

The Polish Open Science Conference 2024

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The Polish Open Science Ecosystem. What does it mean?



UNIWERSYTET ŚLĄSKI
W KATOWICACH

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To expand your information about the Polish OS landscape during our conference, e.g.:

Wednesday, afternoon session

- **Open Science Policy at the National Science Centre**
- **Analysis of the state of open science in Poland in 2017–2021 and possible directions of support**

Thursday, morning session

- **OPERAS-PL - the concept of research infrastructure for the humanities and social sciences**
- **SSHOC-PL - national domain clusters for the European Open Science Cloud**

Agenda



What is the ecosystem?



Is Open Science an ecosystem?



What Open Science ecosystem do we have and expect in Poland?

Ecosystem concept

In the 1990s ecosystems studied by management scholars.

James F. Moore introduced the concept of the business ecosystem (1993).

The ecosystem concept depicts collaboration across organisational boundaries:

- complementarities and interdependencies
- the system is not fully hierarchically controlled

no component of the ecosystem is an island!

arenas of cooperation and competition,

not a random collection of elements but a more structured community,

adaptation to environmental changes,

ecosystems changes are ecological,

diversity is essential for the health/well-being of ecosystems

**(...) ECOSYSTEMS AND COMPLEXITY HAVE BECOME
THE NATURE OF THE CONTEMPORARY WORLD.**

OECD. Schools at the Crossroads ..., (2017).

ORGANIZATIONAL AND MATERIAL ASPECTS

boundaries, specific context

policy & governance – goals, standards, principles ...

infrastructure, tools & services

technical & intellectual resources

institutional actors, stakeholders, beneficiaries, keystone species

relationships,

business models, funding mechanisms`

culture & societal factors (history, geography, law)

...

