

Finland - Open science country note

Open science and the national context

In 2011 the government proposed make digital data materials managed by the public sector available for research and education purposes, in an easily reusable format via information networks. To implement this programme the Ministry of Education and Culture launched the National Research Data Project (TTA), whose aim was to establish a national OA-related science policy and build infrastructure for higher education institutions (HEIs). For this endeavour the Ministry of Education and Culture buys collaborative data services from the state owned CSC-IT, (Centre for Science Ltd).

The Open Science and Research initiative (ATT) was established in 2014 by the Finnish Ministry of Education and Culture to incorporate open science and research into the entire research process. ATT's goal is to improve the visibility and impact of science and research, in the innovation system and society at large. To foster greater competitiveness and higher quality in the country's research system, it is equally necessary to promote a transparent, collaborative and inspirational research process. The initiative's measures are to promote open publications, open research data and open research methods and tools, and to increase skills, knowledge and support services in the open science domain.

Open science research and innovation actors

The Academy of Finland – is the largest funding body in Finland. Its aim is to finance high-quality scientific research, act as a science and science policy expert, and strengthen the position of science and research. The Academy works to contribute to the renewal, diversification and increasing internationalisation of Finnish scientific research.

TEKES – is the second largest funding body in Finland, concentrating on technology and innovation.

Ministry of Education and Culture – Within the Finnish government, the Ministry of Education and Culture is responsible for developing educational, science, cultural, sport and youth policies and international co-operation in these fields.

The University of Helsinki – is the oldest and largest university in Finland, and a leading player in OA initiatives. The University's digital repository, HELDA, contains full-text materials produced at the University.

The Finnish Social Science Data Archive (FSD) – is a national resource centre that archives, promotes and disseminates digital data for social science research, teaching and learning purposes. The archive is funded by the Ministry of Education and Culture, and is linked to but a separate unit of the University of Tampere.

The IT Center for Science Ltd (CSC) – is a wholly government-owned special task company, which develops and provides IT services for research, teaching, culture and administrative purposes. CSC's main customers are the Ministry of Education and Culture and the organisations coming under it, higher education institutions, and research institutes.

The National Library of Finland – provides centralised repository platform services for 38 organisations, including many of the Finnish universities and universities of applied sciences. It also operates the Finnish National Electronic Library (FinELib) consortium, which acquires electronic resources centrally on behalf of its member organisations.

The Federation of Finnish Learned Societies – is a national co-operative body that issues statements, launches initiatives and makes recommendations relating to academic research, especially when it serves to promote the interests of 260 member societies. It also supports learned societies in their publishing activities by providing distribution and storage services and consultation.

FinnOA – is a group of professionals interested in promoting open access to scientific information. These people come mainly from academia, libraries and data management.

Open science and business sector actors

The Strategic Centres for Science, Technology and Innovation (SHOK) are new public-private partnerships for accelerating innovation processes. Their main goal is to thoroughly renew industry clusters and to create radical innovations. Centres develop and apply new forms of long-term co-operation in fields most crucial for the future, and new methods for co-creation and interaction. International co-operation also plays a key role in the operation of the centres, as do testing and piloting environments and ecosystems, <http://www.tekes.fi/en/programmes-and-services/strategic-centres/> [1].

One of the country's Strategic Centres for Science, Technology and Innovation is DIGILE. DIGILE's role is not only to bring together and systematise research and development, but also to ensure that the results of research are understood, applied and adopted as part of companies' business practice more rapidly than ever before (<http://www.digile.fi/> [2]). DIGILE's mission is to create digital business ecosystems to enable new global growth business for the centre's owners and partners. There are over 30 partners, including companies, research institutes and universities.

Having developed the necessary intelligent methods and tools for managing, refining and utilising diverse data pools, DIGILE's vision for 2015 is to enable innovative data-intensive business models and services.

Policy design - Open data

The intention of the Open Science and Research initiative in Finland (ATT), commissioned by the Ministry of Education and Culture, is – as stated in Section 1 – to incorporate open science and research into the entire research process, so as to improve the visibility and impact of science and research in the innovation system and society at large:

www.tdata.fi/documents/47404/86137/The+intention+of+Open+Science+and+Research+initiative+in+Finland/d8558803-e050-45db-a6a5-90639fe62da9 [3].

The intention states the following about research data:

- All stakeholders in the Finnish research system will share the research data they produce through an open information network. This principle of openness also governs research methods and the tools required to produce results, such as computer models.
- Openness will, however, adhere to ethical principles and respect the judicial operating environment. Open access to research data will always be the goal when it is legally and contractually possible.
- The further use of research data will not be unnecessarily restricted, and the terms and conditions of their use will be clearly stated. Standard, generic, machine-readable licences are to be complied with. For example, the Creative Commons licence “CC BY 4.0” will be receiving a Public Administration Recommendation (JHS) in Finland.

