4. Avoid the use of rankings of research organisations in research assessment

CoARA

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Barriers and obstacles

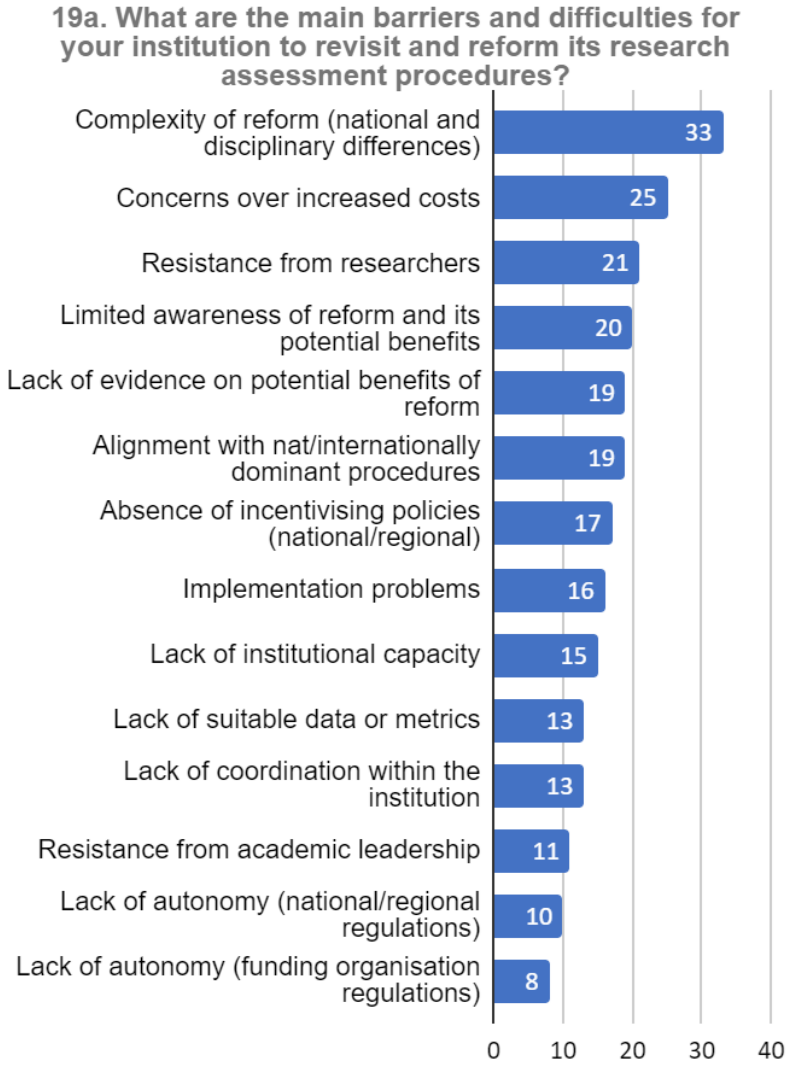
graspos
open research assessment dataspace

Most frequently mentioned barriers to RA reform by 54 GraspOS Landscape survey participants from 19 European countries are

- complexity
- increased costs
- resistance
- limited awareness

Observed implementation obstacles for OS-aware assessments include

- limited recognition of diverse research outputs, open science practices, and academic activities and roles
- limited use of narrative CV/self-assessment portfolios for qualitative input
- reliance on commercial data providers as well as author/venue based metrics



