From Open Access to Open Science - research policy in the making

Dr. Katja Mayer
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Open Science in Practice

Open Science aims at transforming science through ICT tools, networks and media, to make research more open, global, collaborative, creative and closer to society.

https://ec.europa.eu/digital-single-market/en/open-science

The 3 Os of EU Science Policy

Priorities of Commissioner Moedas

- Open Innovation
- Open Science
- Open to the world

areas such as nanosciences and nanotechnology, ICT, materials or biotechnology. In addition, both China and South Korea have been increasing their number of highly cited publications in strategic fields at a higher speed than the EU and the US. A similar pattern applies for technological outputs.

A picture that emerges throughout the Report is *the persistence of an innovation divide across the EU*, with the Member States having joined the EU since 2004 performing, on average, at lower levels. It should be noted, however, that the characteristics of this innovation divide appear to be gradually changing, with some of the newer Member States increasing their performance substantially. In terms of R&D intensity, for instance, Slovenia is now ranked 6th across the 28 Member States, and has surpassed Belgium and France, while both the Czech Republic and Estonia are approaching the EU average. The Report also shows the importance of the European Structural and Investment Funds in financing the research and innovation systems of the newer Member States, which will contribute to further close the innovation divide.

The EU needs to continue improving the quality of its science base and the intensity of knowledge circulation: Open Science

Excellent science is the foundation of future prosperity and openness is key to excellence. Despite a growing number of impressive developments at the frontier of science in Europe and an improving position of the EU worldwide, indicators of most excellent science show that the Europe is not top of the rankings in certain areas.

With more than 27% of the world total, *the EU continues to be the largest producer of scientific publications in the world*, ahead of China, which has overtaken the US. A significant evolution since 2000 is that the EU has overtaken the US as regards the total number of highly cited publications.

There is evidence throughout the Report that continued policy attention to research and innovation and structural reforms ultimately pay off. The continued policy attention to reform the public research base and stimulate excellence has led *the EU to diminish the gap with the US in terms of scientific quality* whilst staying clearly ahead of countries such as South Korea, Japan and China.

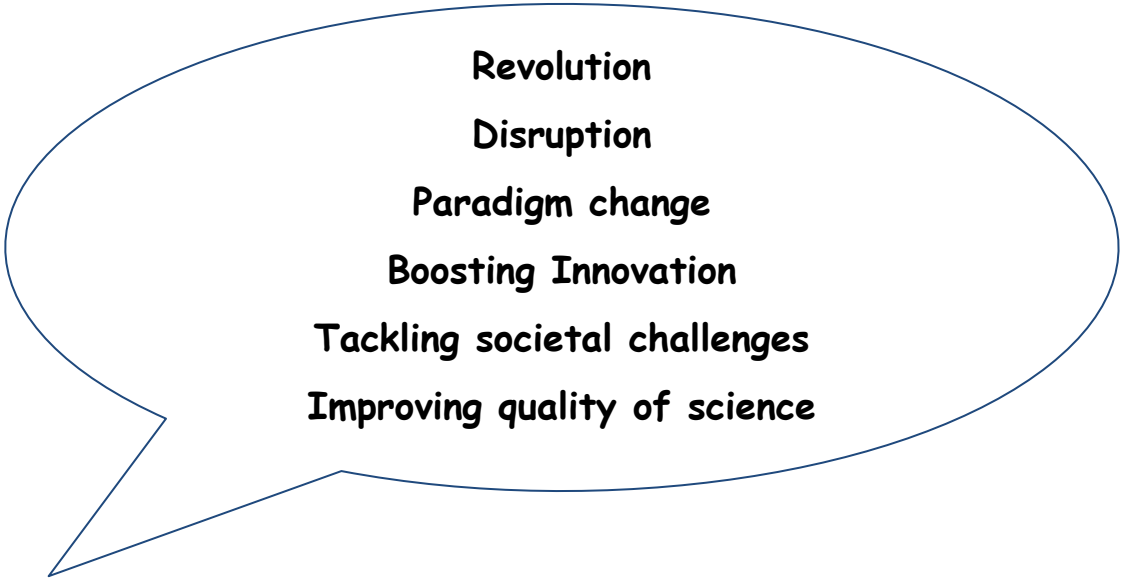
A shift towards more knowledge-intensive activities also benefits employment. The Report shows that *employment in science and technology has been particularly resilient during the crisis*. Whilst total employment in the EU decreased by 0.7% on average per year between 2008 and 2013, human resources in science and technology increased by 2.1% per year over the same period and the number of researchers by 2.5%.

