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**Author(s):** Olsbo, Pekka

**Title:** The Roadmap to Finnish Open Science and Research

**Year:** 2015

**Version:**

**Please cite the original version:**

Olsbo, P. (2015). The Roadmap to Finnish Open Science and Research. In B. Schmidt, & M. Dobrevá (Eds.), *New Avenues for Electronic Publishing in the Age of Infinite Collections and Citizen Science: Scale, Openness and Trust*. Proceedings of the 19th International Conference on Electronic Publishing (pp. 181-184). IOS Press.  
<https://doi.org/10.3233/978-1-61499-562-3-181>

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# The Roadmap to Finnish Open Science and Research

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**Abstract.** Finland published its open science roadmap at the end of November 2014. This roadmap is based on the work of the Open Science and Research Initiative (ATT), a cross-administrative initiative established by the Ministry of Education and Culture. The goal of this initiative is to promote open science and availability of information. Exploration of recent developments of open access in the EU shows that Finland is not among the leading countries in the EU. This paper focuses on the practical action plan of this roadmap and describes how the weakest part of Finnish open science, green open access is to be lifted at international top level.

**Keywords.** Finland, funder policies, green open access, mandates, open science, university libraries

## 1. Introduction

Open science and research seek to promote science through openness and increase the societal impact of science by improving the management and utilization of information generated by research. Though openness has always been and will be a fundamental principle of science and research, new open operating models will make science more democratic than ever before [1].

For researchers and research groups, openness conserves resources, improves the quality of research, and potentially offers increased credits and opportunities for cooperation. The future economy of Finland will rely on research, innovation and expertise. Open science and research play a decisive role in all of these [2].

Many international organizations campaign for open science. National openness policies have been and are being made in many European countries. In Finland only few universities and research funders have created their own open access policies and the first steps are still under preparation [3]. More detailed description of open access mandates and situation in Finland can be found in Schmidt & Kuchma [4] and Olsbo et al [5] (in Finnish).

## 2. The Roadmap to Finnish Open Science and Research

In order to answer the growing demands of open science, Finland has established an Open Science and Research Initiative. The objectives of the Open Science and

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Research Initiative (ATT) are to make Finland a leading country for openness in science and research by 2017, and for the opportunities afforded by open science and research to be extensively harnessed in society. Dialogue in science and research will be promoted on many levels, both nationally and internationally. This will be achieved through four sub-objectives: reinforcing the intrinsic nature of science and research, increasing openness-related expertise, ensuring a stable foundation for the research process, and increasing the societal impact of research [6].

In this paper, the focus is on the first sub-objective, *reinforcing the intrinsic nature of science and research*. Openness is both a prerequisite and a means of promoting science and research. However, the research system needs structures and working methods for openness to be extensively utilized. Open science and research are a long-term continuum that consists of openness in both the research process and working culture [7].

One of the key targets is that the availability of research results is self-evident, and no separate solutions for openness are required. This is especially true in the case of green open access. Centralized services have to be created so that a minimum effort by the researcher is needed.

Organizing centralized services for researchers and creating fluent and stable processes for self-archiving is only the first step. The goal of the developmental work has to be a model which connects both the reporting of research activities and the depositing of research results into an institutional repository to a single comprehensive cost-effective process. Cost-effectiveness is based on knowledge accumulation and centralization, the interoperability of information systems and thus minimizing the working time used in the process. The cost analysis of the UK research institutions made by the Research Consulting shows that even 50 % of green open access related costs can be cut down by making the deposit process as quick and easy for authors as possible and by working to achieve greater clarity in publisher policies [8]. All this can be done only if centralized services are created.

### 3. From Plans into Action

If we look at statistics and services that measure the openness of science in European countries<sup>2</sup>, we can see that Finland is clearly behind the leading countries in Europe. This is especially true if we measure the activity of green open access. There are three universities in Finland that have organized self-archiving of articles in larger scale based on a mandate by the university. Only the University of Helsinki<sup>3</sup> and the University of Jyväskylä<sup>4</sup> require parallel depositing of research articles. The low level of green open access activity is mostly due to lack of standardized processes and centralized services regarding the green open access within the research institutions in Finland.

