7th SEEDI – Digitisation of cultural and scientific heritage

The South - Eastern European Digitisation Initiative

Ljubljana (Slovenia), 16-18May 2012

BOOK OF ABSTRACTS

South-Eastern European

SEEDI 2012

Book of Abstracts

Ljubljana, Slovenia,
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Colophon

South-Eastern Digitisation Initiative (SEEDI) 2012, 17-18 May, Ljubljana, Slovenia
and
First Slovenian Congress for Digitisation of Cultural Heritage (preconference day), 16 May 2012
Ljubljana v BiTiH - BiTi v Ljubljani

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Dear attendees,

This is the seventh in the series of SEEDI Conferences, which have become a unique opportunity for researchers and practitioners from South-Eastern Europe to present and exchange experiences in digitization of cultural and scientific heritage. The focus of the conference has moved from technical problems of digitisation to a broader scope. Typical topics now include standards, recommendations and good practices in digitisation, access and preservation of cultural and scientific heritage.

This year many interesting digitisation projects are presented, from local to national and international. These projects deal with different types of materials belonging to both cultural and scientific heritage and include digitisation of music. Other contributions cover organisational issues such as private-public partnership, copyright legislation, avoiding duplication of effort, workflow. There is a balance between practical and research papers and new technical solutions, such as 3D digitisation, are described as well. There are reports on current research in OCR quality and identifiers, to name just a few. Last but not least, it is particularly important that all segments of the cultural heritage sector, libraries, archives and museums, are represented.

It is an honour and pleasure for me to chair the Programme Committee of the Seventh SEEDI Conference. Many interesting proposals were submitted, but due to the limited time for presentations we had to make a selection. The decisions were not easy and I would like to thank the members of the Programme Committee for their expertise and contribution to an exciting conference programme. My thanks also go to the Organising Committee for their support and to the host, the National and University Library in Ljubljana.

The SEEDI Conferences are already a well-established tradition and I am confident that the conference in Ljubljana will offer a great opportunity to meet, exchange ideas and network. And that the community will continue to jointly develop the expertise in digitisation, access and preservation of cultural and scientific heritage.

Prof. dr. Maja Žumer
Programme Committee Chair
University of Ljubljana
Slovenia

About the 7th SEEDI Conference 2012

The SEEDI is an effort to develop awareness about digitization of cultural and scientific heritage in the South-Eastern European countries along the Lund Principles of the European Union. It strives to contribute to the gathering and spreading of specific and interdisciplinary knowledge from various institutions from the region and the European Union where leading experts in the field work.

The aim of the Conference is to:

- *Build awareness on the need for digitisation of cultural and scientific heritage in the South-Eastern Europe,*
- *Mobilize the human and material resources existing in the region,*
- *Improve communication between centres having similar scientific interest and to disseminate scientific and practical information in the field,*
- *Facilitate the formation of projects that would include partners from the South Eastern Europe,*
- *Foster collaboration between the EU and South-Eastern Europe countries.*

On the SEEDI 2012 Conference new information technologies, standards and other aspects of digitisation, access and preservation of cultural and scientific heritage are presented. Current research, as well as the implementation issues, particularly metadata models and data-exchange standards formed through designing and managing the access to e-content, are reviewed. Participants are invited to discuss modalities of free and open access to digitised materials, including the questions of intellectual property and copyright protection. On the other hand, the Conference also tries to promote further transfer of scientific knowledge into practical technological solutions and attract researchers from private companies dealing with digitisation to present their research and technological work.

The official language of the Conference is English.

A day before the main event the preconference in Slovenian language will take place at the Ministry of Education, Science, Culture and Sport.

Ljubljana v BiTiH - BiTi v Ljubljani will be the First Slovenian Congress for Digitisation of Cultural Heritage, where Slovenian galleries, museums, archives and libraries will present their digitisation projects, activities, issues and practices.

Conference Programme

Thursday, 17th May 2012

8.00 - 9.00 Registration

9.00 - 9.30 Welcome addresses and opening of the conference

9.30 - 11.00 **Session 1: Keynote and invited lectures**

Jill Cousins: Europeana a networked vision (keynote speaker)

Maja Žumer: Bibliographic Data in the new environment of the (Semantic) Web (invited lecture)

Maja Bogataj Jančič: "Is there anyone to allow access?" Digitisation of Orphan Works (invited lecture)

Discussion

11.00 - 11.30 **Coffee break**

11.30 - 13.00 **Session 2**

Max Kaiser, Jeanna Nikolov-Ramirez: Public Private Partnerships for large scale digitisation Austrian Books Online, the cooperation between the Austrian National Library and Google

Anna Krzemińska: Public access to copyrighted materials in light of the Act on Copyright and Related Rights in Poland - possibilities and difficulties

Tomas Foltyn: Has it been already digitized? How to find information about digitized documents

Breza Šalamon-Cindori, Marko Tot, Daniela Živković: How to promote and communicate collections in online environment: Croatian museums' practice

Discussion

13.00 - 14.30 **Lunch break**

14.30 - 16.00 **Session 3**

Gregor Berginc, Aleš Štimec, Daniel Vladušič: Preserving Cultural Heritage using Photogrammetric Three-dimensional Digitisation

Kaja Antlej, Roman Uršič, Mojca Šavnik, Bernarda Županek: Interactive television of cultural heritage and multimedia e-book of ancient Emona

Snežana Negovanović, Jana Rodić: Augmented Reality and the Museum Experience. King Peter I of Serbia - The Memorial Room

Andreja Hribernik: Everything started with the idea that technology could be a solution (Digitalisation of Conceptual Art Archives)

Disccusion

16.00 - 16.30 **Coffee break and poster session**

16.30 - 18.00 **Session 4**

Danijela Getliher, Jasenka Zajec: Identifiers for Digitised Heritage

Aleksandar Mihajlović, Vladislav Jelisavčić, Bojan Marinković, Zoran Ognjanović, Veljko Milutinović: Serbia Forum: Cultural heritage Digitalization project with emphasis on semantic indexing

Jakub Řihák, Kateřina Kamrádková: New digitization workflow of the National Technical Library in theory and practice