For the public science base to be fully effective in terms of increasing innovation performance and delivering impact, it needs to be well connected to the business sector and knowledge has to circulate freely. Public-private collaboration is a key aspect in this, in particular in an environment in which open innovation is becoming increasingly important and more actors are involved in the innovation process. In this respect, the EU has made some progress over the past few years, *but its intensity of public-private collaboration still lags behind that of Japan, South Korea and, in particular, the US*. Further efforts are needed to stimulate such cooperation, and the nature of the economic fabric should be taken into account when determining the optimal policy mix.

Moreover, the mobility of human resources is also an important mechanism to foster knowledge circulation between the public and the private sector. Yet here as well, *the EU is still not fully benefiting from the embedded knowledge of researchers trained by universities* as the number of researchers employed by the business sector is significantly lower than in the US, Japan and South Korea.

http://de.slideshare.net/mobile/xrbiotech/science-research-and-innovation-performance-of-the-eu-agenda-2016

http://de.slideshare.net/mobile/OpenAIRE_eu/a-funders-perspective-welcome-from-the-ec-caroline-colin-openaire-workshop-ghent-nov2015



Transformative Powers of Open Science

STS combines the perspective of

- politics of who (who gets to speak, act, govern, who becomes marginalized, invisible, ...) and
- politics of what (what realities are taking shape, are clashing, are blackboxed and taken for granted, ...)

See: A. Mol, “Ontological politics. A word and some questions,” (in Law & Hassard, Actor Network Theory and After).

making social science open (MASSO)

Objectives

★ Finding existing and co-creating new visions, strategies and operationalisations of open social science

Study duration 2016 - 2020

★ Phase 1: 2016 – 2018 Exploration, historical visions of open social science, mapping literature, focus on open access and open research data/methods: visions and strategies, identification stakeholders)

★ Phase 2: 2018 - 20, mapping literature, observation of implementation, ethnography

Methods and field

★ close reading, distant reading (policy data coming mainly from NSF, NIH, EU high level research funding; data will be added by snowball sampling of relevant actors and their outputs; regional data to be added by international partners, Phase 2 includes surveys, interviews and ethnography

Collaboration (so far)

★ Katja Mayer (University of Vienna), Jürgen Pfeffer (School of Governance, TU Munich), Institute for Open Leadership (Open Policy Network)

Interested in collaboration?

katja.mayer@univie.ac.at

Transformative powers of Open Science (EU policy)

FP7 and H2020

Vision	Operationalisation	Realisation
Strategy docs	**Workprogrammes**	Projects
Roadmaps	**Calls**	Institutionalisation
Policy Briefs	**Evaluation criteria**	Valuation
Manifestos	Funding	Funding
Web	Cited references	Cited references
Cited references, examples, best practices	Timelines (rollout)	Infrastructures
Authors, Institutions		tools

From Open Access To Open Science

(EU policy implementation)

Open Access	Open Research Data	Open Science
Mandatory OA policy in H2020	**"as open as possible, as closed as necessary"**	**OS calls**
business model gold OA	Data management plans	Based on OA and ORD
traditional path dependecies vs new publishing models (collective publishing platforms…)	Data repositories	specific calls, not yet mainstreamed
green OA repositories	Open science cloud	Training platforms and raising awareness
OA institutional policies	Pilot phase (even if declared that open data will be mandatory in 2016)	Open science cloud
		Citizen science
		Open science policy platform
		Marginal open education

