Open Science and Research Initiative

Infrastructures and networking for Open Science Seminar on 30.8.2016 at the University of Helsinki

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Ministry of Education and Culture
Ministère de l’Éducation et de la Culture
Vision 2017: Open research leads to surprising discoveries and creative insights

- Openness and repeatability of science and research
- New opportunities for all stakeholders

✓ Knowing how to harness the opportunities
✓ Good basic structures and services
<table>
<thead>
<tr>
<th>Modern Academic Workflows</th>
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<tbody>
<tr>
<td><strong>Discovery</strong></td>
</tr>
<tr>
<td><img src="image1.png" alt="Image" /></td>
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<tr>
<td><strong>Traditional</strong></td>
</tr>
<tr>
<td><img src="image7.png" alt="Image" /></td>
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Open Science: One Term, Five Schools of Thought

Infrastructure School
Assumption: Efficient research depends on the available tools and applications.
Goal: Creating openly available platforms, tools and services for scientists.
Keywords: Collaboration platforms and tools

Pragmatic School
Assumption: Knowledge-creation could be more efficient if scientists worked together.
Goal: Making the process of knowledge creation more efficient and goal oriented.
Keywords: Wisdom of the crowds, network effects, Open Data, Open Code

Public School
Assumption: Science needs to be made accessible to the public.
Goal: Making science accessible for citizens.
Keywords: Citizen Science, Science PR, Science Blogging

Democratic School
Assumption: The access to knowledge is unequally distributed.
Goal: Making knowledge freely available for everyone.
Keywords: Open access, intellectual property rights, Open data, Open code

Measurement School
Assumption: Scientific contributions today need alternative impact measurements.
Goal: Developing an alternative metric system for scientific impact.
Keywords: Altmetrics, peer review, citation, impact factors

Benedikt Fecher & Sascha Friesike 2014
Open Science: One Term, Five Schools of Thought
doi:10.1007/978-3-319-00026-8_2
<table>
<thead>
<tr>
<th>School of thought</th>
<th>Central assumption</th>
<th>Involved groups</th>
<th>Central Aim</th>
<th>Tools &amp; Methods</th>
</tr>
</thead>
<tbody>
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<td>Democratic</td>
<td>The access to knowledge is unequally distributed.</td>
<td>Scientists, politicians, citizens</td>
<td>Making knowledge freely available for everyone.</td>
<td>Open access, intellectual property rights, Open data, Open code</td>
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<td>Pragmatic</td>
<td>Knowledge-creation could be more efficient if scientists worked together.</td>
<td>Scientists</td>
<td>Opening up the process of knowledge creation.</td>
<td>Wisdom of the crowds, network effects, Open Data, Open Code</td>
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<td>Infrastructure</td>
<td>Efficient research depends on the available tools and applications.</td>
<td>Scientists &amp; platform providers</td>
<td>Creating openly available platforms, tools and services for scientists.</td>
<td>Collaboration platforms and tools</td>
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<td>Public</td>
<td>Science needs to be made accessible to the public.</td>
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## Architectural principles

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<th>The architecture enables open access to research results and re-use from primary sources.</th>
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<td>The architecture considers the entire lifecycle of research and the data it generates, including its management, so that scientific and research results are permanent and reliably available.</td>
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<td>The architecture creates services that accelerate and facilitate research efforts and strengthen research at its very core (self-correction, repeatability).</td>
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<td>The reference architecture supports a layered, modular and cost-effective solution model that utilises existing components and can be modified to meet the needs of different scientific fields and functions.</td>
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<td>The reference architecture creates specifications that can be used to identify unambiguous preconditions for open science and research.</td>
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## Framework for Open Science and Research

### The subjects described
- Governing legislation
- Actors and stakeholders
- Architectural principles
- Information security and data protection principles
- Concepts and master data
- Services
- IT system services
- Data warehouses

### Policies
- Openness is promoted at all stages of the scientific process
- Research data and outputs are openly accessible to the scientific community by default
- Research organisations' materials can be searched and utilised both centrally and decentrally
Open science and research – science accelerator

- Availability and easy uptake of publications, methods and ideas
- Meta-searches and combination of results pose new hypotheses
- Active scientific debate
- Faster validation and verification of results
- Publications advance research activities
- Collaborative research
- New research idea
- New research plan
- Open evaluation of research data, re-use
- New research possible by combining produced data sets
Want to know more?

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Twitter: @AvoinTiede

Facebook: facebook.com/avointiede