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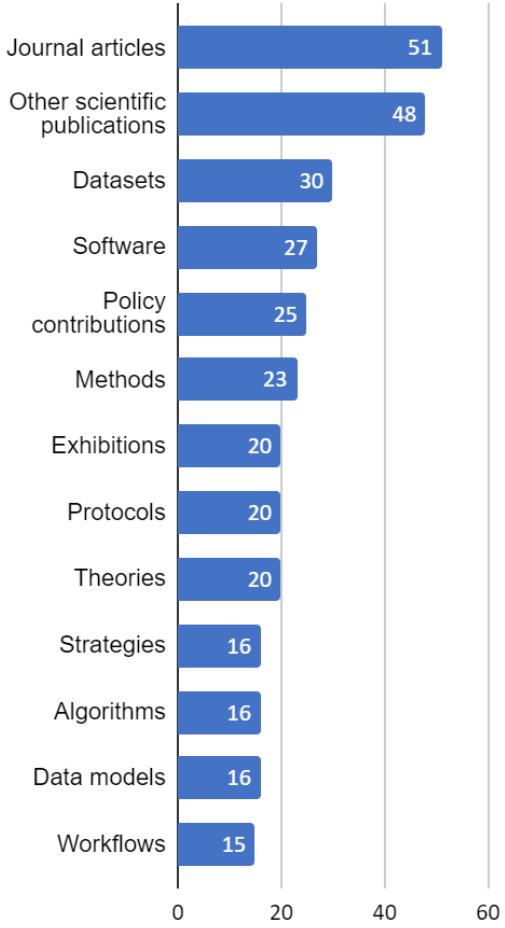
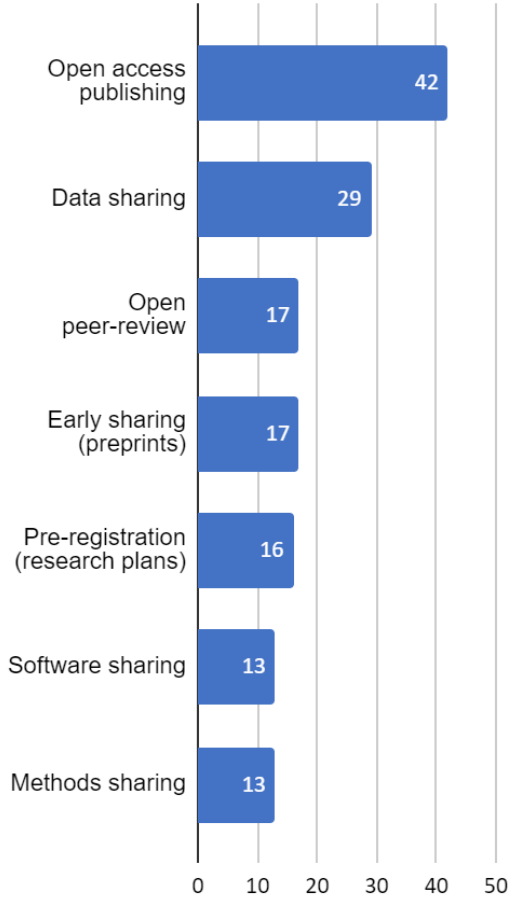
Recognizing Diversity in Assessments

graspos
open research assessment dataspace

10a. Types of research outputs

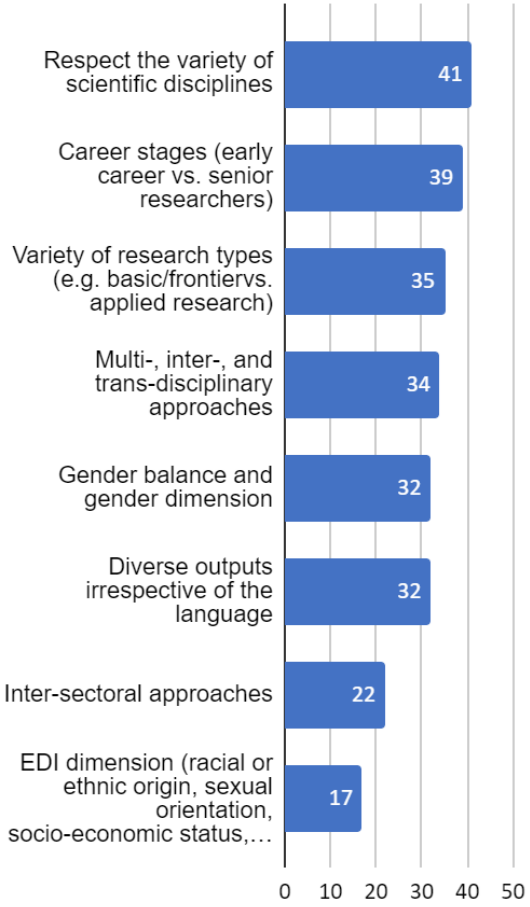


11a. Practises contributing to robustness, openness, transparency



13a. Diverse research activities, practices and roles

12a. Practises contributing to the inclusiveness of research



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Autonomy in Recruitment & Promotion

