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The FFH Open Access Repository – A Novel Strategy for Research Communications for Universities of Applied Sciences

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Abstract

After almost one year of operation of the FFH Open Access Repository, the authors of this paper would like to discuss their trial in answering the research question: “What kind of novel paths can be followed in research communications?” Hence, the paper describes the current baseline of the topic Open Access in Europe, gives an overview about the state of the art in building open digital repositories, introduces the use case “FFH Open Access Repository” with regard to the design and technical implementation, and finally, provides an evaluation of the FFH Open Access Repository.

Keywords:

Open Access, Digital Repository, Institutional Repository

1. Introduction

The European Commission has set itself the goal of promoting free access to the results of publicly funded research. Against this backdrop, it was consciously decided in 2015 to produce no printed form of the *Conference Proceedings of the 9th Research Forum of the Austrian Universities of Applied Sciences* (Kern et al. 2015). For the first time the accepted and presented contributions were published exclusively in an electronic form via a dedicated open access platform on the internet and could therefore be provided completely free to a large group of institutions (?), in pursuit of increasing the visibility of the research landscape at Austrian universities of applied sciences.

2. State of the Art

The European Commission states in one of its recently published online publications that “*The objective of the open access policy is to optimise the impact of publicly-funded scientific research, both at European level through FP7 and Horizon 2020 and at the member state level. This is essential for Europe’s ability to enhance its economic performance and improve the capacity to compete through knowledge. One way to get there is open access. Results of publicly-funded research can therefore be disseminated more broadly and faster, to the benefit of researchers, innovative industry and citizens.*”

Open access can also boost the visibility of European research, and in particular offer small and medium-sized enterprises (SMEs) access to the latest research results for future use.” (European Commission 2015).

Within the EU Research Framework Programmes FP7 and Horizon 2020, the European Commission supports two open access strategies to research results. The “Green Strategy” grants immediate or delayed open access that is provided through self-archiving, whilst the “Gold Strategy” provides immediate open access by a publisher. Among other tools, so-called Digital and Institutional Repositories are suitable for implementing this open access policy.

In the 1990s academics started to self-archive their publications and made pre-prints and master theses publicly available. A pioneer platform of this time was *arXiv.org*¹ from Cornell University. Around the turn of the millennium, development of the now popular repository software projects started, the OAI (Open Archives Initiative) was founded (Rusch-Feja 2001) and *OAI PMH*² (Protocol for Metadata Harvesting), a protocol for interoperability of such repositories, was defined.

