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LET'S STICK TOGETHER! COOPERATION MODEL TO DEVELOP AN OPEN REPOSITORY INTO FULL SERVICE PLATFORM FOR OPEN R&D

The Case of 25 Universities of Applied Sciences in Finland

Universities across Europe are tackling the same open science challenges with constantly diminishing resources. The need for improved open publishing services is obvious if the universities are to meet the ambitions of the European Union to publish 100% openly by the year 2020. Sometimes making a game plan might seem a too big objective for small universities. In Finland, the problem was solved by a joint approach by 25 Universities of Applied Sciences (UAS). Joining forces has already created good results and the initiative has been further developed over the years.

UAS open access forces joined together

As early as in 2006, a Project for Open Access (OA) Promotion in Finnish Universities of Applied Sciences (UAS) received funding from Finland's Ministry of Culture and Education. The OA Project was a cooperation venture initiated by Rectors Conference of Universities of Applied Sciences (Arene) and Universities of Applied Sciences Libraries Cooperation Consortium (AMKIT Consortium). The National Library of Finland was chosen as the technical service provider for the project. The UAS libraries had a focal role as partners in the project.

The main aims of the project were to create an OA journal for Finnish UASs and Open Repository for UAS theses and publications. The underlying idea was to join all UASs together. Both aims were achieved successfully: an OA journal Osaaja.net (later UAS Journal) was first published in 2008 and Open Repository called Theseus was officially launched in January 2009 after s short pilot phase.

When Theseus Open Repository was in a pilot phase in the autumn of 2008, a need for helpdesk services was soon recognized. Both UAS staff members and students came across difficulties regarding the system. Universities had problems both with technical issues and understanding new policies; students were in trouble with converting files into PDFs, using Creative Commons Licences, and uploading theses into the system. The pilot group consisting of eleven UAS libraries formed a service model. The model meant that there was a contact person in each UAS library. The persons kept in touch with the key OA Project planner and also trained teachers, librarians as well as students in their local universities to use Theseus.

Theseus office - full service, minimum expenses

In January 2009, UASs in Finland officially launched the open repository Theseus for theses and research publications from the UAS students and staff. The financing of the Ministry of Culture and Education ended in the same year. Therefore, it was urgent and crucial to organize support and resources for development work for the new Open Repository. The offered budget was very modest, and it seemed difficult to organize a proper cooperation model for such a big nationwide and humble organization.

Finally, AMKIT Consortium decided to form a Theseus office consisting of three information specialists. They came from two UAS libraries, Minna Marjamaa from Laurea UAS and Tiina Tolonen with Sanna Savolainen from Oulu UAS. Each of them committed 20% of their working hours

Figure 1. *Universities of Applied Sciences in Finland (Petra Boije)*

for Theseus work, which began in May 2010 together with an information system specialist from the National Library of Finland. CSC's (IT Center for Science in Finland) eDuuni wiki was chosen as a platform for policy development work and a FAQ (Frequently asked questions). In 2012 Sanna Savolainen stepped aside from Theseus work and she was replaced by Anna-Liisa Holmström (Helosalo) from Lahti UAS. After Anna-Liisa finished working at Theseus office late 2015, Minna Marjamaa and Tiina Tolonen carried on the work between themselves until spring 2019, when Antti Nyqvist from Haaga-Helia UAS joined the forces. Even today, the Theseus office coordinates issues between technical developers of the National Library of Finland, AMKIT Consortium management, CSC and librarians, teachers and students.

The 25 UASs with the same policies and one common office with modest expenses was something very new at that time, and it still is something quite extraordinary on national and even international level. Currently, Theseus is the biggest open repository in Finland with almost 160,000 uploaded Bachelor's and Master's theses, which makes it quite a success story as such. The Theseus office, also known with a nickname "Theseus-rukkaset (mittens)", has become quite a handyman, and the model has proven to be very efficient for both cooperation and further development coordination.