Nemanja Vukosavljević, Zoran Ognjanović, Nenad Krdžavac, Bojan Marinković: Linked Data Enrichment of Digital National Heritage

Discussion

18.30 **SEEDI Board Meeting**

Friday, 18th May 2012

9.30 - 11.00 **Session 5**

Geneviève Cron: OCR Rate Computation in Mass Digitisation Programs

Cezary Mazurek, Tomasz Parkola, Marcin Werla: Tools for mass digitization and long-term perservation in cultural heritage institutions

Alfier Feliciati: Archives on the Web and users expectations: towards a convergence with digital libraries

Alenka Kavčič-Čolić: Approaching Digitisation Through a Digital Preservation Perspective

Discussion

11.30 - 13.00 **Coffee break and poster session**

11.30 - 13.00 **Session 6**

Nikola Ikonomov, Tomáš Klimek, Tamara Butigan-Vučaj: It's time for embarking: Embark Project

Dunja Seiter-Šverko, Sofija Klarin Zadravec: Croatian Digital Library Initiatives

Adam Sofronijević, Ömer Kiliç: A Gateway to European Newspapers Online: Increasing awareness of shared European history and culture

Stela Filipi Matutinović, Adam Sofronjević: "Balkan routes" project: a new perspective on the Balkan Peninsula from the 16th to 19th century

Discussion

13.00 - 14.30 **Lunch break**

14.30 - 16.00 **Session 7**

Tomaž Erjavec, Matija Ogrin: The eZISS digital library of scholarly digital editions of Slovenian literature

Martina Pavec: Digital collection of Ruđer Bošković: the importance of conservation-restoration works in the digitalization process

Žarko Mijajlović, Nada Pejović: Works of Ruđer Bošković in Virtual Library of Faculty of Mathematics in Belgrade

Koraljka Kuzman Šlogar, Irena Miholić: Digitisation of the Audio Recordings of the Archive of the Institute of Ethnology and Folklore Research and its Availability to the Public

Discussion

16.00 - 16.30 **Coffee break and poster session**

16.30 - 18.00 **Session 8**

Anisava Miltenova, Dilyana Radoslavova: The Cyrillic Manuscript Codex Suprasliensis: A full text electronic corpus

Jasenka Zajec, Renata Petrušić: Croatian Digitisation Projects of Newspapers and Journals - an Overview

Snežana Nenezić: The Digitalization of Local Periodicals - Public Library Kruševac

Marija Šegan, Nikola Petrović: Archive of the Mathematical Institute of the Serbian Academy of Sciences and Arts - Digitization of the Reports from the meetings of the Scientific Council (1948 - 1964)

Discussion

Poster sessions

Tanja Buzina: Whole National Domain Harvesting by Croatian Web Archive

Nikolay Kirov: Folklore songs in Europeana

Marina Mihalić: End users of Digital Library Information Resources and Services - Summary and Review of Research Results in Croatian Libraries

Žarko Mijajlović, Nenad Mitić, Saša Malkov: Digital Legacies

Mateja Šmid Hribar, Renata Šolar, Irena Eiselt, Daniel Vladušič, Boris Horvat: DEDI - Slovenian Natural And Cultural Heritage Online

The preconference day: 1st Slovenian Congress for Digitisation of Cultural Heritage

Wednesday 16th May 2012

Ljubljana v BiTiH - BiTi v Ljubljani

PROGRAM

8.00 - 8.30	**Registracija**
8.30 - 9.00	Uvodni nagovor

I. Načrtovanje digitalizacije na institucionalni in medinstitucionalni ravni
moderator: mag. Zoran Krstulović (Narodna in univerzitetna knjižnica)

9.00 - 9.15	Model priprave in izvedbe projektov digitalizacije – primer osrednjeslovenske regije / Anja Frkovič, mag. Aleš Klemen
9.20 - 9.35	Načrtovanje projektov digitalizacije v Mariborski knjižnici kot oblika medinstitucionalnega sodelovanja na območju / mag. Nina Hriberšek Vuk
9.40 - 9.55	Učinkovito dolgoročno ohranjanje arhivskega gradiva v Arhivu RS / mag. Tatjana Hajtnik
10.00 - 10.15	Ohranjanje digitalizirane kulturne dediščine / dr. Alenka Kavčič-Čolić
10.15 - 10.30	Odmor in čas za vprašanja

II. Postopki digitalizacije ali teorija v praksi
moderator: dr. Jedert Vodopivec (Arhiv Republike Slovenije)

10.30 - 10.45	Digitalizacija in Papir /mag. Klemen Možina, doc. dr. Stanislav Praček, dr. Vera Rutar
10.50 - 11.05	Digitalizacija arhivskega gradiva arhitekta Eda Mihevca / mag. Neža Čebron Lipovec, Vladimir Drobnjak
11.10 - 11.25	Digitalizacija Katalogov s čipkami in vzorcev za klekljanje v Mestnem muzeju Idrija in Čipkarski šoli Idrija / mag. Mirjam Gnezda Bogataj, Tedy Grbec
11.30 - 11.45	3D digitalizacija in vizualizacija situle z Vač / Gregor Vidmar
11.45 - 12.00	Odmor in čas za vprašanja
12.00 - 13.00	**Kosilo**

III. Gradnja digitalnih zbirk in registrov

moderator: mag. Gorazd Vodeb (Narodna in univerzitetna knjižnica)

13.00 - 13.15	Dokumentiranje kulturne dediščine / Jon Grobovšek
13.20 - 13.35	Register slovenskih rokopisov 17. in 18. stoletja: repozitorij, digitalna knjižnica in raziskovalno okolje / dr. Matija Ogrin, Jan Jona Javoršek, dr. Tomaž Erjavec
13.40 - 13.55	Digitalne inventarne knjige entomoloških študijskih zbirk Prirodoslovnega muzeja Slovenije in Podatkovna zbirka fotografij nevretenčarjev / dr. Tomi Trilar, dr. Ignac Sivec, Mojmir Štangelj
14.00 - 14.15	Težave in prepreke pri inovativni uporabi digitalnih vsebin na primeru metaiskalnika po podatkovnih zbirkah v slovenski kulturi / Zoran Obradović
14.15 - 14.30	**Odmor in čas za vprašanja**