(selection of) Priorities

- research
  - accessibility
  - transparency and reproducibility (replication)
  - speeding up research
  - training in field specific open science skills
  - science for social good
  - changes in the reward system
- policy
  - speeding up innovation (commercialisation and implementation, value creation)
  - accountability and citizen/user involvement (e.g. “knowledge coalitions”)
  - reusability
  - new technologies will bring more openness (mobile methods, data analytics, TDM
    - openness will create more acceptance for new technologies
  - preparation of “real” application of open science

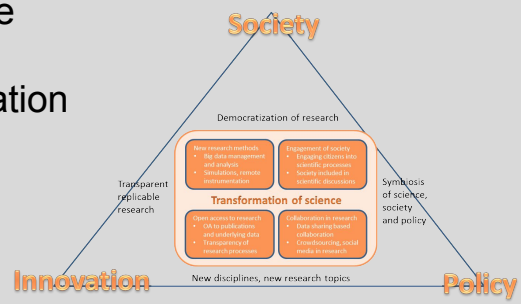
From Vision to Action

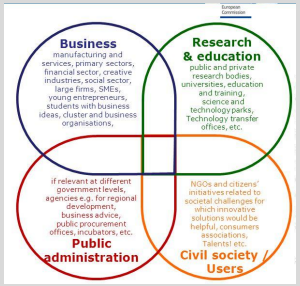
Innovation based visions

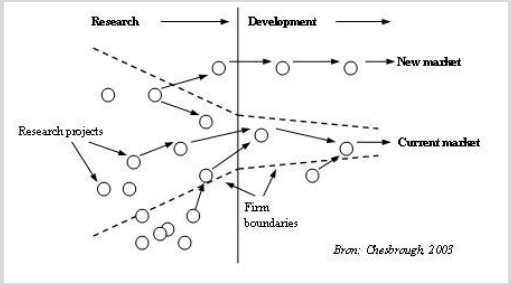
open ecosystem for jobs and growth

optimal circulation and wide use of knowledge

value creation







Funding pragmatics

mobile methods and data analytics based on text and data mining

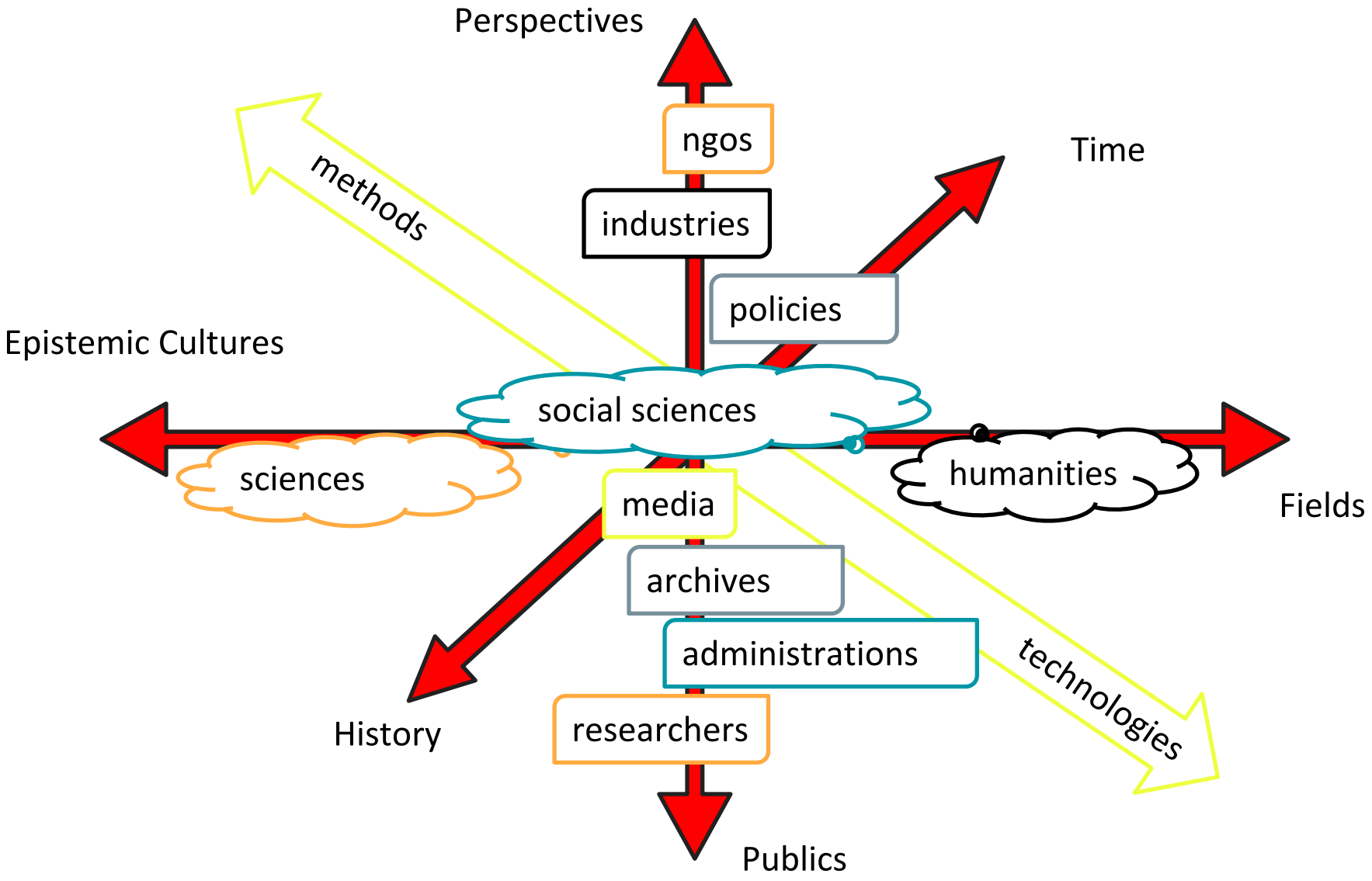
involving citizens (knowledge coalitions) and public-private partnerships

training to foster sharing of data and create data management plans, raising awareness

open science cloud

….

The Open Science Multiple: COLLATERAL REALITIES



Transformative powers of open science

"The basic premise of Open Innovation is to open up the innovation process to all active players so that knowledge can circulate more freely and be transformed into products and services that create new markets, fostering a stronger culture of entrepreneurship." (Moedas p11)