ECOSYSTEM AT LARGE

HUMANS ASPECTS

actors and stakeholders

activities, practices

collaboration style, preferences

needs

behaviours

skills, literacy, competences

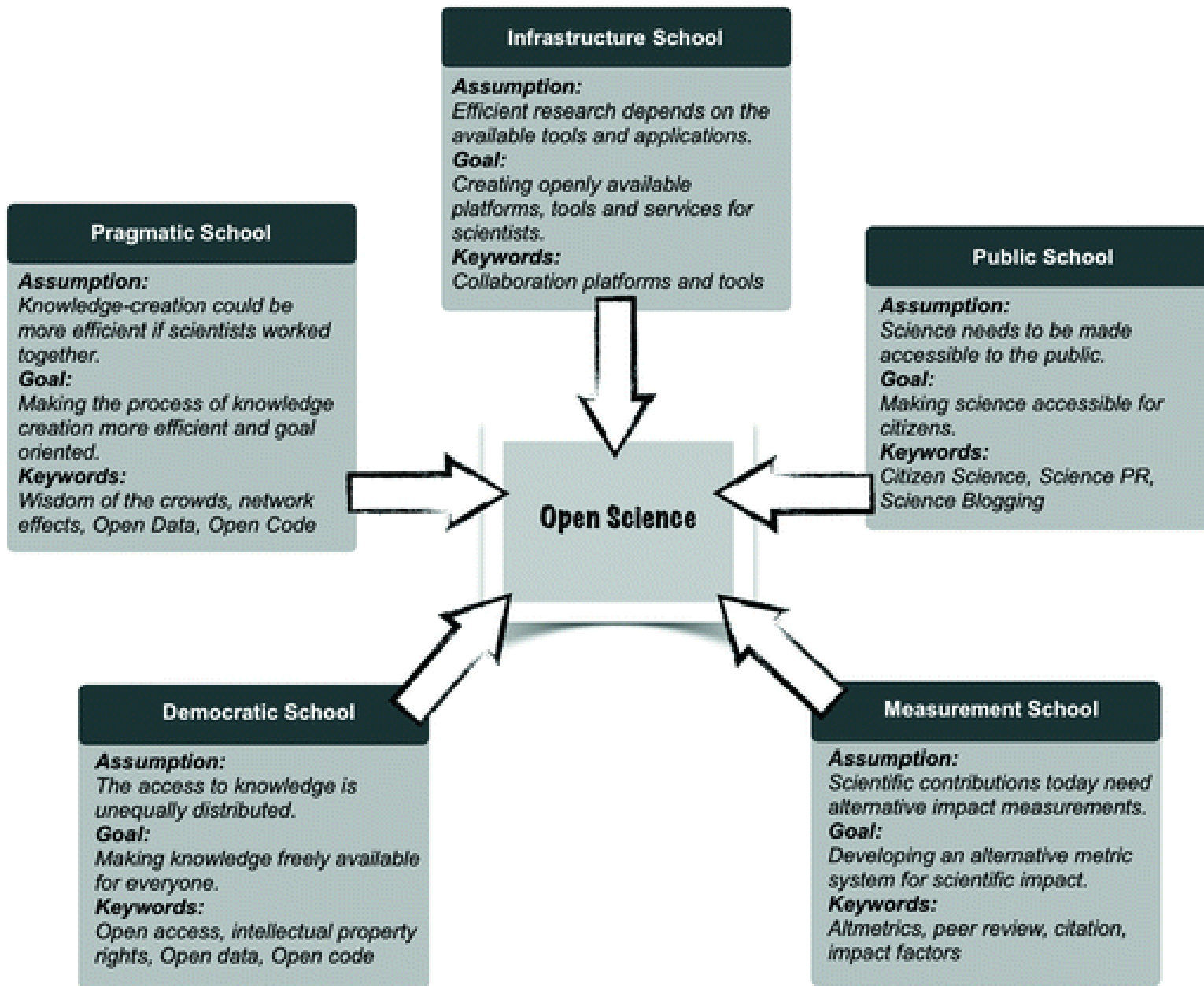
values & ethic

languages

...

Open Science is





The science is home to multiple species, and our relations grow more complex every day

- knowledge / science / scholarly ecosystem
- scholarly/ science communication ecosystem
- scholarly publishing ecosystem
- (networked) research ecosystem,
- research & innovation ecosystem
- university research/ innovation ecosystem
- digital scholarship /research ecosystem,
- the Geosciences Open Science Ecosystem (GEO OSE)
- open government ecosystem
- Municipal Open Data Ecosystem
- ...
- Open Science ecosystem
- Open Access ecosystem
- Open Data ecosystem
- Open scholarly communication ecosystem
- FAIR ecosystem (technical ecosystem for FAIR data)
- EOSC ecosystem
- citizen science ecosystem
- ...



