From idea to functional ETD: experiences from the University of Novi Sad, Serbia

Abstract. This paper will review phases of introduction and use of ETD at the University of Novi Sad with special emphasis on specific requirements, challenges and further directions of development and use of ETD systems at the UNS.

1 Introduction

University of Novi Sad is the second largest university in Serbia. With its 50000 students and more than 5000 teachers and scientists at 14 faculties and 3 institutes it is a viable foundation for scientific and scholar work. In order to achieve excellence in scientific, artistic and educational work there are widely accessible sources at the University of Novi Sad. It is necessary to enable access to the scientific work results such as dissertations, theses and scientific papers. For a long time, the main access point to those resources were libraries where scientific data were collected, described and archived. At the University of Novi Sad every faculty has its own specialized library. Those libraries were founded at the same time when the faculties were opened. Even before the University of Novi Sad was established in 1960, there was the Library of Matica Srpska as a center for scientific work in Novi Sad. All doctoral theses in paper defended at the University of Novi Sad are deposited at the Library of Matica Srpska.

It is recognized that in the digital age, open access to electronic theses and dissertations is a necessity and an obligation of every higher education institution. At the University of Novi Sad, that idea appeared in the 90's, but until its realization it was necessary to overcome several obstacles and challenges – technical, legal and organizational. In that period, within the OPAC systems of the University of Novi Sad libraries – BISIS [1], Pergam, WINISIS, etc. – metadata on doctoral dissertations defended at the University of Novi Sad were published. Basic information on dissertations became easily available online. The same metadata were published in the OPAC system at the Library of Matica Srpska. The users had a possibility to access metadata about theses and dissertations from different access points. But still, only the paper versions of the dissertations and theses were accessible in different libraries, since the technology and infrastructure for archiving full formats was not yet established.

A step further towards ETD was the Republic of Serbia Law on Higher Education from 2005, which introduced the obligation of temporary open access to electronic format of dissertation on the university's website as a condition for its defense. This was the legal basis for establishing an electronic catalog of doctoral dissertations with full text. Students were required to submit theses and dissertations in electronic format. At the beginning these theses and dissertations were collected on various external storage devices (CDs, DVDs, HDs, etc.). Each user could get an e-version by sending a direct request to the librarian.

2 Digital Library of Theses and Dissertations

There was an urgent need for development of digital infrastructure for submission, dissemination and long term management and archiving of e-versions of theses and dissertations at the University of Novi Sad. That was start of the management of the electronic thesis software. Since 2014, the Digital Library of Theses and Dissertations Defended at the University of Novi Sad (PhD UNS) has been introduced as part of the Current Scientific Research Information System (CRIS UNS) [2, 3]. CRIS UNS is the overall system for current research information system for archiving the scientific and artistic knowledge at the University of Novi Sad. The CRIS UNS system supports all international standards and all the requirements prescribed by the University of Novi Sad and legal requirements prescribed by the authorities of the Republic of Serbia.

CRIS UNS system is based on the MARC 21 format, which is compatible with CERIF (Common European Research Information Format) format. It is also compatible with the philosophy of FAIR data usage since the data in the PhD UNS meets principles of findability, accessibility, interoperability and reusability. The system was developed at the Faculty of Technical Sciences, but it is used University of Novi Sad wide. PhD UNS enables greater exposure of the doctoral thesis and dissertations and availability of postgraduate research at the University of Novi Sad.

3 System requirements

From the beginning of the PhD UNS system was supposed to be at the uns.ac.rs domain, with the whole database and Internet service in accordance with the Legal act on measures to increase the visibility and presence of the University of Novi Sad and its members on the Internet (passed on 19th April 2013 in University of Novi Sad Senate). There were several other requests from the University of Novi Sad regarding the development of the PhD UNS, as to support standard model for text documents on different languages and different scripts; support of UTF-8 character list; user interface in Serbian language; interoperability with other systems for digital storage of doctoral thesis and dissertations; it must be organized as a multilevel application based on the Internet platform and web technologies; also the server should be multiplatform (should be operable on Windows and Unix based operable systems); client side should be exclusively the standard web reader; application's server and client side should be based on the open-source technologies; data management must be developed in order to enable installation of the application on different SUBP without altering the original application code; system must support the interoperability with other platforms via open standards; it must enable visibility of the PhD UNS on ETD global portals, especially on DART-Europe portal. In the paper those requests will be discussed in more details.

There were also different functionalities which PhD UNS system was supposed to support. First of all, there were requests regarding electronic services: a) digital repository of doctoral thesis and dissertations defended at the University of Novi Sad must be in accordance with the Republic of Serbia Higher Education Law; b) at the member institutions there should be the distributed data input; c) data retrieval should be possible with various parameters; d) there should be enabled open access and free research of the theses and dissertations on the web portal of the digital repository; e) data exchange with institutional repositories will be enabled by using the Dublin Core format and AOI-PMH protocol with portals doiSerbia PhD (doiserbia.nb.rs/phd/) and DART-Europe (dart-europe.eu), as well as with the Ministry of education, science and technological development central repositories; f) reports will be shaped to fulfill requests for generating reports for the University accreditation and other relevant reports; g) posting of doctoral dissertations on public view which would be enabled by distributed input of metadata on public Internet pages of the

University of Novi Sad and member faculties where the dissertation will be defended; h) permaling for each e-version of PhD theses and dissertation, in order to uniquely connect with global repositories; i) easy assessment of process of doctoral promotion at the University of Novi Sad and generating the relevant reports (for example, List of doctoral candidates for the ceremony of doctoral promotion). There were also some special requests like: making a enlarged outputs – extra data with the year of defending, names of mentors, sort by the year of defending, etc.

During the development of the PhD UNS we encountered several obstacles, for example problems with data quality control since there were metadata from different sources; establishment of policies and rules in accordance with the Republic of Serbia Law on Protection of Privacy and Republic of Serbia Intellectual Property Law etc. In the paper we will discuss the problems and process of solving them from the University of Novi Sad point of view.

References

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