IV. Orodja za opis in dostop do digitaliziranih vsebin

moderator: dr. Alenka Kavčič-Čolić (Narodna in univerzitetna knjižnica)

14.30 - 14.45	Georazčlenjevanje metapodatkovnega opisa kulturne dediščine / dr. Vlasta Vodeb
14.50 - 15.05	Jezikovni viri starejše slovenščine / dr. Tomaž Erjavec
15.10 - 15.25	iKnjiga – nov medij? / dr. Benjamin Štular
15.25 - 15.40	Odmor in čas za vprašanja
15.40 - 17.00	V. Inovativni prikazi digitaliziranih objektov na spletu moderator: Andreja Hribernik (Moderna galerija)
15.40 - 15.55	Spletne zbirke na spletni strani Slovenskega etnografskega muzeja / Miha Špiček, Gregor Ilaš
16.00 - 16.15	Digitalne vsebine na razstavi Novo mesto 1848-1918 v Dolenjskem muzeju Novo mesto / Majda Pungerčar
16.20 - 16.35	Večrazsežnostni prikazi naravne in kulturne dediščine v projektu DEDI / dr. Dalibor Radovan, dr. Renata Šolar, dr. Mateja Šmid Hribar, mag. Irena Eiselt, dr. Danijel Vladušič, dr. Boris Horvat, Ines Vodopivec
16.40 - 16.55	Virtualni svet razstav / Helena Janežič, Mojca Šavnik, mag. Irena Eiselt
16.55 - 17.00	**Odmor in čas za vprašanja**
17.00 - 17.30	**Zaključek srečanja**

Keynote and Invited Lectures

This year's keynote speaker will be **dr. Jill Cousins**, the Executive Director of the Europeana Foundation and The European Library. She is responsible for the running and management of Europeana.eu; the flagship portal of the European Union that brings together the content of the Archives, Audio visual collections, Libraries and Museums of Europe. The European Library is a vertical content aggregator for national and research libraries in Europe for the researcher. Dr. Cousins has many years' experience in web publishing including the commercial publishing world as European Business Development Director of VNU New Media and scholarly publishing with Blackwell Publishing. Prior to publishing she had a variety of marketing and research careers in the information field. These ranged from being the Marketing and Event Director for Online Information to managing her own research company, First Contact.

On the SEEDI 2012 Conference dr. Cousins focus will be on Europeana as a networked vision, in which she will cover themes such as: how collaboration and networking could improve; how we address users; and how we shared technical developments and ensure future interoperability of our content.

The European information space is a very dynamic environment. It operates within an even faster paced ecosphere, the web. New aggregations and techniques are developed weekly and there is much reinventing of the wheel. One of the jobs of Europeana is to encourage collaboration and sharing of such development to make sure that the user can find all the material we are digitising. New ways of working together will be presented for discussion.

Dr. Maja Žumer, professor of Library and Information Science at the University of Ljubljana (Slovenia) will further discuss about the bibliographic data in the new environment of the (Semantic) Web

After completing her BS degree in mathematics, dr. Maja Žumer held several positions as computer programmer and systems analyst, where she was also involved in the design, development and implementation of information retrieval systems. Her M.L.S.

degree from Kent State University (USA) was a turning point in her career: she became first a systems librarian, then Head of Research and Development Department at the National and University Library in Ljubljana. After completing her PhD in information science at University of Zagreb, Croatia, she joined the faculty of Department for library and Information Science and Book Studies at University of Ljubljana.

Her research interests include design and evaluation of information retrieval systems, end-user interfaces, usability, and, recently, conceptual modelling of bibliographic information systems. She has published extensively in these areas and received research funding from national and European agencies. She has been involved in IFLA working groups and several EU projects. She is a member of FRBR Review Group and co-chair of FRSAD.

Digitisation in the broad sense of the word extends beyond simple digital capture and includes providing access to digitised objects. To support finding, identification, selection and to obtain access, appropriate metadata is needed. Libraries have a long history of managing bibliographic information systems, yet most library catalogues are still based on the model that worked very well for card catalogues but has been obsolete ever since computers were first introduced. But things are moving forward. Functional Requirements for Bibliographic Records (FRBR), the conceptual model of the bibliographic universe, has been developed. It provides a new paradigm which could not only enable more intuitive presentation of bibliographic information, but also open this information using Semantic Web tools and services and therefore promote exchange and reuse across domains. The model is very relevant for digital libraries. Modern

bibliographic information systems should provide users with a more efficient way of accessing and using information and libraries should expose users to the broader context that is absent today. By doing this in an open manner, libraries could have a major influence on the development of the Semantic Web. In her presentation several of our research activities will be presented, including user verification of the model and the visualisation of bibliographic information.

dr. Maja Bogataj Jančič is the founder and director of the Intellectual Property Institute based in Ljubljana, Slovenia. She conducts research and advisory work for private companies and public institutions (such as libraries, institutes and universities) in the field of intellectual property, particularly copyright law, and has published many articles in this field and in the field of internet law. She was the Creative Commons Slovenia project lead and is currently acting as a legal counsel of this non-profit organization. She is an arbitrator in domain name disputes under top-level domain .si. She graduated at the Faculty of Law in Ljubljana (1996), earned her Master's degrees at the Faculty of Law in Ljubljana (1999, economics), Harvard Law School (2000, law) and Facoltá di Giurisprudenza di Torino (2005, intellectual property) and her PhD at the Faculty of Law in Ljubljana (2006, copyright law).

In her presentation dr. Bogataj Jančič will focus on Copyright law as a system established to encourage creativity. The system followed shortly after the invention and spread of printing and the emergence of reading public. For this reason it can be traced back to the 17th and 18th century social and political discourses. Since its' very beginnings the Copyright law is in war with New Technologies. However, for the Copyright law the biggest challenges emerged only with the digital technology and global communication network issues.

Is copyright still fulfilling its mission or do we need new systems for encouraging creativity? Dr. Bogataj Jančič will try to answer this question with an outline of the problem for orphan works and by outlining the copyright solutions for large-scale digitisation of the archives and libraries.