**How to distinguish
between different
ecosystems in
science?**

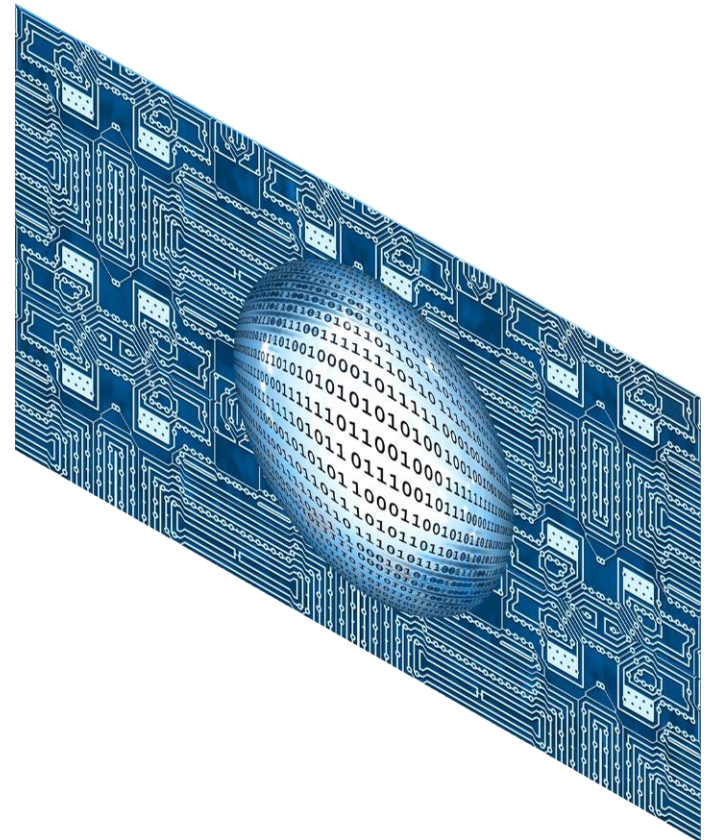
Ecosystem boundary

a boundary - an ecosystem type-specific attribute that contributes to the conceptual distinction between different ecosystem types

(Cobben, 2022, p. 142)

Boundaries i.e.:

- the geographical scope
- the actors needed to realise the ecosystem's shared value & vision
- source of competition advantage
- orchestration specificity
- ...



Is Open Science an ecosystem ?

1) ORGANIZATIONAL AND MATERIAL ASPECTS

Boundaries, specific context (e.g. university, domain, country, region, global science)

Policy & governance (formal or informal; framework, goals, recommendations, standards, incentives, measures, assessment)

Infrastructure, tools & services (e.g. european, national and institutional publication and data repositories, collaboration platforms, RDM plans, controlled lists values (controlled vocabularies), metadata schemas
EOSC ...)

Institutional actors (e.g. funders, coalitions, working and tasks groups, governments, international organizations, NGOs, society as a whole...)

Relationships long-term, non-hierarchical. non-linear ways, interconnectedness of all elements

Business models (funding mechanisms (gold and green access, diamond access, subscription

Culture (history, geography, law)

Is Open Science an Ecosystem ?

2) PEOPLEWARE (HUMANS ASPECT)

Actors and stakeholders , their types and roles (aslo beyond academia)
communities, researchers, librarians, stewardships, data curators, policy makers, designers, facilitators...

Activities, practices (open publishing, open peer-review, sharing, re-use, collaborative research)

Behaviours of individual stakeholders (ethical, *exchange of research outputs and practices. cooperation through reuse ...*)

Collaboration style, preferences (e.g. open labs, open peer-review ...)

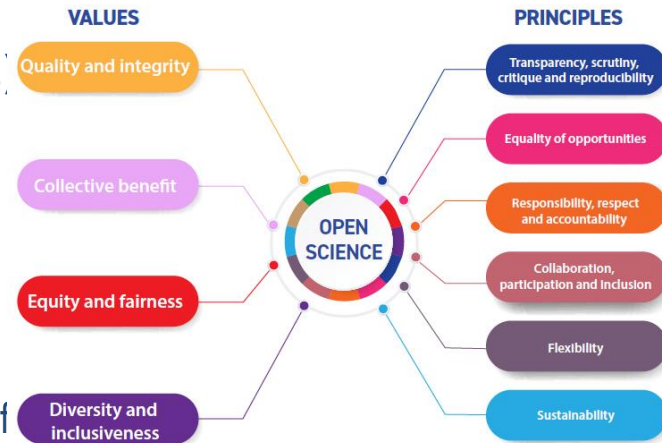
Needs (e.g. visibility, re-use, accessibility, discoverability, cross-domain interoperability ...)