Nothing human is strange to the Theseus office

The authors of this article have been "Theseus-mittens" from the very beginning. So, what kind of issues do we work on? Every day we handle FAQ-type of questions which have copy-paste answers: How can I correct the typos in my thesis? How can I get my thesis out of the Internet? What would be the right Creative Commons licence for my work? How many times has my thesis been downloaded? It is easy to help askers with these kind of topics. However, it is important for students to get answers quickly. They are often on a tight schedule with their thesis and stress having it ready on time.

The Theseus work has also been kind of missionary work. We have been delivering the joyful message of the open repositories and parallel publishing around the UASs in Finland and abroad. Our first great achievement was in 2014 when we took the joined 1st place at Best Poster -competition in the annual Open Repositories conference held in Helsinki. In June 2015, we participated in the LIBER conference in London with a poster and in March 2019 again with a poster to the International Open Science conference in Berlin. Our poster proposal to Berlin conference was ranked amongst the best ones, so we also got a chance to give a short presentation about the poster to all of the participants. In addition, in June 2019 we presented a poster at Open Repositories 2019 Conference in Hamburg. We have been able to share this spectacular Theseus model to many interested parties, and that has even resulted into some contacts from universities abroad.

During these years, the developing work for Theseus has become more and more important. We have to follow closely what's going on in the repository world. There are always things that we can't deliver, even the UASes sometimes think that we are kind of magicians. Our work depends quite much on what happens in the National Library and how they are willing, and able, to further develop the repositories they maintain. Theseus is only one of those repositories and the development work is usually done to serve all of them. Big things have happened during these years, maybe the biggest one in spring 2019 when a major metadata change was accomplished: Theseus metadata format was updated into a new format according to a new National Dublin Core metadata recommendation. Theseus office carried out a mass editing of Theseus records, which proved to be a major effort in both professional and time-consuming sense. The process required a lot of cooperation with the National Library.

We have recently entered an agreement with Teosto, a Finnish non-profit organization protecting musicians' and composers' rights for the launching of a sound and video file streaming service to Theseus. Currently, we are preparing a proposal for AMKIT Consortium for the next development areas of Theseus. The coordinator role and process ownership is the core of the work.
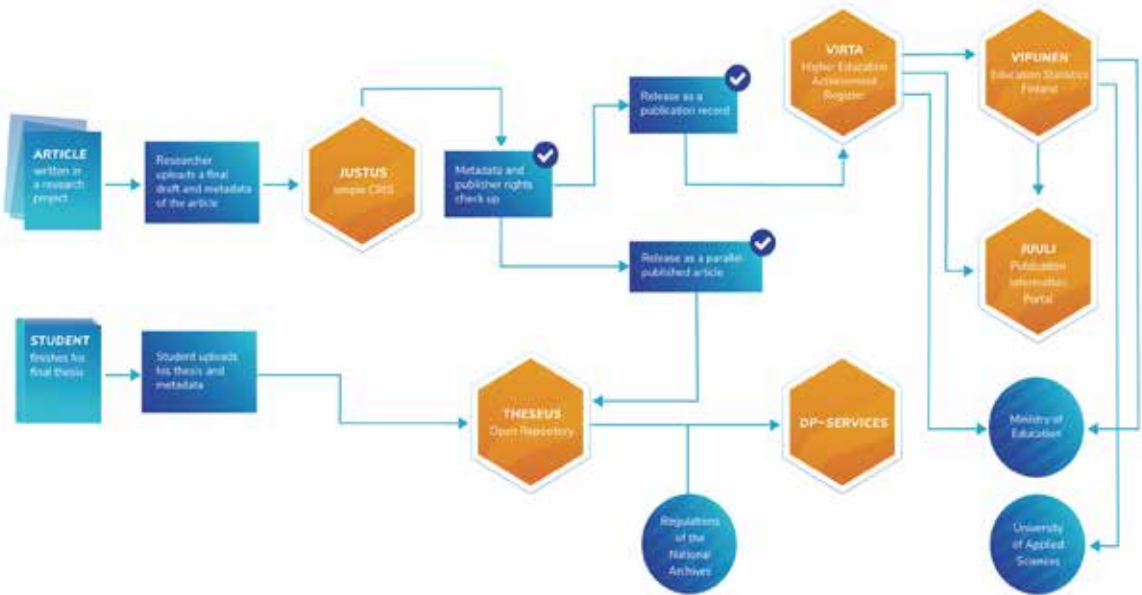
New initiative to raise OA rates