Paper Presentations

PUBLIC PRIVATE PARTNERSHIPS FOR LARGE SCALE DIGITISATION: AUSTRIAN BOOKS ONLINE, THE COOPERATION BETWEEN THE AUSTRIAN NATIONAL LIBRARY AND GOOLE

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17th May 2012; Session 2

Abstract:

In a Public Private Partnership with Google the Austrian National Library (project "Austrian Books Online") is digitising 600.000 books over the next few years and gradually making them available in its Digital Library. Memory institutions are increasingly faced with the public's expectations of immediately making their material available online and acting more entrepreneurial. For institutions with large holdings this is a daunting task and encompasses a variety of processes: logistics, matching and mapping of metadata and creation of online portals and more. Large scale digitisation efforts are costly and time consuming, but build the indispensable foundation for innovation and forward-looking research activities. Thus cooperation with partners like Google is not only a possibility to fund some of the activities but also to create new know-how.

The presentation of the project in June 2010 triggered a public discussion regarding the tension between public and private financing of large-scale projects for the digitisation of cultural heritage. The setting up of Public Private Partnerships (PPPs) was endorsed by the New Renaissance Report by the *Comité des Sages* on Digitisation of Europe's cultural heritage, which alerts to ensure "that the financing meets the fundamental principle of accessibility for all" and defines some guidelines for public-private partnerships, and other forms of financing. PPPs for the digitisation of cultural assets in Europe range from direct investment of funds in return for exclusive commercial exploitation of the digitised material to classical sponsorship schemes for advertising purposes. Because of the partnership with Google the digitisation of the Austrian National Library's entire historical book holdings from the early 16th until the late 19th century can be accelerated in a way otherwise unimaginable. The scale of the project is a challenge in terms of book preparation, logistics and handling of the incoming data.

The presentation will explain and trace the processes established in the library for preparing the books for mass digitisation as well as for the online access. The Austrian National Library receives digital copies of all works digitised in this project, and will make them available through its Digital Library and Europeana starting in 2012. The digitised holdings will be searchable in full text form and available also in Google Books, Google eBooks and as results of Google Searches. A structured way of accessing the newspapers digitised in the project through the portal ANNO of the Austrian National Library is underway.

Special emphasis has been placed and in the field of quality assurance in mass digitisation

efforts. When faced with 200 Mio pages it is out of the question to audit each page manually. Sampling methods and the detection of "suspicious" pages is a more promising approach to assess quality in a corpus of such a big scale. A special software named ADOCO (ABO Download and Control has been implemented to allow for annotations and the semiautomatic error samples.)

Based on lessons learned in the Austrian Books Online project it will be outlined how to equip for undertakings of such large scale, how a business partnership between business considerations and openness can be approached and how new opportunities and challenges are created by it.

Keywords: *Public Private Partnership, Google, "Austrian Books Online", New Renaissance Report, mass digitisation*

PUBLIC ACCESS TO COPYRIGHTED MATERIALS IN LIGHT OF THE ACT ON COPYRIGHT AND RELATED RIGHTS IN POLAND - POSSIBILITIES AND DIFFICULTIES

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17th May 2012; Session 2

Abstract:

The Polish law-maker specifies the subject matter of copyright. It relates to any and all manifestations of creative activity of an individual nature, established in any form, irrespective of its value, designation, or manner of expression (work). Polish the Act on Copyright and Related Rights is protecting strongly author's rights and authorised entity. There are two groups of copyright: moral and economic rights. The author's moral rights provide protection that is unlimited in time and not subject to waiver or disposal of the author's bond with the work. These are rights to the work's authorship, integrity of form and contents of the work, deciding about making the work available to the public for the first time, supervision over the manner of using the work. The author's economic rights indicate that the author is entitled to the exclusive right to use and dispose of the work in all fields of exploitation and the right to remuneration for the use of the work, but such rights shall expire 70 years after the author's death.

The Copyright Act says that cultural institutions (libraries, archives and schools) might make their collections available free of charge, in accordance with their statutory activities, but this regulation refers only to copies of works that have been disseminated.

The problem is that the fact that especially archives, but libraries too, have works of which it is hard to talk about dissemination within the meaning of the Copyright Act, where dissemination is defined as making the work publicly available, in any manner, upon the author's permission. Very important issue is the possibility of making available material protected by copyright (after their digitalization) in an on-line mode. Polish laws, in principle, exclude the possibility of such actions. A relevant article of the Copyright Act states that libraries and archives might make their collections available for research

or learning purposes through information technology system terminals (endings), but only those that are located at the premises of such units. This provision applies to works that have already been disseminated. Thus, there is no de iure permission to make works available on the Internet network (naturally, it does not apply to cases whereby the owner of a copyright has expressed the consent to such actions). Another solution to the problem may still be seen here, namely the so-called "orphan works". Although this term is not defined by the provisions of the copyright law, it shall be understood to mean works of which it is impossible to establish the subject of economic copyright or of which the identity of the subject of copyright is known (creator or successor in right), but it is impossible to establish contact with him (the place of stay is unknown, there is no valid address available). It seems that given the context of on-line availability the presented case of "orphan works" may be of fundamental importance.

The paper will present especially problems and limitations follows from law regulations in issues making available and digitalisation copyrighted materials in cultural and scientific institutions. These problems will be presented including legislation European Union.

Keywords: *copyright, orphan works, archives materials, making available on-line, Poland*

HAS IT BEEN ALREADY DIGITIZED? OR HOW TO FIND INFORMATION ABOUT DIGITIZED DOCUMENTS

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17th May 2012; Session 2

Abstract:

The Digitization Registry of the Czech Republic: (see the webpage http://www.registrdigitalizace.cz/rdcz/?language=en) is national project which was developed in the cooperation of the National Library of the Czech Republic, Academy of Sciences Library and private company Incad. The project's aim is to create national registry of digitized documents that enables to avoid unwanted duplicities in the digitization as well to share the digitization results across the Czech Republic. This could make the digitization more effective and also save the financial resources.