- The contracts and funding decisions that govern research support open access to data.
- The storage and dissemination of research data will employ the kind of infrastructure that enables long-term preservation and open access to materials.
- Research data are to be described and documented in sufficient detail, and this information is to be openly accessible in the network.
- Research organisations and funders' policies and mandates will be revised to ensure that they require open access to publications and data.
- Research organisations will have both a data policy and organisation-specific guidelines relating to it.
- Referencing to data and methods will be encouraged, and those researchers, research teams and organisations whose data or methods are referenced will be rewarded.
- When planning their educational and supplementary training programmes, institutions of higher education will consider competence development and professional skills relating to research data.
- Services are to be designed in complete collaboration. Publications, data and methods (and their metadata) will be disseminated via open interfaces that enable, for example, text and data mining.
- Content users and producers will be provided with training, marketing, and support and advisory services.
- When describing and storing data, national and international standards will be followed where possible to enable the combination and further use of data produced by different organisations.
- Researchers will be instructed to consider questions concerning the ownership of data during the early stages of their research projects.
- A data management plan will form a mandatory part of every research plan.

Copyright legislation will be amended so that text and data mining will be permitted for research purposes.

Policy design - Open/increasing access to scientific publications

The round of comments on the intention of the Open Science and Research initiative endorsed common information infrastructure services to support openness and information availability. Some comments argued for national guidelines on openness; some saw it as an additional level of bureaucracy. The recommendations for open availability of publications were largely accepted.

The intention states the following about open access to scientific publications:

- The further use of publications will not be unnecessarily restricted, and the terms and conditions of their use will be clearly stated. Standard, generic, machine-readable licences need to be complied with (for example "CC BY 4.0" - Creative Commons Attribution 4.0 International).
- The contracts and funding decisions that govern research will support open access to publications.

- Researchers have the opportunity to engage in open publication irrespective of their scientific field or financial position.
- The contents of research publications are to be openly accessible via an information network immediately or as soon as possible after publication. The maximum embargo periods follow European Commission recommendations of six months for humanities and twelve months for social sciences.
- Research organisations' and funders' policies and mandates will be revised to ensure that they require open access to publications.
- Services will be designed in complete collaboration. Publications, data and methods (and their metadata) will be disseminated via open interfaces that enable, for example, text and data mining.
- A national co-ordination service will be established to promote open publication and parallel storage.
- The working group recommends either an institutional green mandate or publication on gold OA journals. If a scientific field already has an established practice of open publication or archiving, this will remain the primary channel. The working group did not recommend hybrid OA publication, as this causes overlapping costs.

Following the announcement of the open access intention and the response to it, the Ministry of Education and Culture established the Open Science and Research (ATT) initiative for the period of 2014 -17. A national roadmap will be built within ATT, with actions focused on six different areas: open publications, open research data, open research methods, open research environments, tools, and skills. The process is guided by an influential Open Science and Research Strategy Group, and supported by an expert group. A comprehensive collaboration forum will review the results each year.

A funding scheme to support OA publication is in the making. The total costs incurred by international publication will be determined. Information will be collected on, for example, the OA fees paid to publishers. Options for managing authors' fees/royalties will also be analysed. A working group, consisting of representatives from the National Library (KK) and Federation of Finnish Learned Societies (TSV), will prepare a presentation on the OA funding model for Finnish scientific publications and its pilot project for the Ministry of Education and Culture by the end of April 2014.

The Academy of Finland, which is the main national science and research funder, recommends publishing in OA journals whenever possible. Also, the majority of the smaller funding agencies recommend open publication of all research conducted with public funding. This means that open access fees are eligible for reimbursement.

Skills for open science and open data

Regarding skills, in 2013 a working group set by the Finnish Ministry of Education and Culture produced a Data Management Guide that serves as a tool for researchers, research administrators, and anyone interested in data management. The guide contains the key areas of the subject that each and every researcher should take into consideration. The guide contains a data management planning checklist, as well as background information on, for example, the research process and available services (www.tdata.fi/ [4]).

Open science and international co-operation

Mainly through the CSC, Finland has obtained many contacts and wide collaboration in the EU area. The CSC collaborates actively with customers, universities and polytechnics, research institutes and industrial companies. The aim of the joint projects is to develop new services in software development and grid computation, and to strengthen Finland's resources in computational science. The CSC supports national science-based collaboration forums and participates in several international collaboration forums. These forums work in the areas of computational science, high-performance computing, IT infrastructures, harmonisation of open access policies, networking, and security.

For example, RDA Europe (Research Data Alliance Europe) is coordinated by CSC, Finland. It aims to be the premium global forum driving convergence between emerging global data infrastructures. Its strategic vision is to make an important contribution to the development of policy in the RDA alliance for the management and curation of scientific data, leading to a common policy that drives the development of a wider global infrastructure.

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Links

[1] <http://www.tekes.fi/en/programmes-and-services/strategic-centres/>

[2] <http://www.digile.fi/>

[3] <http://www.tdata.fi/documents/47404/86137/The+intention+of+Open+Science+and+Research+initiative+in+Finland/d8558803-e050-45db-a6a5-90639fe62da9>

[4] <http://www.tdata.fi/>