Even though Theseus quickly became the biggest open repository in Finland, it didn't meet all expectations. The number of UAS research publications and self-archived articles in the repository didn't increase as hoped, even the mandate for parallel publishing was given in October 2009 and came into effect in the beginning of January 2010. Furthermore, the reporting of these publications to the Ministry of Education was being done in universities in a time consuming way without a current research information management system (CRIS). In addition, there was great variation within the UASs to arrange the long-term preservation and archiving required by legislation, and it was mostly organized in printed format excluding the e-format. At the same time, The National Archives of Finland demanded all universities to archive their theses in digital long-term preservation (DP). Something needed to be done to solve the problem.

Our decision was to join forces once again: A new initial was launched together with 25 Universities of Applied Sciences, National Library of Finland, CSC and Finnish National Archives. The result, a new service was opened in May 2019. Simultaneously, the UASs were able to meet the European Union Open Access goals and continue working despite the lack of resources.

Simple CRIS to solve the common problems

The new service is an open repository connected with a very simple CRIS called Justus to the Finnish National Publication Information Service as well as to the national digital long-term preservation (DP). Justus is a publication information reporting service, which enables direct inputting of information to VIRTA publication information service, a data warehouse of Finnish publication information.

Figure 2. *Open Repository Theseus has two main processes: 1) Thesis upload, check and release to the Internet and 2) Paper upload, check and release to the Internet. (Petra Boije)*

When a staff member reports his or her article to the university, he or she will upload the final draft to Justus. The report will thus reach both Theseus Open Repository and the Ministry of Education at the same time as well as statistics services for the universities.

The integration of the simple CRIS to the open repository saves resources by streamlining the process and makes easier to report the publications to the Ministry of Education. We expect this to lead to a growing number of self-archiving as the process is simplified.

As a part of the ongoing reform, the UAS theses will also be exported to the DP services. The connection to the DP services will meet the requirements of an operative e-archive described by the National Archives System in Finland and provide a transfer to long-term preservation by the National Library of Finland.

Figure 3. *VIRTA Publication Information Service is an advanced data warehouse solution to integrate institutional data at the national level that was launched in the spring 2016. VIRTA is a data hub that comprises the bibliographic information of all scientific publications. (Minna Marjamaa)*

Was it worth it?

After the introduction of the simple CRIS in May 2019, the self-archiving process has already started on a larger scale. Yet, the actual results can't be assessed before early 2020 when the statistics from 2019 are available. Ideas for developing the simple CRIS further into a real CRIS are pondered at the moment. An example is attaching a HR (human resource) system to Justus in order to identify authors with affiliations, and possibly also enrich the publications with available further information from the data warehouse of Finnish publication information.

Expanded helpdesk for Open science

As Theseus office has in the course of time proved to be a good and functional model for UAS cooperation, the office has been recognized by UAS open science promoters. Now, there are plans to expand the Theseus office services beyond open publishing questions to those on open data and open learning. This service will be implemented for the 25 Universities of Applied Sciences during the year 2020.

The idea of an Open Research and Development helpdesk based on the Theseus office model is developed by a UAS Open Research and Development Project (1.1.2018 - 31.12.2020) funded by the Ministry of Education and Culture. An introduction of

a support ticketing system for better coordination and reporting of issues addressed to the helpdesk is on its way. The major challenge is to build an expert board to counsel the helpdesk work and make decisions on UAS open science questions.

Via this Theseus office model, the Universities of Applied Sciences have proved that cooperation on a large scale is possible and fruitful if there is a mutual goal and a will to develop a common service. The original joint initiative has evolved a lot during a decade and changes according to demands in the operating environment have become very important. The journey from a national repository for all UAS theses to a system which is connected with the National Publication Information System and now aims at dealing with open data and learning has been quite fast and demanded delving deeply with the matter. And it is extraordinary as well that all this has been done with modest expenses and resources. This has required cooperation and readiness to make sometimes quick decisions. We can truly say that it is worth sticking together also in the future.