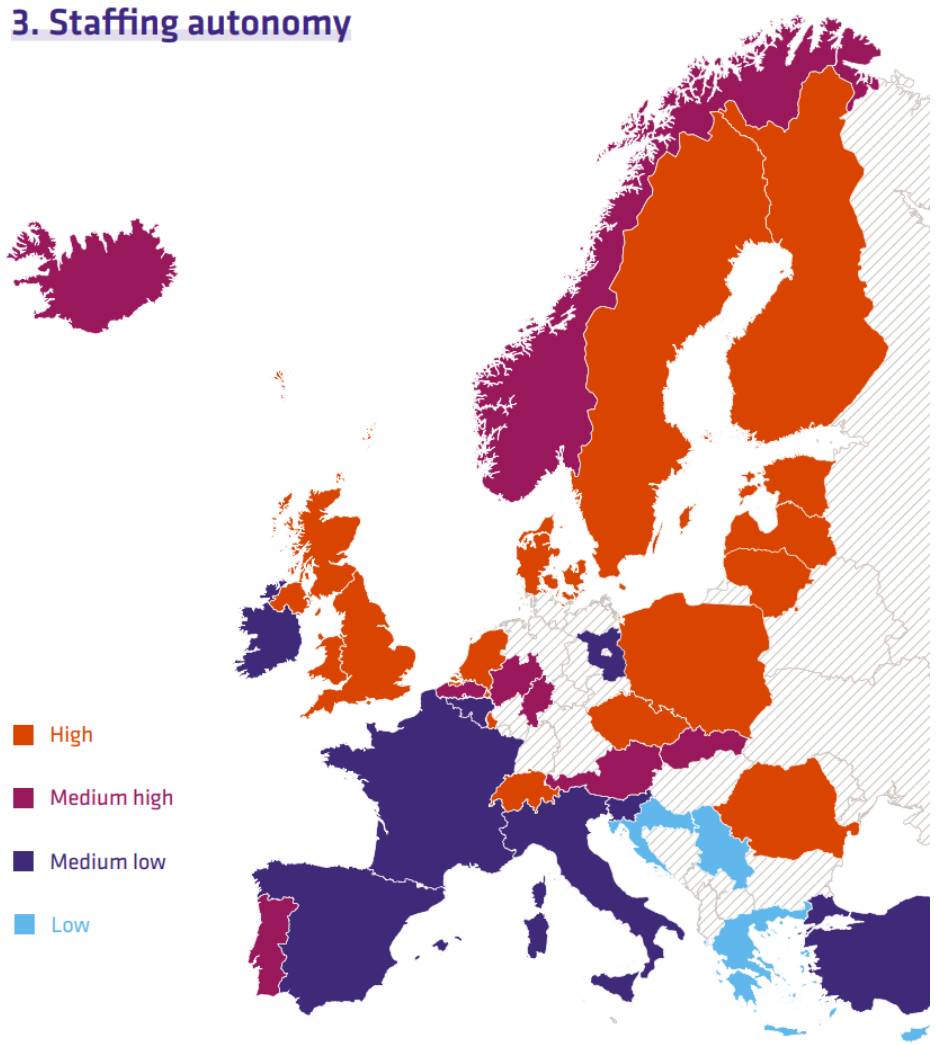
EUROPEAN UNIVERSITY ASSOCIATION

EUA University Autonomy in Europe IV The Scorecard 2023 shows significant differences in recruitment procedures across Europe

- ranging from a large degree of independence in the recruitment of staff to formalised procedures that necessitate the approval of an external authority

Promotion practices differ across Europe and varying degrees of restrictions exist

- rules regarding the selection committee or the requirement to have a post available at a higher level to promote staff.



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National context of Research Assessment Reform: **Finland**

The Finnish higher education system consists of 14 universities and 24 universities of applied sciences

- Currently 13/14 universities, 19/24 universities of applied sciences and 1/12 national research institutes are CoARA signatories

The Ministry of Education and Culture coordinates the activities of higher education institutions, science agencies and research institutes and acts as their main financial source

- In the funding model of the Ministry of Education and Culture the Publication Forum classification is used

The Federation of Finnish Learned Societies (TSV) is responsible of national level coordination of open science and responsible assessment in Finland

- TSV is coordinating CoARA's Finnish National Chapter

EUA has joined the UNESCO Global Open Science Partnership, with the purpose of working towards a global consensus on the transition to Open Science.

The University of Turku is an active member of the European University Association (EUA) and e.g. the development of European responsible assessment of research and researchers is considered important.