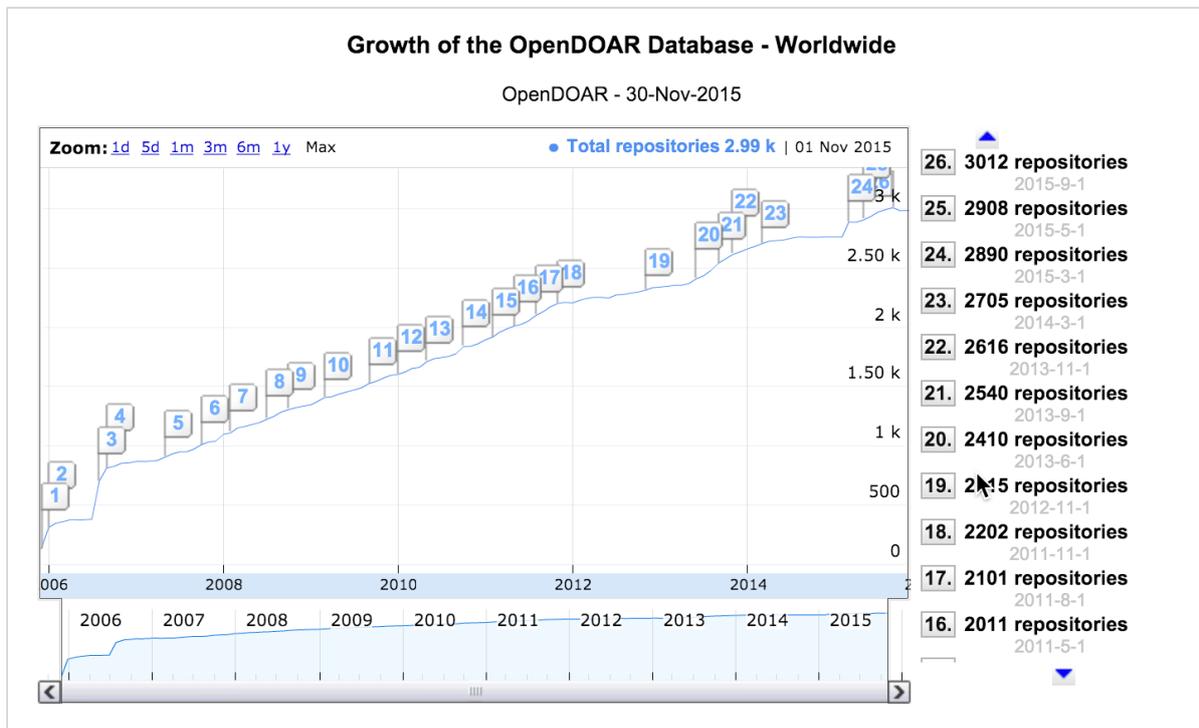


Figure 1: Growth of the openDOAR Database - Worldwide (OpenDOAR 2015a)

¹ <http://www.arxiv.org/>

² <https://www.openarchives.org/pmh/>

In the *Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities*³ of 2003, members of the Open Access Initiative determined the goals and definitions of the Electronic Open Access Paradigm.

Clifford A. Lynch defines Institutional Repositories to be “... a set of services that a university offers to members of its community for the management and dissemination of digital materials created by the institution and its members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution.” (Lynch 2003: 2)

The *OpenDOAR*⁴ (Directory of Open Access Repositories) is an authoritative directory of academic open access directories. Today it lists about 3000 public available Institutional Repositories.

The most popular repository software in use are *DSpace*⁵ and *EPrints*⁶, comprising together 57.5% of all repositories worldwide (OpenDOAR 2015b). DSpace was initially released in 2002 as a joint effort between developers from MIT and HP Labs (Smith et al. 2003). It is implemented in Java making use of a relational database. EPrints was a direct outcome of the first OAI meeting in October 1999 and was announced in 2000 (Tansley/Harnad 2000). It is written in PERL using MySQL as database.

In Austria, universities in Vienna, Graz, Linz, and Innsbruck now host one or more Open Access Repositories. Their contents range from students' theses to electronically published journals.

3. Design and Technical Implementation of the FFH Open Access Repository

As of April 2015, the newly created *FFH Open Access Repository (ffhoarep)*⁷ offers a digital platform for the FFH Conference Proceedings based on a DSpace instance as described below. It is possible to retrieve and access current and future FFH contributions using different facets like full text search, author names, and key words. The repository also holds metadata about the papers and posters based on the *Dublin Core Schema* (DCMI, 2015). This controlled vocabulary enables a simple description of documents providing interoperability for Linked Data and Semantic Web implementations and therefore is very useful for increasing the visibility of publications in the World Wide Web. It especially enables academic search engines like *Google Scholar*⁸ to integrate FFH conference contributions seamlessly.

³ <http://openaccess.mpg.de/Berliner-Erklaerung>

⁴ <http://www.opendoar.org/>

⁵ <http://www.dspace.org/>

⁶ <http://www.eprints.org/>

⁷ <http://ffhoarep.fh-ooe.at>

⁸ <https://scholar.google.at/>

The FFH Open Access Repository is a digital serial publication which is uniquely identified by an International Standard Serial Number (ISSN 2411-5428) and published under CC-BY⁹ license. It is organized into sections and collections as shown in Figure 2.

