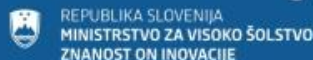


Three Steps of Open Science Implementation in Slovenia

CTK, Ljubljana, 13 November 2024

mag. Miro Pušnik, CTK





Three Levels of Open Science Implementation in Slovenia

- Reform of the European Research Area.
- Reform of national science legislation in Slovenia.
- Adoption and implementation of open science at the level of research organisations.



1st step: Reform of the European Research Area (ERA)

Reform of the European Research Area (ERA)

In March 2022, the European Commission adopted the Pact for Research and Innovation in Europe. The Pact defines 10 common values and principles that will guide research and innovation in Europe and its cooperation with the rest of the world. The ERA Common Policy further defines 20 concrete actions that will contribute to the realization of the goals set in the Pact in the period 2022–2024.

Fostering Cultural Changes in Science

Promoting collaborative science and limiting competitive science

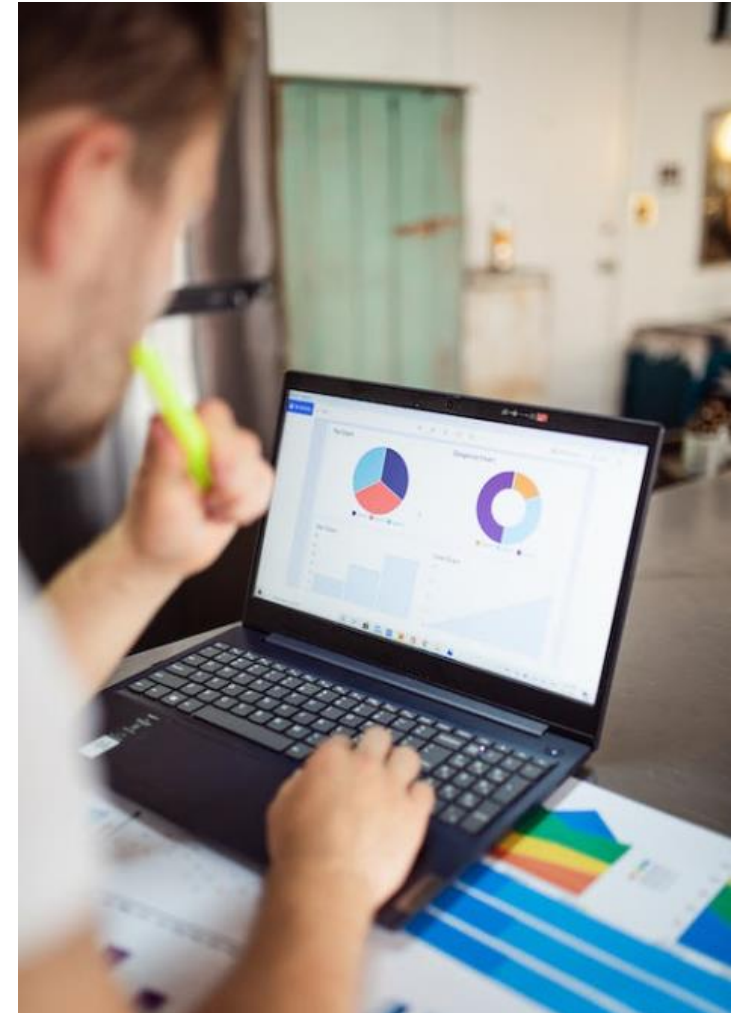
Socially engaged science

Open and early sharing of research results in line with the FAIR principles

Open sharing of research data in line with the FAIR principles

Addressing societal problems: sustainable development, environmental issues, climate change, etc.

Citizen science





ERA Policy Agenda with Concrete Actions

1. Establishment of new ERA governance
2. Adoption of the Pact for Research and Innovation in Europe with a list of 10 common values and principles
3. An ERA Policy Agenda with concrete actions

1. Enable Open Science, including through the European Open Science Cloud (EOSC)
2. Propose an EU copyright and data legislative framework for research
3. Reform the Assessment System for research, researchers and institutions
4. Promote attractive research careers, talent circulation and mobility
5. Promote gender equality and foster inclusiveness
6. Protect academic freedom in Europe
7. Upgrade EU guidance for a better knowledge valorisation
8. Strengthen research infrastructures
9. Promote international cooperation
10. Make EU research and innovation missions and partnerships key contributors to the ERA
11. An ERA for green transformation
12. Accelerate the green/digital transition of Europe's key industrial ecosystems
13. Empower Higher Education Institutions
14. Bring Science closer to citizens
15. Build-up research and innovation ecosystems to improve excellence and competitiveness
16. Improve EU-wide access to excellence
17. Enhance public research institutions' strategic capacity
18. Support the development of EU countries' national processes for the ERA implementation
19. Establish an ERA monitoring system
20. Support research and innovation investments and reforms