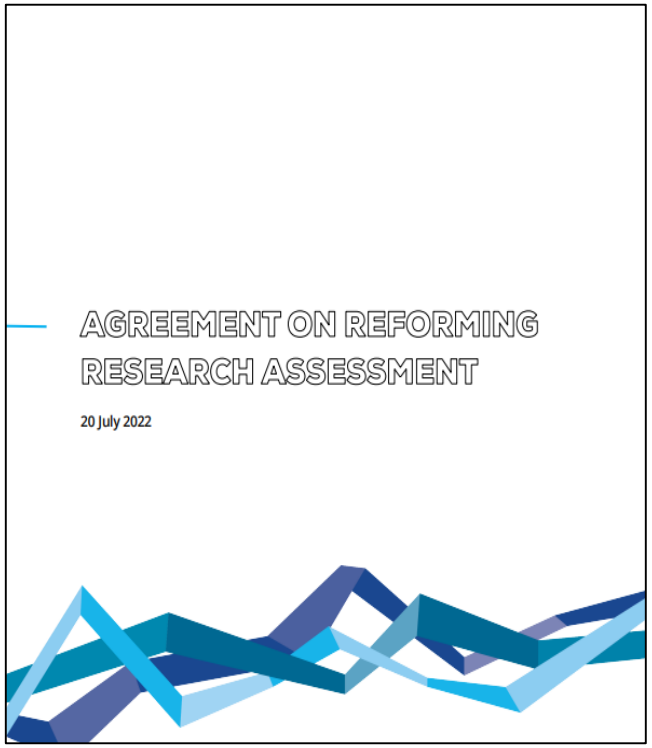
San Francisco Declaration on Research Assessment (DORA)
https://sfdora.org/

The University of Turku has signed the DORA Declaration on 27 February 2020 and is committed to promoting the implementation of the research evaluation practices presented in the declaration.

University of Turku is also committed to:

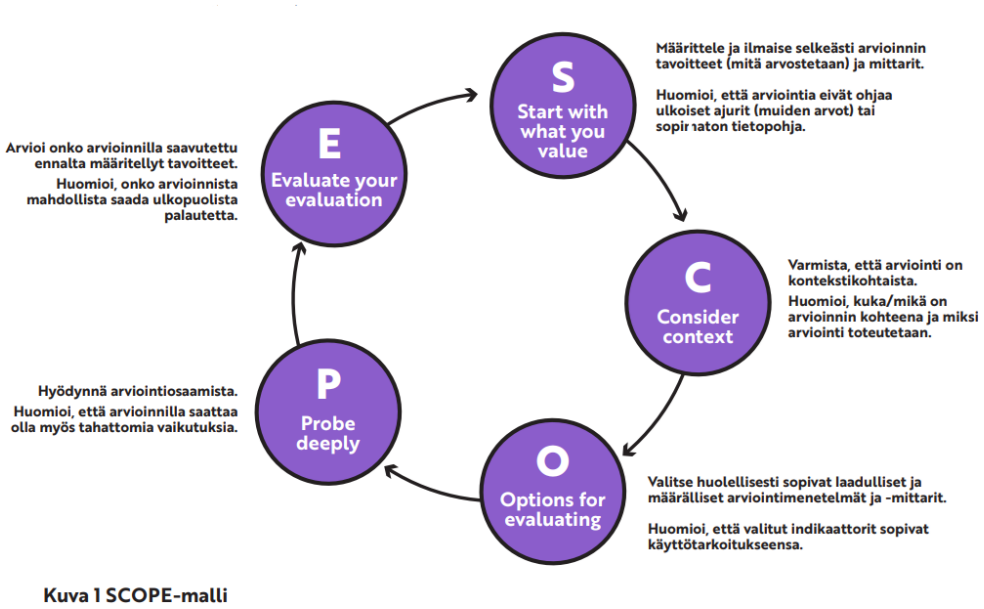
Leiden Manifesto for Research Metrics
The Hong Kong Principles for Assessing Researchers
European Agreement on Reforming Research Assessment

What steps have been taken towards responsible assessment?



The University of Turku has signed the European Agreement on Reforming Research Assessment on 22 September 2022.

The Policy is openly available: https://www.utu.fi/en/research/open-science/responsible-assessment-of-research-and-researcher



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- The INORMS Research Evaluation Group (REG) https://inorms.net/research-evaluation-group/

The University of Turku is one of the early adopters among Finnish universities of the INORMS More Than Our Rank initiative.

more than our rank
an inorms initiative

BARCELONA DECLARATION ON OPEN RESEARCH INFORMATION

The University of Turku is one of the initial signatories of The Barcelona Declaration on Open Research Information and the first Finnish university to commit to the Declaration. The signatories commit to taking a lead in transforming the way research information is used and produced.

The University of Turku is an active member of

National working group developing Finnish Career Assessment Matrix (FIN-CAM)

CoARA National Chapter Finland