Generation O | Scaling Open Practices in Higher Education.
How can we help «openness-pioneers», «openness-innovators», and «openness-activists» change the Higher Education System?

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Our approach

/ Open Innovation

/ Open Science

Bringing Open Innovation and Open Science together – in order to uncover the potentials of an Open Innovation Culture
Our mission

Open Research and Innovation - by Design

• Manage systemic innovation requirements
• Link existing knowledge more effectively
• Improve trust in research
• Increase relevance and impact of science & innovation
Generation O | Scaling Open Practices in Higher Education
• Margaret Hamilton / Born in 1936, the computer scientist and mathematician was a software engineer for the Apollo space flight. The computer code she developed made the first moon landing possible and incidentally invented the software system itself.

The shift to Open Science is strongly driven by individuals – Openness-Innovators
What challenges do they face and how can we support them?
12 OPENNESS INNOVATORS & PRACTITIONERS

2 USE CASE

Design Thinking Sprints

EXPLORER

CREATE

20 QUALITATIVE INTERVIEWS

SET OF POSSIBLE SOLUTIONS

innOsci Future Lab Project Design
Potential needs and fields for action | Perspectives of openness-innovators
Potential needs and fields for action

WICKED PROBLEM

- Lack of clear solutions
- Socially complex and often not stable
- Require changing behavior
- Many interdependencies and multi-causal
- Often unforeseen consequences
- No clear responsibilities

Open Science as a ‘wicked problem’?

Policy makers: Shape framework conditions for Open Practices

Potential needs and fields for action

WICKED PROBLEM

Enablers: Help to bring Open Practice to life

Complexity & interdependencies

Innovators: Utilize Open Practice and generate social impact
If we put a focus on quality, research will be better off. Pre-prints, open data, and open code mean that others can collaborate, and at the same time, quality increases.

There are always people who no longer participate due to time constraints. We are also full time researchers. If I don’t organize meetings, there won’t be any. It depends very much on individual people.

Open Science topics are referred from A to B and no-one feels responsible. (...) The feeling prevails that we have no power to initiate changes on a structural level and should therefore surrender to the system.

Open Science is a non-issue in university management. There is no support, but no obstacles are put in our way either. (...) The fact that we hardly receive any funding is frustrating.

We cannot convince deniers with the "openness" argument. Rather, it makes sense to find suitable solutions to the problems of skeptics.

The university let us do it. But they said that if you want to stay in science: publish, publish, publish. Don’t do too much on the side, be focused on your topic.

We have given up hope that the German Research Foundation will impose top-down Open Science requirements.

Source for quotes above: The design team conducted 20 qualitative interviews with Openness-Innovators, -enablers, -policy makers.
Potential needs and fields for action

Open Science became part of the university strategy because there was funding for it. (...) I would like us to do Open Science not only for the sake of money.

At the university, there is no central structure but a multitude of individual competencies that converge in working groups.

Some are more open to Open Science, while other colleagues are skeptical. They ask why they should publish their research data at all.

It acts like an innovation imperative that forces us all to continually do new things and think new things.

We need new job profiles and technical know-how. It is now difficult to find appropriate people or to train our staff. But we have to do it. (...) However, a lot of knowledge is always lost with project positions.

We must not simply provide infrastructure and resources, but create experimental spaces where things can be tried out, where people can work together. (...) The exchange of knowledge ultimately makes it possible to deal with problems in an informed way.

Companies I now come up with the term co-creation. They don’t even open the door. It has to blink, clatter and be loud.

Source for quotes above: The design team conducted 20 qualitative interviews with Openness-Innovators, -enablers, -policy makers.
In Open Science, I have always signaled, do what you think is right. As university management, I did not take this on board.

My impression of Open Science is that there is a lot of commitment and will, but it has not yet reached the university as a whole. Everyone is just muddling along.

Rectorates don't know what their Open Science experts are doing. Two parallel worlds exist there.

Open Science arrives at university leadership and is delegated elsewhere.

I don't identify innovators at the university based on systematic analysis. It is much more gut feeling, successfully completed projects, feedback from the outside world. Then I approach these people and they get special roles as commissioners and a bit of money.