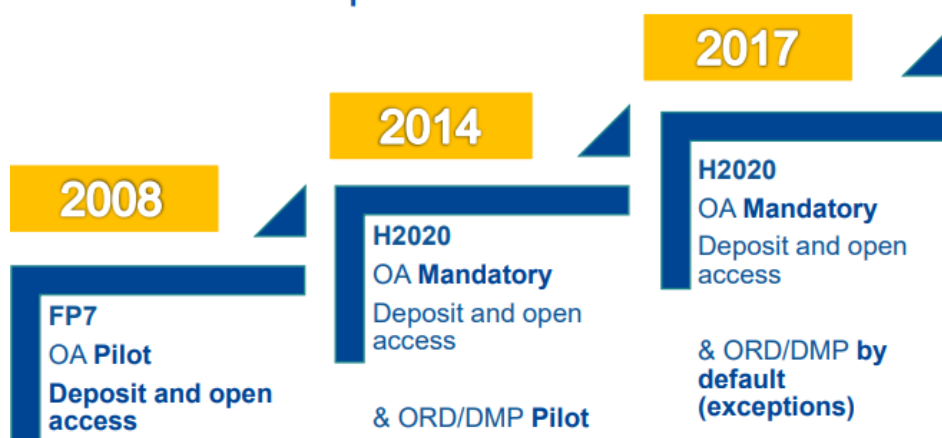
Main Challenges and Priorities for Open Science in the Context of ERA Reform

Improving the Practice of Research and Innovation	Developing Proper Enablers
Openly accessible scholarly publications	Rewards and incentives to adopt open science practices, with appropriate metrics
Early and open sharing of all research outputs	Appropriate skills and education, including for research integrity
RRDM	Open research infrastructures including the European Open Science Cloud (EOSC)
Reproducible results	
Societal engagement and responsibility	

Reference: Kostas Glinos, Open Science: the new normal for practicing Science? Dostopno na: <https://beopen-project.eu/storage/files/parti-1-os-the-new-normal-for-practicing-science-kglinos.pdf>

Open Science in ERA in Practice

Evolution of OS policies across FPs



Horizon Europe

Under **Horizon Europe (2021)**

- Open Science (OA, RDM, Citizen Engagement, etc.) embedded across the FP
 - **Evaluation** of proposals (excellence –methodology-, quality & efficiency of implementation)
 - **Grant Agreement, guidelines**
 - **Reporting**—during the project's lifetime
 - **Work programmes**
- Strengthening of the obligations with respect to open access and focus on responsible RDM in line with FAIR



2nd step: Reform of the Science Legislation in Slovenia

Scientific Research and Innovation Activities Act (November 2021)

2. Open science and open access to scientific publications and research data

Article 40 (open science)

(1) Open science primarily includes open access to research results, evaluation of the quality and impact of scientific research work using responsible metrics, and connecting and involving the interested public in the research process. More detailed requirements for the implementation of scientific research work according to the principles of open science are determined by the government, taking into account the Scientific Research and Innovation Strategy of Slovenia and the recommendations of European research policies. Open science measures are defined in an action plan adopted by the government.

(2) Evaluation and evaluation of researchers, research organizations, research programs and projects must promote open science.

(3) In order to co-finance the implementation of open science measures, the ministry responsible for science or ARIS may enter into a direct co-financing agreement with the performers of scientific research activities.

Article 42 (scientific journals and monographs of Slovenian publishers)

(1) Scientific journals of publishers based in the Republic of Slovenia and abroad, which contain peer-reviewed articles and whose publication is fully financed by state resources, must ensure open access to their contents.

(2) Financing of scientific monographs with state resources is carried out under conditions that allow open access to the entire contents of digital editions of scientific monographs upon publication, taking into account intellectual property rights and copyright management with free licenses.

Article 41 (open access to scientific publications and research data)

(1) In the context of research co-financed with public resources to the extent of at least 50%, the financier must request, and the performer of the scientific research activity must ensure open access to all peer-reviewed scientific publications and research data and other research results. The performer of scientific research activities or researchers must also take into account this obligation in the individual management of intellectual property rights, by reserving the appropriate scope of rights necessary to fulfill the obligations from this paragraph.

(2) The results of research co-financed from public sources must be open and accessible, taking into account the restrictions imposed by the protection of intellectual property, the protection of personal data, the safety of persons or the state. Open research data must be published or otherwise accessible in a way that enables their findability, accessibility, interoperability and reuse.

(3) Personal data from the content of research co-financed with public resources may be subsequently processed for research purposes comparable to the initial research purposes, or for other research purposes in accordance with applicable regulations governing the protection of personal data. If the personal data were processed in the research on the basis of the consent of the individual to whom they relate, they may be further processed only if the consent also includes subsequent processing or if this is permitted by a new consent. Obtained consents must be kept by the performer of the scientific research activity for ten years and, for the purpose of checking the legality of the processing of personal data, they are available to the individual to whom the personal data relates and to the performer of the scientific research activity. Consent is not required when processing personal data based on the law governing the protection of documentary and archival material and archives.