The University of Helsinki was the first to establish an institutional mandate on open access in 2010. Soon after Helsinki the University of Tampere<sup>5</sup> and the University of Jyväskylä followed and developed their own open access policies. The development

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<sup>2</sup> E.g. Ranking web of Universities, Ranking web of Repositories, OpenAIRE, BASE search engine, ROARMAP and DOAJ.

<sup>3</sup> Open Access in the University of Helsinki: <http://www.helsinki.fi/kirjasto/en/get-help/open-access/>

<sup>4</sup> Open Access in the University of Jyväskylä: <http://openaccess.jyu.fi/en>

<sup>5</sup> Open Access in the University of Tampere: <http://www.uta.fi/english/research/OA/index.html>

of green open access in Helsinki and Tampere has stopped, because no other measures beside the mandate have been taken. This can be seen in table 1, where the development of green Open Access at these three universities is shown.

**Table 1.** The number of deposited articles in university institutional repositories 2010-2014.<sup>6</sup>

University	2010	2011	2012	2013	2014
Helsinki	309	240	265	302	286
Jyväskylä	77	141	147	223	447
Tampere	93	169	189	130	105

At the University of Jyväskylä the development of open access and especially the promotion of green open access have been on the agenda since 2009 and first open access policy was made in 2011. In April 2014, the reporting of research activities of the University was moved to the University Library. This was done in order to improve the quality of the metadata of reporting and to increase the activity of depositing the articles in university repository, JYX<sup>7</sup>. It was possible to perceive a clear rise in the number of the deposited articles by the end of the year 2014. Results can be seen in table 2 below. In December 2014, the Rector of the University refined the open access policy of the University. The parallel depositing of research articles is now required [9].

**Table 2.** The development of open access at the University of Jyväskylä.<sup>8</sup>

Year	Number of research publications <sup>1</sup>	Total open access %	Green open access % <sup>2</sup>	Share of Green open access out of total OA
2012	2822	32,90	16,90	59,31
2013	2968	33,30	20,80	73,57
2014	2887	42,30	27,40	74,02

<sup>1</sup> Including all research articles, dissertations and articles for larger public.

<sup>2</sup> Deposited articles at institutional repository JYX and other repositories such as arXiv.

The beginning of the year 2015 seems to show that the share of the green open access out of total open access is now over 85% and the total open access percentage will grow to over 50%. These figures show that the share of the green open access and the usage of the institutional repository as the location for depositing articles is much above the average compared with studies gathered in Björk et al. 2014 [10].

The development of green open access at the University of Jyväskylä has shown that by keeping the focus on centralized services and fluent processes, rapid changes in open access activity can be achieved.

The objective of the Finnish Open Science and Research Initiative is to make Finland a leading country for openness in science and research by 2017. This means that we need quick amendment in the open access atmosphere in Finland. In order to enable this “green turn” in Finland, the Ministry of Education and Culture now funds an 18-month joint project by the University of Jyväskylä and the University of Eastern

<sup>6</sup> Situation in 2<sup>nd</sup> of May 2015. Numbers downloaded from repositories HELDA (<https://helda.helsinki.fi/>), TamPub (<http://tampub.uta.fi/>) and JYX (<https://jyx.jyu.fi>).

<sup>7</sup> <https://jyx.jyu.fi>

<sup>8</sup> Numbers are collected from the University’s research database TUTKA ([tutka.jyu.fi](http://tutka.jyu.fi)) and library catalogue JYKDOK (<https://jyu.finna.fi/>).

Finland. The goal of this project is to create a model for implementing the green open access activity as a day to day routine in all Finnish universities. The model will utilize the experiences and developmental work done at the University of Jyväskylä. It will be refined and piloted for the needs of the University of Eastern Finland and then duplicated to other universities in Finland. During the project the green open access activity in Finland is foreseen to be doubled.

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