Skills, literacy, competences (digital literacy, data management,

Values, principles & ethic (**values:** quality and integrity, collective benefit, equity and fairness, diversity and inclusiveness; **principles:**

Languages (linguistic diversity)

UNESCO Recommendations on OS,
2021)



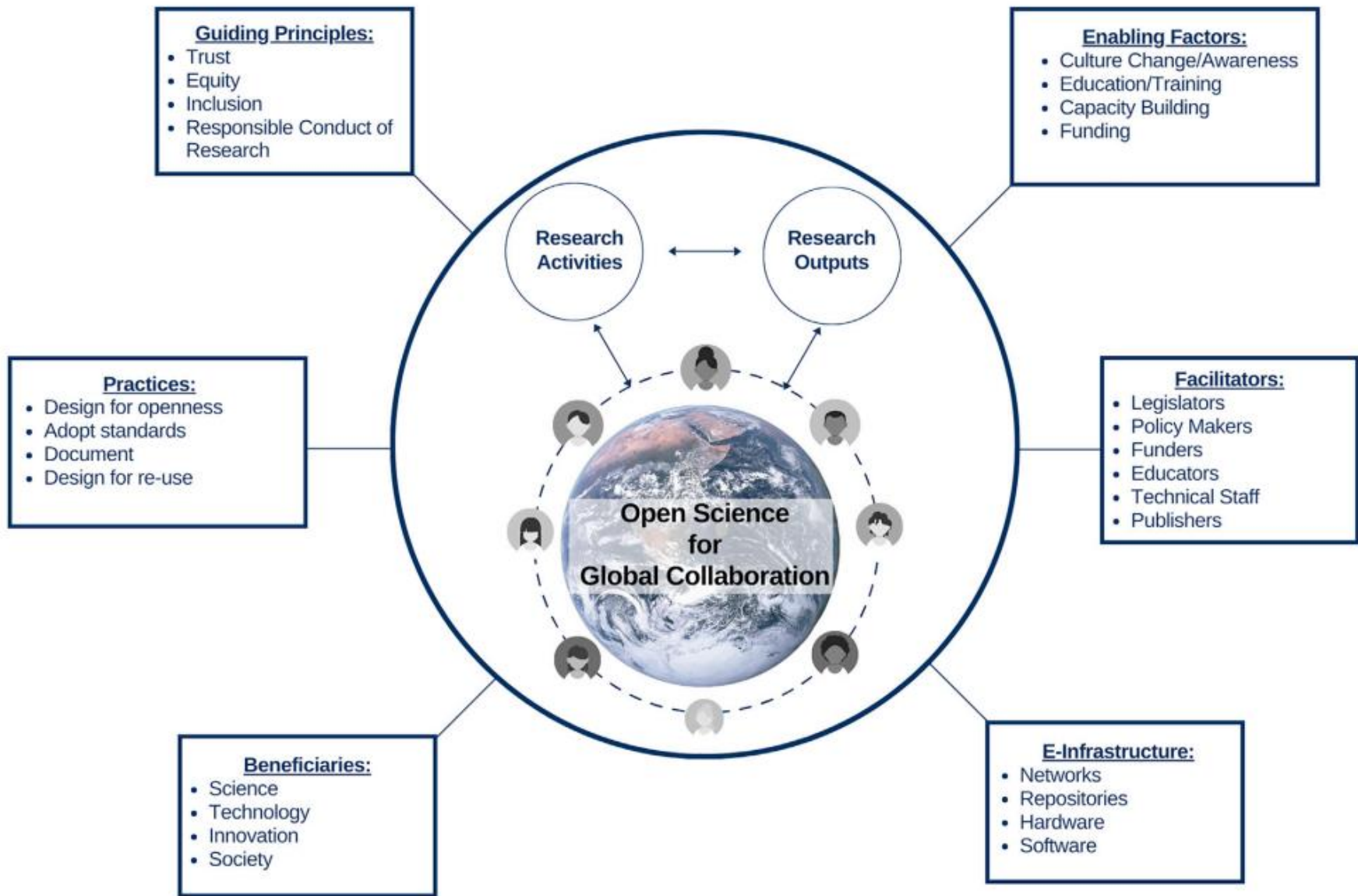


Figure 1. Open science ecosystem

Diverse paths to open science

„(...) due to the diversity of science systems, actors and capacities across the world, as well as the evolving nature of supporting information and communication technologies, there is no one-size-fits-all way of practicing open science.”