Above mentioned website is available both in Czech and English. It could provide information about the location of the original document, the location in digital library and library catalogues (including direct links to both systems), about the status of the process etc. The last information is useful, because everyone knows immediately, whether the book was already digitized, it is in processing right now or any institution has chosen the document for digitization and will process it soon.

The system is based on RIII application framework (J2EE) and data are stored in a relational database Oracle. For user access search and retrieval FAST is used. All user accesses are implemented via web application. The Digitization Registry is independent on the operation system and is able to be adapted to various languages. The implementation team is working now on new version R4 which should

be freely available as open source application based on FEDORA commons, Grails and Jasper.

Digitization Registry is connected to other important library systems - especially library catalogues and digital library Kramerius. Almost all the metadata (bibliographic records, links) are transferred automatically among them.

Nearly 28 000 records from more than 30 institutions are now available in the registry. This number is increasing continuously. Because of easy adaptation to other languages, independent technical background and ensured funding for the development there are no limits to use this solution also in abroad. Digitization Registry was awarded by INFORUM conference price last year for its benefit to the coordination of digitization activities in Czech Republic.

The proposed presentation will bring detailed information also about the future development connected to mass digitization and every day usage of the Digitization registry.

Keywords: *digitization registry, digitization, metadata, records, duplicities*

HOW TO PROMOTE AND COMMUNICATE COLLECTIONS IN ONLINE ENVIRONMENT: CROATIAN MUSEUMS' PRACTICE

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17th May 2012; Session 2

Abstract:

A *Recommendation on Digitisation and Digital Preservation*, adopted by the European Commission in October 2011asks Member States to "make available through *Europeana* 30 million objects by 2015, including all Europe's masterpieces which are no longer protected by copyright, and all material digitized with public funding, and get more in-copyright material online". A call for *The new Renaissance* confirms the importance of the transition to the digital age for all cultural and heritage institutions.

Although digitization has become part of heritage institutions' daily work over the past two decades, archives, libraries and museums, as cultural, educational and information institutions, are faced with major challenges of creating, managing, giving access to and promoting their digital collections. Digital environment, and information and communication technology, especially Web 2.0 have enabled archives, libraries and museums to open their collections to the public and become the stakeholders in creation of the European cultural heritage online.

However, the pressure of Google, Microsoft and the other *great players* in mass digitization projects and creation of ultimate digital collections has caused acceleration of digitization projects among heritage institutions and the development of the unique digital collection of the European culture. Therefore the shift from the traditional to

the digital era represents a great challenge for Croatian heritage institutions, including museums. In achieving this goal, museums are invited to provide access to their collections from any place and at any time - by including virtual exhibits and marketing their collections.

There are some 200 museums listed in the Register of Museums, Galleries and Collections in the Republic of Croatia. The Museum documentation Centre - a public institution founded in 1955 as the documentation, information and communication node of the Croatian museum network, keeps the Register as a unique and specific database of museums, their collections and professional staff. Types of Croatian museums vary from large institutions to very small institutions focusing on a specific subject, location, or a notable person - from national, regional to local museums, and museum collection, and from general to specialized museum and permanent museum exhibition.

The project *Museums of Croatia on the Internet (1996-2008)* of the Museum documentation Centre was one of the first initiatives of bringing Croatian museums' collections closer to the public. To date, 33 museum institutions have been presented under the project. Today more than two-thirds of the Croatian museums have created their presence on the Internet - by creating and maintaining their websites, digitizing their collections and communicating their stored material on the profiles on social networks. Moreover, *Croatian cultural heritage*, the portal of the Croatian heritage, launched in 2008 collects and presents digital collections of the Croatian cultural institutions. Currently 63 digital collections from the Croatian museums are presented online through the Portal.

How do Croatian museums provide access to their collections? How visible are museum collections in Croatia? Is there a digital content representing Croatian museums? Are digitized objects older works in the public domain to avoid potential litigation or works covered by copyright? A preliminary survey conducted as an online survey during October 2011 by the authors showed that an aspect of digitization in Croatian museums encompasses digitization of printed books. The most often criteria in selecting publications for digitization are: a work is cultural asset; a work follows the museum activity, a highly damaged work unavailable for use, users' interest for a work, easier and more effective use in the digital environment and a request for digitization. The source of funding for Croatian digitization projects are museums themselves, a city administration, The Ministry of Culture of the Republic of Croatia, the county and other sources. The most of digitization projects are done without sponsor partners.

This paper aims at presenting the attitude of Croatian museums toward digitization - how much progress has been made in this field in Croatia until now? The paper will examine the role of Croatian museums in digitization projects, the presentation, marketing and communication of the museum digitized collections on the websites and social networks, museum participation in creation of the national digital museum landscape, and the integration of museum content into the *European Digital Library - Europeana*. A research conducted among Croatian museums will present data on priorities and collaboration of Croatian museums in digitization projects, sources of funding, permissions and copyright clearance, marketing and communicating of digitization projects and other aspects of digitization project management.

Keywords: *museum collections, digitisation, Croatia, Europeana*

PRESERVING CULTURAL HERITAGE USING PHOTOGRAMMETRIC THREE-DIMENSIONAL DIGITISATION

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Abstract:

Browsing through major Slovenian digital libraries (dLib.si, Kamra and DEDI) as well as Europeana, professional users and general public can discover rich collections of objects. These objects are usually presented only with textual descriptions, audio-visual content and meta-data such as geo-location and time information. Three dimensional (from now on 3D) representation of movable and immovable cultural heritage, which could provide an invaluable insight into objects, is still very rare, because currently used methods, such as laser scanning and structured light cameras, are complex, expensive and time consuming. These methods also require specialised hardware for active acquisition, operated by skilled professionals.

This paper presents a novel and efficient method for 3D object acquisition and archival of cultural heritage offering a suitable replacement for existing techniques. Within this paper we also describe some of the current and future uses of the so-obtained models. The method proposed in this paper is called PHOV and is publicly available online (www.phov.eu). It estimates 3D coordinates of points on a real object using stereophotogrammetry. Contrary to other methods for 3D object acquisition, our method uses nothing but a set of digital photographs and does not require any additional calibration making it ideal for researchers, who can produce 3D models of the heritage objects inexpensively using only an ordinary digital camera. Furthermore, the production of the 3D models can be done remotely, by simply uploading photographs to the PHOV service. The latter simplifies the 3D digitisation process, while significantly lowering the costs in terms of equipment and further processing of the data.