(4) A public research organization or another competent public institute may, as the administrator of this data, establish regional data centers for research data in accordance with the applicable regulations governing the protection of personal data in order to implement the provisions of the first, second and third paragraphs of this article. The data controller must ensure that only persons who are entitled to conduct research in accordance with the previous paragraph have access to the content of the data from the regional data center.

(5) More detailed requirements regarding the preparation of scientific publications and research data from the first and second paragraphs of this article and deadlines for ensuring open access shall be determined by the government, taking into account the provisions from the third paragraph of this article.



Decree on the Implementation of Scientific Research Work in Accordance with the Principles of Open Science (June 2023)

The Decree is the implementing act of the Scientific Research and Innovation Activities Act. It lays out the implementation arrangements for regulators (Slovenian Research and Innovation Agency, Slovenian Quality Assurance Agency for Higher Education), research organisations and researchers in greater detail.

Main Parts of the Decree (1/2)

1. Open access to scientific publications (requirements, implementation);
2. Open access to research data and other research results in the digital form (requirements, implementation);
3. Copyright management in accordance with the principles of open science (copyright management of scientific publications, research data and other research results);
4. Involvement of the interested public in scientific research (considering the needs of users and the wider community; citizen science);
5. Eligible costs of scientific research work in accordance with the principles of open science;

Main Parts of the Decree (2/2)

6. Evaluation and assessment of researchers, research organisations, research programmes and projects in accordance with the principles of open science (evaluation by funders, evaluation in public research organizations);
7. Open science infrastructure (national ecosystem for open science);



3rd step: Institutional Implementation of Open Science



Action Plan for Open Science

The Slovenian government adopted the Resolution on the Slovenian Scientific Research and Innovation Strategy 2030 (ReZrIS30),
<https://www.gov.si/assets/ministrstva/MIZS/Dokumenti/ZNANOST/Nacionalni-dokumenti/Resolution-on-the-Slovenian-Scientific-Research-and-Innovation-Strategy-2030>.

Objective 6.2 in ReZrIS30 is *Open Science for Improving the Quality, Efficiency and Responsiveness of Research*.

The implementation of the action is laid out in the Action Plan for Open Science, <https://www.gov.si/assets/ministrstva/MVZI/Znanost/Nacionalne-strategije-in-dokumenti/2023-Action-Plan-Open-Science-Slovenia.pdf>.

6.2. Open Science for Improving the Quality, Efficiency and Responsiveness of Research (1/3)

1. Internationally Aligned National Open Science Ecosystem

Management and financing, coherence with international standards, integration into international networks and infrastructures

- Preparation and adoption of governmental decree on open science, implementation of an RRF project to support public research organisations in adapting their operation according to the open science principles, establishment of the national Open Science Infrastructure Council to support the development of national open science infrastructure, development of services ...

2. Evaluation of Scientific Research Activities in Accordance with the Open Science Principles

Introduction of modern approaches to evaluation of scientific research in accordance with open science

- Changes and amendments to ARIS, NAKVIS, and public research organisations regulations; engagement in the ERA and EHEA activities related to the research assessment reform ...

6.2. Open Science for Improving the Quality, Efficiency and Responsiveness of Research (2/3)

3. Compliance of Scientific Research Results with the FAIR Principles and Openess

Ensure the results of scientific research are consistent with FAIR, provide full and immediate open access (subject to justified exceptions)

- Publications: Incentives to support the implementation of open science, upgrades in the system for funding the purchase of international scientific journals (support to transformative agreements, later on contracting agreements for diamond publishing, open access publishing in gold journals and open acces publishing platforms ...
- Research data: selection/evaluation, DMP preparation support, development and maintenance of the data services ecosystem ...

4. National Open Science Community

Establish the national Open Science Community to support implementation and monitoring of open science in Slovenia and the integration into ERA and beyond

- Establishment of the Slovenian Open Science Community (SSOZ), permanent professional and administrative support to SSOZ with sustainable funding, national catalogue of open science trainings and services,...



6.2. Open Science for Improving the Quality, Efficiency and Responsiveness of Research (3/3)

5. Citizen Science

Promote development of citizen science and public involvement in scientific research

- National Observatory of Citizen Science, establishment and operation of national citizen science network citizenscience.si, support to citizenscience within the national open science system, incentives to public research organisations to incorporate citizen science into the research process ...

6. National open-access scientific publishing

Promote development of national scientific publishing to operate according to the principles of open science

- National Contact Point for Scholarly Publishing, establishment of the Slovenian network of scientific publishers, implementation of diamond open access in national scientific publishing, strategy/guideline for national scientific/academic publishing ...

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