There is a lot of freedom for universities and no sanctions. (...) We don't want to get on the wrong side of the institutions.

Federalism is not always beneficial. I would like to see greater cooperation between federal and state ministries. A common policy across Germany is desirable.

We are only a few employees for Open Science in the ministry, we give ideas and develop strategies with the universities. (...) It is complicated to reconcile all interests.

A lack of knowledge about Open Science or fears of unknown implications lead to actors acting cautiously or slowing down developments. (...) However, there are also strategic reasons depending on the standing of the management or the resistance at the university.

Source for quotes above: The design team conducted 20 qualitative interviews with Openness-Innovators, -enablers, -policy makers.
Potential needs and fields for action

**WICKED PROBLEM**

- Lack of knowledge about Open Science among policy makers
- Lack of strategic anchoring of Open Science in university management
- Little anchoring of Open Practices at universities
- Autonomy of science narrows scope for political action
- Few staff with open practice know-how

- None systematic identification and promotion of open innovators at the university
- Low prioritization of open practice issues among university leadership
- Dependence on subsidies and project funds
- Pressure for innovation and change
- Lack of exchange formats complicate stringent Open Science policy

- Limits of individual commitment
- Resignation among innovators due to limited scope for action and unclear responsibilities
- Low appreciation and support for the commitment of innovators
- Outdated job profiles and lack of know-how
- Low awareness of Open Practices among companies as well

- Winning over skeptics and deniers for Open Science.
- Open Science is not rewarded by the scientific reputation system
- High time commitment to acquire new knowledge and skills
- Funding policy is not aligned with Open Practices
- Lack of a uniform terminology

- Structures and hierarchies make it difficult for open innovators to get through with their concerns
- Digital and openness gap between generations
- Inhibiting market structures and diverging interests between science and industry, e.g. for open access
- Lack of innovation culture in many organizations
- Different open-communities

Many barriers, lack of clear solutions on the systemic level
Possible solutions and opportunities | Recommendations for policy makers
Possible solutions and opportunities for systemic change

- Incorporate Open Practices into job profiles and staffing decisions
- Embed Open Practices in university strategies & development plans & create clear responsibilities.
- Build Understanding of Open Practices, knowledge & skills across sectors
- Strengthening the commonalities of the open discourses & communities: Unifying concepts, principles, practices & cultures
- Professionalize Open Practices ugh structures, services, budget.
- Promoting a culture of innovation in science, administration and ministerial bureaucracy
- Identification, appreciation & support of open innovators, consideration of their concerns
- Promoting Open Practices in other sectors
- Consideration of open practice engagement in the scientific reputation system.
- Alignment of funding policies with Open Practices
- Policy co-design
Possible solutions and opportunities for systemic change

Proposed starting points:

- Open up spaces and promote exchange
- Recognize and support innovators
- Create strategies and shape organizations
- Expand knowledge and skills
- Enable learning and experimentation
Possible solutions and opportunities for systemic change

3 Prototypes from the innosci Future Lab Program

- **SELF-ASSESSMENT TOOL & MATURITY MODEL** for Open Practices

- **INCUBATOR** for strengthening Open Science and social problem solving competence

- **ELECTIVE LEARNING MODULES** as a certificated online course, combining research and practice
Possible solutions and opportunities for systemic change

- Include Open Science activities and capabilities in grant and appointment criteria, career development
- Provide human and technical support structures
- Promote the acquisition of knowledge on the part of researchers and science managers.
- Gain access to (external) knowledge carriers through interdisciplinary teams, job rotation, fellowships
- Strengthen metascience
- Strengthen creativity and innovation through working methods
- Create local or digital meeting spaces via events
- Increase visibility and appreciation, e.g. awards
Possible solutions and opportunities for systemic change

What now?
Thank you!
Join our Online-Community and stay in touch

Kontakt
Marte Sybil Kessler
Program Director
📞 +49 172 6758 333
✉️ Marte.Kessler@stifterverband.de

innOsci.de

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