UNESCO Recommendations on Open Science,
2021 (p. 19)



POLAND

– national regulations devoted to Open Science and Open Data

2015 - ***Directions of the development of open access to research publications and research results in Poland*** (*Kierunki rozwoju otwartego dostępu do publikacji i wyników badań naukowych w Polsce*)

Recommends open access to works with public funding; **recommendations are non-binding.**

2021 - ***The Act on Open Data and the Re-use of Public Sector Information*** (USTAWA z dnia 11 sierpnia 2021 r. o otwartych danych i ponownym wykorzystaniu informacji publicznej. Dz. U. 2021 poz. 1641)

The aim is to enable greater use of open data and stimulate innovation in products and services; a data portal (earlier as a “central public information repository”) hosted at dane.gov.pl. The Act covers 4 types of public sector data available for re-use: so-called high value data, dynamic data, research data.

2021 - **Open Data Programme for the years 2021-2027**

(Program otwierania danych na lata 2021-2027) - Resolution No. 28 of the Council of Ministers of 18 **February 2021.**

The aim is to enhance transparency of actions taken by administration bodies and improve quality of research, thus accelerating the scientific progress. enable greater use of open data and stimulate innovation in products and services.

2022 - **State scientific policy** (Polityka naukowa państwa)

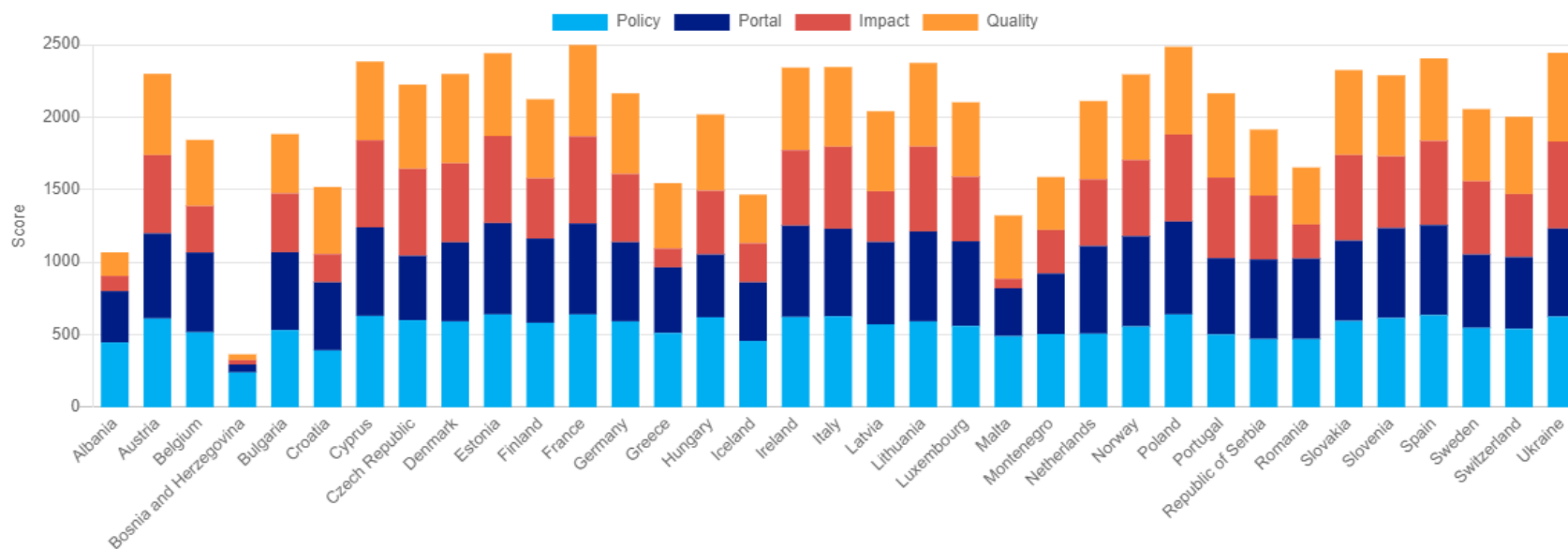
Emphasizes the importance of digital technologies and the FAIR principle; **important are:** active participation of national scientific units in the development EOSC at the European and national level; encouragement for scientific units to appoint Open Access (OA) officers, create institutional OA policies, educate research workers and doctoral students in the field of OA, build and develop digital repositories