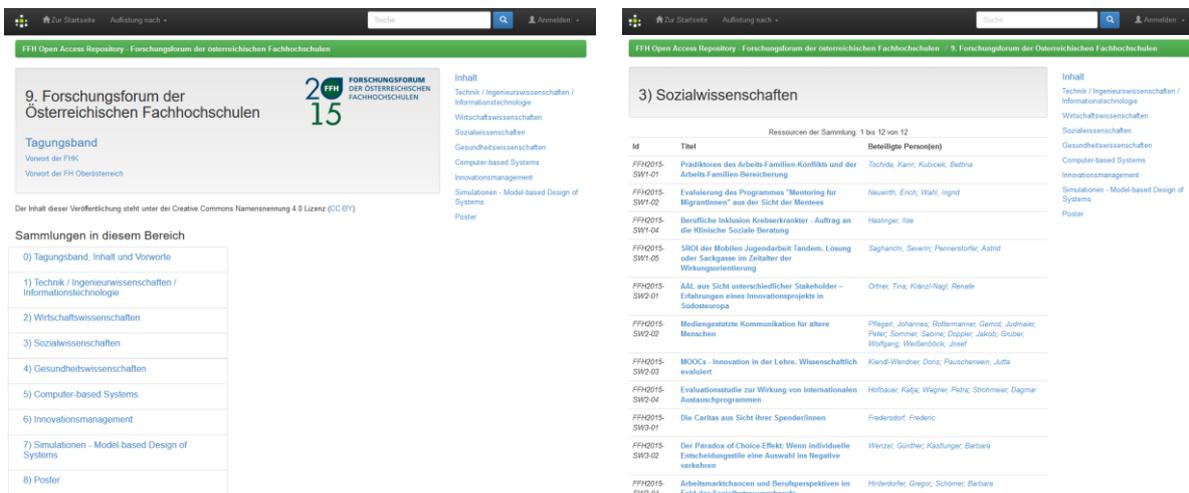


Figure 2: FFH Open Access Repository structure – proceedings section and chapter collections

Each section holds a representation of a FFH conference proceedings starting with the 9th Research Forum of the Austrian Universities of Applied Sciences in 2015. Each proceedings section is divided into several collections. The first collection contains the bibliographic information about the proceedings and the prefaces of the editors. Each further collection represents a proceedings chapter holding the presented paper and poster contributions of the conference.

The ffhoarep platform uses DSpace as repository software. For structuring a repository, DSpace supports the concepts of “communities” and “collections”. Communities can be structured hierarchically so that a community can contain several sub-communities as well as several collections. The ingested publications are stored within a collection as so-called “items”. The items hold the metadata and “bundles” of one or more multimedia documents (“bitstreams”).

The definition of the metadata properties can be customized in DSpace but remains based on Dublin Core¹⁰. DSpace allows the definition of workflows for self-submission of publications. Since the FFH publications are collected with a different system supporting the conference, the data is exported from there and an import metadata / batch ingest routine is then used.

Among the reasons for the choice of DSpace are the following: the popularity of the software, the preference of a typed language (Java) in favor of a scripting language (PERL) as the implementation base, the flexibility of choosing the database software, and the option of choosing a more modern user interface.

⁹ <https://creativecommons.org/licenses/by/4.0/>

¹⁰ <http://www.dublincore.org>

The installation is hosted at the University of Applied Sciences Upper Austria, Campus Hagenberg. It runs Debian Linux as an operating system and uses PostgreSQL as a database.

4. Evaluation

Apart from the technical and user experience benefits of digital repositories, it is interesting to find out how this ffhoarep implementation contributes to the goal of enhanced visibility on the part of Austrian Universities of Applied Sciences and their research findings compared to the paper proceedings previously used.

From 2007 to 2014, the FFH proceedings were printed as handouts for the approximately 300 conference participants each year. The coverage of the publication was thus limited to this audience. Further national or even international publicity (?) [*perception is not the right word here*] was not intended and cannot be assumed either.

ID	Hits National	Hits International	Hits Total	Downloads	Language	Contribution Type
FFH2015-TII1-04	39	178	217	237	GE	Paper
FFH2015-SW2-03	32	72	104	212	GE	Paper
FFH2015-TII1-03	23	129	152	165	EN	Paper
FFH2015-PS-18	20	38	58	160	EN	Poster
FFH2015-WIWI1-02	33	121	154	122	GE	Paper
FFH2015-SW3-05	35	16	51	119	GE	Paper
FFH2015-SW1-01	50	58	108	115	GE	Paper
FFH2015-GW1-01	40	59	99	112	GE	Paper
FFH2015-SIM1-05	35	54	89	112	EN	Paper
FFH2015-WIWI3-05	34	48	82	110	GE	Paper
FFH2015-CBS1-03	32	43	75	106	EN	Paper
FFH2015-IM2-04	50	39	89	104	EN	Paper
FFH2015-TII2-03	24	22	46	98	GE	Paper
FFH2015-IM3-01	44	46	90	96	EN	Paper
FFH2015-PS-25	27	26	53	95	GE	Poster