The process of 3D digitisation consists of the following steps: feature extraction and matching, point-cloud and surface reconstruction, and texture stitching. Feature extraction detects certain key points in input images that are guaranteed to be stable across multiple input images and thus successfully matched between images in the second step. Stable key point matches are used as inputs for automatic camera calibration and estimation of three-dimensional locations and orientations of cameras at the time when the photograph was taken. Based on 3D camera location estimates the method produces an accurate 3D point-cloud of points on the object. The final digital model of the object is produced by surface reconstruction based on the point cloud and generation of textures from the given set of input images. Highly standardised data and interoperable technologies, such as HTML5, WebGL, and PLY and PDF file formats, allow seamless integration of 3D visualisation solutions into existing online applications. Support for the widest possible audience is achieved with active detection of user's

hardware configuration proposing the optimal method of display either directly in the web browser or by offering a downloadable model as a 3D PDF file. The resulting 3D models are suitable for a number of already recognised use cases, e.g. preservation of both the appearance (through photographs) and the actual 3D form of digitised objects, while offering accessibility to these objects to a large number of researchers to explore. Europeana, in collaboration with the CARARE project, is already planning a support for incorporation of three-dimensional content in early 2012, proving the idea of virtual exploration valid. Having accurate 3D models is also important in cases, where objects are prone to degradation, as we can replicate or even restore them using high quality 3D printers.

PHOV models have already been used within the DEDI project (www.dedi.si) and presented as standalone objects or embedded into a 3D GIS system (www.gaeaplus.si). Further integration into DEDI portal is already being examined and will be implemented in one of the following updates of the platform. As the first step of this integration, DEDI already offers data export for metadata harvesters, complying with Europeana harvesting standards, hence our 3D models can already be presented within Europeana itself. PHOV has also been used for demonstration purposes in City museum of Ljubljana, National museum of Slovenia, The regional museum Koper, Regional Museum of Murska Sobota, and Posavje Museum Brežice Finally, the version of the PHOV software for mobile devices is currently being tested.

Keywords: *three dimensional (3D) digitisation, cultural heritage, PHOV method, stereophotogrammetry*

INTERACTIVE TELEVISION OF CULTURAL HERITAGE AND MULTIMEDIA E-BOOK OF ANCIENT EMONA

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Abstract:

Development of information-communication technology (ICT) and the support of European initiatives on digitisation of cultural heritage (CH) in the last decade delivered a large number of digitized and digital content in form of texts, images, sound recordings, video and 3D models. To the general public and professionals this material is frequently disseminated in scattered and incoherent way on various websites, mostly in form of digital libraries and collections, virtual museums and worlds. Access is possible remotely or on-site at museums (exhibitions), libraries, archives, schools and research centres. This paper deals with the potential of interactive

television (ITV) to aggregate and integrate all of the above types of heterogeneous CH content and its dissemination in the simplest way. Research indicates that ITV (based on the over-the-top - OTT - technologies) with added tools for social communication and compatibility with other content management systems (CMS) is becoming a new type of tool for information exchange and in many cases (organization websites) slowly displacing standard websites that have until recently mostly based on texts and images. Cloud computing and HTML5 with its new functions for interactive documents resulted increasing number of video and real-time as well as pre-rendered 3D content. In the last Cisco Visual Networking Index is predicted that by 2016 the 70% of world's mobile data traffic would be video (pre-rendered 3D content could also be included). For non-mobile data numbers are similar. Since HTML5 (now also WebGL) doesn't require installation of special viewers for opening and interacting with real-time 3D content, easier access to multimedia content will undoubtedly affect their popularization, especially in the less technically versed public. It is usually cited that ITV provides a comfort of watching TV and an interactivity and personalization of the Internet. Therefore beside general public it's becoming also attractive for elderly, children and other more vulnerable groups with difficulties to interact with ordinary websites.

ITV of cultural heritage (ITVCH) is not only a medium for providing information on heritage, it is more a forum for sharing knowledge (like the idea of a modern museum) and platform for networking of all those interested in heritage content. On the one hand ITVCH is intended to teaching/learning, gaining new knowledge, but on the other provides quality leisure and animation to users visiting museums and monuments in situ. Beside ordinary digitised content ITVCH enables aggregating all CH material like other CH TV channels, augmented reality (AR) components and video presentations of memory institutions. Even through social networking users/visitors can publish their own content on it. Access to contents of ITV is possible via mobile devices like smartphones, tablets, laptops, etc. and not limited to the use of TV sets (four-screen strategy). The idea behind the ITVCH is therefore (1) interconnection of all digital and digitized heritage content, regardless of their heterogeneity, (2) dissemination of the content to the users in the easiest way regardless of which type of the media they used and regardless of their location, (3) subsequently to establish communication between all the users of the content, which in turn enables the spread of knowledge.

This paper highlights the importance of interactive TV, smart education and serious games (as well as virtual museums) for heritage communication, followed by the examples of 3D digitised heritage performed by our team. Comparable projects of other researchers are also discussed. Special attention is paid to the further presentation of Roman Emona (present Ljubljana) on ITVCH. Between 2010 and 2011, during the project of Virtual Emona our group 3D digitised 13 (14th object was digitised previously) objects found at archaeological site NUK II (the area where the new National and University Library of Slovenia - NUK is planned to be build) and its scale model. Digitised content is publicly available as a 3D collection in the Digital Library of Slovenia - dlib.si. 3D objects in 3D-PDF file formats with metadata are published. The items will be soon accessible through Europeana. Even during the Virtual Emona project there was a wish to create a virtual exhibition of Emona, which could provide more interpreted digitised objects and therefore more understandable for wider public. With this in mind in our paper a multimedia e-book on Emona, which can stand alone or as one of the content integrated into

ITVCH is presented. The multimedia e-book enables setting and publishing of text, video, image galleries, 3D objects, questionnaires, external frames (linked maps, virtual museums and worlds etc.) and as Apple iBook Author represents a new generation of presentation tools, intended to content holders with less technical skills, in heritage case museum educators, heritage interpreters, teachers, etc. to share their content to a wider public. Multimedia e-book is as well based on four-screen platform, which means that the same content can be seen via TV, personal computer, tablet and mobile device.