The Act on Higher Education and Science does not include open science (ACT of 20 July 2018. Law on higher education and science)

Open Data in Europe 2023

The Open Data Maturity (ODM) assessment

Country overview



Poland ranks second in Europe in terms of the openness of public data.

OPEN SCIENCE defined by the governmental bodies in Poland

Open Science is a mode of conducting research and communicating its results, which rests on the principles of open access, transparency, reproducibility and verifiability. These principles are of key importance for the development of science in accordance with the most stringent standards of research integrity. Open science is also the foundation of social accountability, as it ensures broad access to the latest, verified knowledge.

(<https://www.ncn.gov.pl/en/finansowanie-nauki/otwarta-nauka>; access March, 2024)

State Scientific Policy, 2022

The government supports open science, understood as open access to scientific publications and the opening up of research data. The third element of open science should also not be overlooked, which is so-called citizen science, which involves the participation of people without the status of employees in the higher education and science system (citizen scientists) in research (p. 13)



THE ANALYSIS OF THE STATE OF OPEN SCIENCE IN POLAND Final report, 2023

Open Science "is a paradigm for practising research and communicating results taking into account the principles of openness, as well as responsibility towards society by including non-scientists in the research process and communicating practical research results".

The Polish open science ecosystem - two (interconnected) perspectives

Hardware & software (e-infrastructure)

- FAIR research software
- platforms
- networks
- repositories
- open codes
- ...

Peopleware

- Scientists
- Facilitators
- Outputs (open publications, open data ...)
- Practices (increase the transparency and rigour of scientific research)

- Principles, values
- Needs,
- Behaviours, ethic
- Skills, literacy

- Scholarly culture

Research data

openly available platforms, tools and services for scientists

Polands Data Portal
EOSC, SSHOC, CLARIN-PL,
OPERAS-PL, DARIAH-PL

Scholarly Collaboration Network

open up the process of knowledge creation

NAVOICA

Networking of research institutes

Science for society

make science accessible for citizens

Citizen science

Social responsibility

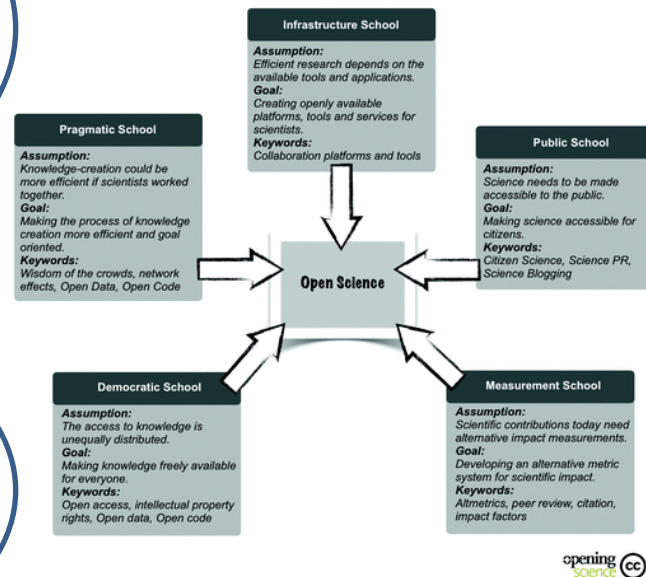
Open Access

Making full & immediate OA a reality for everyone

Plan S, cOAlition S
repositories

Alternative metrics

develop an alternative metric system for scientific impact
DORA, CoARA



The Polish Open Science Policy – a framework for goals, principles, priorities, incentives, timeline, stakeholders responsibilities, quality standards, metrics, ...