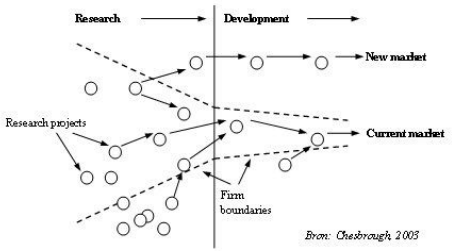
- ➔ infrastructures for sharing and collaboration
- ➔ training open science (how do i get funding with OS)
- ➔ knowledge coalitions for societal challenges (including citizen scientists)

knowledge circulation

“real application” of open science (“optimal knowledge circulation”)

avoiding:

- precise definitions of open science and related innovation and normative frameworks for valuation
- discussion and implementation of forms of value creation (e.g. copyright, patents, other licencing models) and open business models
- incentives for open institutional policies



from vision to scholarly communication 2.0 ?

what kind of transformation through openness is currently realised in H2020 (research workprogrammes)

- circulation vs collaboration
- wider access to research results → still a lot of rejection from several communities (e.g. embargo essential for carreer), with gold OA perpetuating the traditional model of science communication (and its profits)
- management of open data → are reviewers fit for this topic?
- technical and administrative infrastructures for sharing → creating incentives for interoperability and sharing, soft skills for sharing?

discussion points

open science in research and innovation policy

- a vague container of a rationale multiple that could still be co-shaped by engagement from communities
- role of STS (open public management, empowering knowledge and social innovation, writing policy, …)

katja.mayer@univie.ac.at

Thanks for your attention!