Keywords: *HTML5, interactive TV, multimedia e-book, 3D content*

AUGMENTED REALITY AND THE MUSEUM EXPERIENCE: KING PETER I OF SERBIA - THE MEMORIAL ROOM

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Abstract:

This paper presents the realization overview of **an** interactive AR installation "Portrait of a King" as a part of the permanent exhibition in the Memorial Room of the House of King Peter I in Belgrade, Serbia. The Memorial Room is a part of the newly established cultural centre situated in a19th century villa in which King Peter I Karadjordjevic lived after World War I. This house was declared a museum dedicated to his life almost a century ago, but its turbulent history has rendered most of the artefacts destroyed or lost. Augmented Reality was chosen to address the limitations brought by the inability to adequately display the remaining historical artefacts, but also to reflect, on the conceptual level, the ascetic lifestyle of King Peter. A contemporary approach in exhibition design offers an innovative museum experience, while the interactivity of exhibition introduced by AR engages visitors in an authentic way enabling them to become actively involved.

Keywords: *augmented reality, multimedia, King Peter I of Serbia, photograph*

EVERYTHING STARTED WITH THE IDEA THAT TECHNOLOGY COULD BE A SOLUTION. (CASE STUDY - DIGITALISATION OF CONCEPTUAL ART ARCHIVES)

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17th May 2012; Session 3

Abstract:

One of the most important tasks of all the museums is to preserve artworks - preserve them for eternity[1]. But considering the expansions of collections and more and more fragile and sensitive materials used in artworks, this task gets harder and harder to fulfil. The museums in general come from hierarchical tradition. This tradition in order to reproduce static relations of power was based on fixed positions. Fixed positions in terms when we think about knowledge and authority. Within contemporary, digital societies these absolute concepts whether of knowledge or authority seem obsolete, but the fact is that they are only less visible and more subtle.[2] The use of digital technology in the museum as a tool for digitalization and classification of artworks is not breaking with the hierarchical concepts of knowledge and the hegemonic perceptions of art history as they existed in the traditional museum, but are on contrary often confirming them[3]. In order to develop the potential of digital media in the context of museum one has to abandon the perception of digital media as a tool for digital reproduction of images or paradoxically even preservation of artworks, one has to step away from the object and focus on the context.

Many museums use digital media to reconstruct exhibitions in 3D, to digitally reproduce the visual appearance of the object, this usage is very closely linked with the logic of capitalism and entertainment society and focused only on surface, which is polished and sterile. Many cases from the past have shown that 3D reconstructions of museum exhibitions quickly lose their lure after the fascination with the image is gone. Reconstructions of

1 "Eternity is the ultimative dream of authority: perfect wholeness forever. The traditional museum relies on that dream or nightmare. The challenge, I think, is to conceive a museum that is structured on transience." (Carlos Basualdo in "Interaction - Artistic Practice in the Network", 2001: 74).

2 "the network logic neither abolishes control nor hierarchy; it only changes their configuration and temporal stability, rendering them elusive and adaptive" Bernhard Rieder. Processed Meanig 2004 Cyberart Conference in Bilbao.

3 "The first online collection projects, for example, saw traditional museum exhibition and documentation structures directly transported to the internet, representing little more than a basic conversion of existing data and methodologies into digital format/.../the authority of the museum as author remains intact through prescribed subjects, anonymous narratives and singular interpretations consistent with the empirical/ modernist paradigm of collection organisation and interpretation."
Fiona Cameron, Helena Robinson. Digital Knowledgescapes: Cultural, Theoretical, Practical, and Usage Issues Facing Museum Collection Databases in a Digital Epoch in Theorizing Digital Cultural Heritage (ed. F. Cameron, S: Kenderdine), MIT Press. 2007. Page: 173

reality within digital media are conceptually not interesting[4].

When we are dealing with the digitalisation of conceptual art archives, these issues become even more apparent. Firstly we are dealing with a fragile and incomplete structure of an archive, which is specifically structured. To translate the structure of the archive into digital media presents one of the greatest challenges. Another challenge is the ephemeral nature of the artworks. Digital images are visual representations of computer code and for that reason fully new entity. So we are not dealing anymore with the objects, but with information about the object, which is not given, but generated and processed. This way the focus from the digital appearance shifts to the contextual information - from the artwork to its position and connections within the structure of the archive. Since digital code is manifested through different surfaces - interfaces[5], it is important to be aware that interface embeds certain pre-existing and existing cultural forms and for that reason also manifests and mirrors certain power relations and cultural dominants. So the field of digital is not neutral, but it is politically, economically and culturally determined (examples: cultural dominance of English language, page ranking systems in browsers, hierarchical construction of a database...)[6].

The wish to preserve the artworks in digital media can be observed as a paradox within which the obsession with object and the absence of object meet. Here is where the logic of a museum - where time should stop and the logic of technology - through which the time is accelerated till it ceases to exist, collide. Certain standards and parameters for digitalization change constantly. As soon as some standards are adopted they are already old. But this conflicted situation can also be productive, because it constantly causes tensions and discrepancies and forces us to look for new possible solutions within the perspective of technology as well as also conceptually.

Keywords: *conceptual art, archives, digitisation of artworks, digitisation standards, exhibitions*

4 *The case of historical reconstruction is a different case, since the reconstruction often is based on a story and not reality.*

5 *"The interface shapes how the computer user concieves the computer itself. It also determines how users think of any media object accessed via computer.' Lev Manovich. The Language of New Media. MIT Press. 2001. Page: 64*

6 *Many museums use licensed software and even licensed programmes to manage their digital data. This fact causes the dependence of the museum on private companies concerning the development of the software to their needs. If the distribution, usage and development of software is limited by copyright and patents, what is actually happening, the specific knowledge, ways of looking upon data and working with it will become property.*

IDENTIFIERS FOR DIGITISED HERITAGE

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17th May 2012; Session 4

Abstract:

Digitisation of cultural and scientific heritage consists of a series of procedures that are used to protect originals, increase access and inform users. One of these procedures is the publication of digitised objects. Whether it is about books, magazines, articles, notes, posters, maps, postcards, photographs, films, 3D objects, whether they are published online, on CD-ROM or microfilm, the institution responsible for digitisation has the role of a publisher. In both real and virtual world identification of all published items is of utmost importance. Publishers use identifiers to facilitate the process of publishing and distribution of works.