The Polish open science ecosystem e-infrastructure - examples

National level

- Data repositories: RepOD, RDS, MX-RDR
- CeON repository
- CeOn Aggregator
- The library of Science
- Polands Data Portal
- CLARIN-PL
- DARIAH-PL
- OPERAS-PL
- EOSC-PL
- ...

European level

- Engagement in OpenAIRE infrastructure
- EOSC Association and TASK Forces
- Collaboration platforms –Research gate, Academia ...

Institutional level

Repositories created by scientific institutions
(95)
Collaboration platform & tools

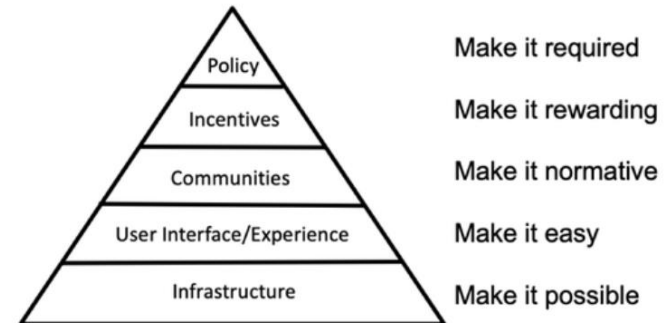
The Polish open science ecosystem

Key actors & stakeholders

Scientists, researchers

Open science requires a cultural change - three main barriers:

- incentives and metrics
- skills
- costs



Information Processing Centre (OPI) ,
ANALYSIS OF THE STATE OF OPEN
SCIENCE IN POLAND. Final report.
2023



ANALIZA STANU OTWARTEJ NAUKI W POLSCE

Raport końcowy

Warszawa, grudzień 2023

Zadanie finansowane ze środków Ministra Edukacji i Nauki



Adamiec A., A model for the
evaluation of academic institutional
repositories in Poland in the context
of open science. 2023



The Polish open science ecosystem

Key actors & stakeholders

Facilitators

librarians, data stewards, data curators, educators, technical and other supporting staff ...

Of the 365 employees whose responsibilities include issues related to OS, 76 people (21%) are employed in a separate position exclusively for matters related to OS [OPI Report, 2023]

Institutional actors

- Governmental institutions
- Universities, scientific institutes & their libraries
 - *slow or facade implementation of OA;*
 - **Total number of institutions = 197**
 - *OA mandates: YES N=54, NO N=143;*
 - *training for scientists in the field of OA over the last three years N = 67;*
 - *infrastructure investments N=41;*
 - *achievements in OS are **mostly not taken into account** when assessing scientists;*
- Public funding agencies
- Publishers
- Business partners
- ...

Conclusions

OS ecosystem will last for years to meet the challenges of the future

stable (not static), diverse, multidimensional, adaptable, sustainable, resilient, transparent, well coordinated, compliant with European (international) standards, coherent, helpful, facilitating knowledge discovery ...

What are our priorities?

OPEN SCIENCE IS NOT A GAME FOR ONE!

OS ecosystems, as constructs that are not fixed, require constant attention of entities responsible for their formation and development,.

A new national OS policy is absolutely necessary – setting the solid framework and incentives for the adoption of the OS by researchers, institutions, and other stakeholders

The OS ecosystem is not only a response to the needs and behaviours of researchers and the public, but also a way to shape them for the future!

“(...) the more things are open, the more we have to think about maintaining integrity in our ecosystem.” (The Aspen Institute, Unlocking a Stronger ... , 2023, p. 15)

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