Monitoring open science policies at the transnational level

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If we were implementing a new open science policy how would we monitor it?

Good news

- There has been a lot of thinking in Europe already about **frameworks** for monitoring open science, and that thinking is openly available
  - Data & indicators is what you collect, framework is the understanding of where you should / shouldn't use them, caveats in analysis etc.

- Along with the explosion of new platforms and approaches there has been an explosion of new sources of data available for use in assessment

Bad news

- Monitoring is not an exception to the "fast, cheap, good – pick two" rule of thumb … there will inevitably be trade-offs
  - "cheap" is "low burden on researchers"
  - Usually qualitative is gold standard, but means more burden

- Older frameworks don't cover what we need

Taking a step back

- Important first to clearly define some things:
  - What's the goal of the monitoring?
  - What level does it monitor at?
    - Researchers? Projects? Programme?
  - Who are the results for?
    - The broader the group the more effort needs to go into helping with interpretation

Goals - what are we most interested in?

- Compliance?
  - Were project outputs made open access?

- Trends?
  - How open were projects beyond compliance?

- Impact?
  - What were the outcomes of being open?

Impacts we may be interested in

- Instrumental
  - Did the work change plans, policies, decisions in the "real" world

- Conceptual
  - Changes to attitudes, awareness, knowledge

- Capacity building
  - Skills and expertise gained?

- Enduring connectivity
  - Were relationships or levels of trust built?

- Economic
 - Patents, spin offs, consulting etc.

A few indicators & data sources

- Case studies – useful to tease out trends or important events that can't be extrapolated from the data

- Interactions with research or projects on social media: accounts with high follower count, journalists, government employees, companies interacting with research

- Patent & policy document data: is research cited in these sources?

- Expanded citation based metrics: looking specifically at cross-disciplinary research, or research with civil co-authors

Open Science Monitor
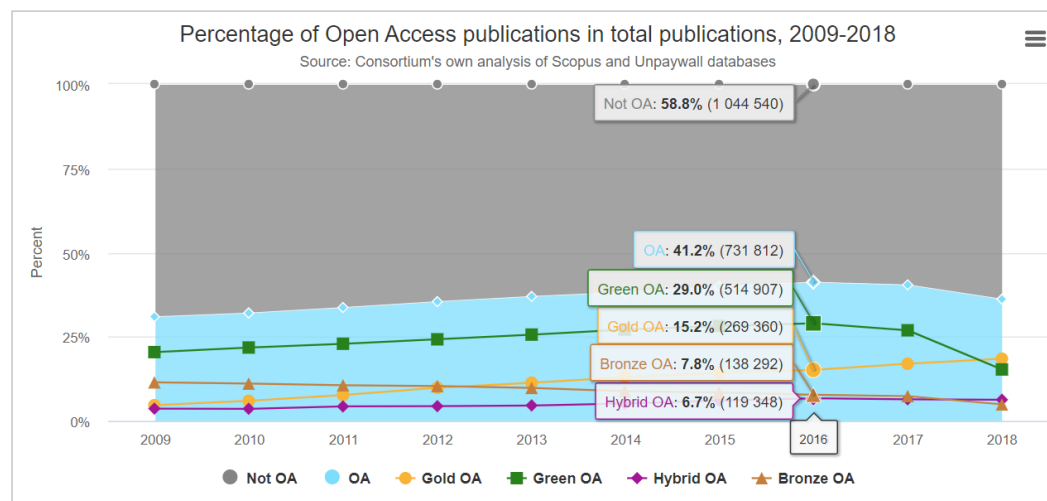
"Indicator Frameworks for Fostering Open Knowledge Practices…" – Wouters et al 2019

Indicator	OS Dimension indicated	Infrastructure	Capabilities	Champions	Career assessment	Data source	Strengths	Weaknesses	Potential	Risks	Literature references	Current availability
Types of data usage	A typology of different kinds of data usage	Y	N	EXEMPLARY CASES	N	Surveys among data users	Identifies developing demand for data	Must be done with a certain periodicity and with the same groups for comparability	Insight into actual data use		"Open Science Monitor. Methodological Note." 2019	Open Science Monitor
Accessibility of open data or code as % of all data or code produced by publicly funded projects.	Accessibility	Y	N	EXEMPLARY CASES	N	Researchers, Universities, funders	Encourages openness.	Privileges groups with money and competence to engage with research	Tracks open data infrastructure		Lampert et al., fteval Journal, 44 (2017), 50.	Not yet available
Nr Funders requiring TOP Guidelines in publications	Adoption of TOP Guidelines	Y	N	EXEMPLARY CASES	N	Cos.io	Monitors OA among funders	Survey required			"Open Science Monitor. Methodological Note." 2019	Open Science Monitor
Attitudes of researchers to data sharing	Attitudes of researchers to data sharing	N	Y	EXEMPLARY CASES	Y	Surveys	Qualifies types of data sharing behaviior; may identify best practices	Not clear categories yet exist	Inspiring examples may lead to new practices		"Open Science Monitor. Methodological Note." 2019	Open Science Monitor
Nr publications that can be tracked by the different altmetric sources (e.g.with a DOI, PMID, Scopus id, etc.).	Availability of altmetric data sources	Y	N	N	N	Scopus, Web of Science	Monitors Open Data Inrastructure			In OSM currently limited to Scopus	"Open Science Monitor. Methodological Note." 2019	Open Science Monitor
Availability of explanatory metadata as % of all available data (resulting from publicly (co-)funded research.	Availability of metadata	Y	Y	N	N	Publishers, Researchers, Funders	Increases easy accessibility.				Lampert et al., fteval Journal, 44 (2017), 50.	Openly available
Nr of CC-0 data sites	CC-0 data sites	Y	Y	N	N	Base-search.net					"Open Science Monitor. Methodological Note." 2019	Open Science Monitor
Nr. papers co-authored with civil society actors	Citizen science	N		EXEMPLARY CASES	Y	WoS, sCOPUS	Diffusion of open knowledge practices	Disenfrachises fields not easily transitionable to citizen science	Good transition measure		https://www.google.nl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=11&cad=rja&uact=8&ved=2ahUKEwj6i5Hf8sLiAhWMKVAKHb5-DpMQFjAKegQIBRAC&url=https%3A%2F%2Fosf.io%2Fxdzh3%2Fdownload&usg=AOvVaw0e87_IXTUWBsVCjnOWLkT	
				EXEMPLARY CASES	Y		Monitors citizen			Too narrow definition of		

Advantages for more focused projects

- If number and projects is known and manageable then qualitative data capture is easier

- If subject area is more tightly focused then comparisons & benchmarking is easier

- If countries represented share common scholarly norms & infrastructure then easier to rule out biases in indicator data sources

Thanks! Takeaway points:

- You will have to make trade-offs between speed, researcher burden and robustness
- There are lots of indicators and approaches, the difficult part is the framework for understanding which to use when and for what
- Essential to first be clear on goals of monitoring
- Good news is that you can build on existing work