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

Open access to publications

This data, gathered through the analysis of Scopus data and Unpaywall data, shows the percentage of open access publications by year, country and discipline. You can click on the buttons below the chart to select the data to display.
Indicator Frameworks for Fostering Open Knowledge Practices in Science and Scholarship

Next-generation metrics:
Responsible metrics and evaluation for open science

<table>
<thead>
<tr>
<th>Indicator</th>
<th>OS Dimension Indicated</th>
<th>Infrastructure</th>
<th>Capabilities</th>
<th>Champions</th>
<th>Career assessment</th>
<th>Data sources</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Potential</th>
<th>Risks</th>
<th>Literature references</th>
<th>Current availability</th>
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</thead>
<tbody>
<tr>
<td>Types of data usage</td>
<td></td>
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<td></td>
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<td>Identifies developing demand for data</td>
<td>Must be done with a certain periodicity and with the same groups for comparability</td>
<td>Insight into actual data use</td>
<td>&quot;Open Science Monitor. Methodological Note.&quot; 2019</td>
<td>Open Science Monitor</td>
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<tr>
<td>Accessibility of open data or code as % of all data or code provided by publicly funded projects</td>
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<td></td>
<td></td>
<td>Encourages openness</td>
<td>Privileges groups with money and competence to engage with research</td>
<td>Tracks open data infrastructure</td>
<td>&quot;Open Science Monitor. Methodological Note.&quot; 2019</td>
<td>Not yet available</td>
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<tr>
<td>Attitudes of researchers to data sharing</td>
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<td></td>
<td>Quantifies extent of data sharing behavior: may identify best practices</td>
<td>Not Clear Categories yet exist</td>
<td>Inspiring examples may not extend to new practices</td>
<td>&quot;Open Science Monitor. Methodological Note.&quot; 2019</td>
<td>Open Science Monitor</td>
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<td># of publications that can be tracked by the different institutional sources (e.g., a DOAJ, PMC, Scopus, JST etc.)</td>
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<td>Monitors OA Data Infrastructure</td>
<td>In OSMA currently linked to Scopus</td>
<td>&quot;Open Science Monitor. Methodological Note.&quot; 2019</td>
<td>Open Science Monitor</td>
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<td>Availability of semantic metadata as % of all available data involving from publicly funded research</td>
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<td>Monitors OA Data Infrastructure</td>
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<td># of CO2 data sites</td>
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<td>Base-search.net</td>
<td>Monitors OA Data Infrastructure</td>
<td>In OSMA currently linked to Scopus</td>
<td>&quot;Open Science Monitor. Methodological Note.&quot; 2019</td>
<td>Open Science Monitor</td>
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<td># of papers co-authored with civil society actors</td>
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<td>Monitors OA Data Infrastructure</td>
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Note: The table above outlines various indicators for fostering open knowledge practices, detailing aspects such as accessibility, data sharing, and collaboration with civil society actors. Each indicator is categorized based on advancement in terms of "EXEMPLARY CASES."
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