Table 1: Top ten countries frequenting FFH2015 proceedings

The ffhoarep usage statistics show the national and international perception of the FFH contributions over ten months from 8 April 2015 to 7 February 2016. During this rather short lifetime, the 117 contributions of the FFH 2015 proceedings including papers and posters had 7843 hits in total. A number of 2939 (37%) came from Austria, 4904 (63%) from other countries. The total number of downloads is 6393. Table 1 shows the top 15 downloaded contributions with 95 up to 237 downloads at time of investigation. It is interesting to observe that the number of downloads can even be higher than the number of hits. The reason for this is that documents can be linked from other sites for direct download. On average, each FFH contribution was displayed 67 times and downloaded 54.64 times in this period.

These considerations show that this new solution to publish the FHH conference proceedings, has great potential to heighten the national and international visibility of the higher education sector in Austria, particularly compared to the printed paper proceedings used up until 2014. Due to its open access character and its technical implementation, a much broader range of recipients can be addressed all over the world. As a result, ffoarep contributes to the so-called Third Mission, a modern tool for knowledge transfer among industrial and scientific partners as well as a means of bridging the gap between the interested public and society.

References:

- European Commission (2015): Open Access to scientific information - Digital Agenda for Europe - European Commission. <https://ec.europa.eu/digital-agenda/en/open-access-scientific-information#Article>, (30.11.2015).
- Kern, T. et al. (eds., 2015): Wegbereiter - Karrierepfade durch ein Fachhochschulstudium. Tagungsband 9. Forschungsforum der österreichischen Fachhochschulen. Hagenberg, FH Oberösterreich. <http://ffhoarep.fh-ooe.at/>, (30.11.2015).
- DCMI (2015): DCMI Metadata Terms. <http://dublincore.org/documents/dcmi-terms/>, (30.11.2015).
- Rusch-Feja, Diann (2001): Die Open Archives Initiative (OAI). [http://www.researchgate.net/publication/249950999_Die_Open_Archives_Initiative_\(OAI\).Neue_Zugangsform_zu_wissenschaftlichen_Arbeiten](http://www.researchgate.net/publication/249950999_Die_Open_Archives_Initiative_(OAI).Neue_Zugangsform_zu_wissenschaftlichen_Arbeiten), (30.11.2015) – in german.
- Lynch, Clifford A. (2003): Institutional Repositories: Essential Infrastructure for Scholarship in the Digital Age. In: ARL: A Bimonthly Report 226. <http://www.arl.org/storage/documents/publications/arl-br-226.pdf>, (30.11.2015).
- OpenDOAR (2015a): Growth of the OpenDOAR Database – Worldwide. <http://opendoar.org/onechart.php?cID=&ctID=&rtID=&clID=&IID=&potID=&rSoftWareName=&search=&groupby=r.rDateAdded&orderby=&charttype=growth&width=600&height=350&caption=Growth%20of%20the%20OpenDOAR%20Database%20-%20Worldwide>, (30.11.2015).
- OpenDOAR (2015b): Usage of Open Access Repository Software – Worldwide. <http://opendoar.org/onechart.php?cID=&ctID=&rtID=&clID=&IID=&potID=&rSoftWareName=&search=&groupby=r.rSoftWareName&orderby=Tally%20DESC&charttype=pie&width=600&height=300&caption=Usage%20of%20Open%20Access%20Repository%20Software%20-%20Worldwide>, (30.11.2015).
- Smith, MacKenzie et al. (2003): DSpace – An Open Source Dynamic Digital Repository. In: D-Lib Magazine 9(1). <http://www.dlib.org/dlib/january03/smith/01smith.html>, (30.11.2015).
- Tansley, Robert and Harndad, Stevan (2000): Eprints.org Software for Creating Institutional and Individual Open Archives. In D-Lib Magazine 6(10). <http://www.dlib.org/dlib/october00/10inbrief.html#HARNAD>, (30.11.2015).