In general, an identifier is a name that serves to identify either a unique object or a unique class of objects, where the "object" or class may be an idea, physical or virtual object or substance. An identifier may be a word, number, letter, symbol, or any combination of those. Identifiers have to be linked to metadata describing the identified object. Metadata and identifiers enable precise identification of digital objects, access to digital objects, transfer of metadata, distinguishing between same or similar objects and reliable retrieval, facilitate the transmission of data, citations, links to other systems, increase availability and awareness of object's existence, and thereby can be used to reduce duplication in digitisation procedures. The authors will give an overview of identifiers that are or can be used in publishing of the digitised heritage. The development, usage and benefits of the use of identification systems like ISBN (International Standard Book Number), ISSN (International Standard Serial Number), ISMN (International Standard Music Number), DOI (Digital Object Identifier), URN (Uniform Resource Number), ISTC (International Standard Text Code), SICI (Serial Item and Contribution Identifier), BICI (Book Item and Component Identifier) and so on, will be presented.

The authors will also discuss the issue of determining the publisher of digitised objects. The accent will be on traditional identifiers for books (ISBN) and serial publications (ISSN); as well as current developments, news, decisions and rules in these identification systems regarding digitised publications. The answers will be provided on the following issues: which identifier one needs for digitised books and journals, who is responsible for identification of those publications, which data elements are mandatory for imprint, what is the relationship between digital reproductions and their print and online versions or digitised publications on mobile devices. Should a digitised version use the same or a different identifier from the print or online version of the same title, how can all the different versions of the same publication be linked together, how to identify individual chapters that are available separately, how many identifiers does one need if more than one institution digitises and publishes the same publication. The increasing number of digitised publications that have been published in the last few years

by national libraries and different institutions have initiated those and numerous other questions and have moved the development of traditional identification systems to the next level. Identifiers once again help in the recognition of objects and their duplicates, facilitate transfer of metadata and links to other systems. Today, when many heritage institutions are involved in digitisation and a number of aggregators are collecting great number of digitised resources from various sources and different parts of the world, the identification of these resources is more important than ever.

Keywords: *metadata, digital identifiers, identification systems, publishing, digitised heritage*

OCR RATE COMPUTATION IN MASS DIGITISATION PROGRAMS

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Abstract:

When digitisation for libraries began about 20 years ago, the main issue was the quality of the scanning to obtain the best images. Since 2005, the French National Library launches tenders including a conversion from image to text. This conversion can be done using either a software (Optical Character Recognition, OCR), or manually, mostly with double keyboarding to minimize typing errors. Some texts are also produced using both OCR and manual correction on words that the OCR cannot decide. Whatever the production workflow, the library wants to know the quality of the produced text. This quality can be estimated at word or at character level. Which one is the most suitable? It depends mainly on the interpretation of the quality, i.e., word would be more suited to the quality of indexation, which is done on word level; and character is more useful from a scientific or statistical point of view.

Take for instance the conversion quality at word level. Theoretically, this is easy to compute. One counts the total amount of words to be recognized (N), the total amount of words which are well recognized (R) and the ratio R/N is the recognition rate. But one has to face a major issue: none of these amounts are available. To know the real value of both R and N, one should have the ground truth (GT), i.e. the perfect text (all the words, and all the words correct). The converted text would be compared to the perfect text. But were the GT available, one would not have to use the non-perfect converted text. Suppose then the GT is not available.

Speaking of N: this amount is known when the segmentation at all levels (block, line, word, character) is correct, which can never be assured. This number is usually estimated by the software itself, which supposes the amount of found words IS the amount of real words. Speaking of R: how to estimate if a word is correct or not? A clue could be to use its presence / absence in the dictionary. This supposes then that all the words in the book are in the dictionary, which is quite unlikely (names, places for example). Moreover, some very close words (e.g. "word" / "world") can

be confused. This type of error would not be counted. If the transcription was made automatically, some "word confidence" can be produced by the system. This value is not easy to understand because it's an internal value that is a combination of segmentation quality, character recognition quality and word decision quality, at least. This value can be averaged to produce a page level OCR rate. Alternately, one can fix or compute a threshold and R would then be the amount of words that have a confidence level higher than this threshold.

Besides, not all the words and/or zones in the page have the same importance. Take for instance "empty words", which are words that are very frequent and can be considered as not important in the indexation issues. Or numbers: should they be counted? In French, there are diacritics in about 20% of words. Diacritics errors are very frequent because they are very small components that can disappear in the binarisation or segmentation process. Two words can have exactly the same spelling but for the diacritics: "tache" and "tâche", "jeune" and "jeûne". Not only words but also blocks can be left out of the count. For example, should one give the same importance to main articles, titles, running titles, footnotes, advertisements or tables (with numbers)?

And what if a block, a word, a line or a character is illegible? Illegibility should then be defined but according to what? Software? An operator fluent or not in the written language? To conclude, it appears that the computation of a OCR rate on page level is highly dependent on the use and the terms of the conversion operations. If the aim is to index the document, one may not take into account the empty words and punctuation. If the indexation is done without diacritics, they do not have to be taken into account in the error rate. Conversely, if the aim is to produce plain text for quotation or e-book creation, all these errors should be counted. Anyway, the rate would be a poor estimation since both the amount of words and the amount of correct words are estimated by the system producing the output. It is important to retain as much information as possible from the production process to be able to re-compute the estimated OCR rate in case of a reorientation of the use of the text.

Keywords: *Optical Character Recognition (OCR), ground truth, segmentation of text*

TOOLS FOR MASS DIGITIZATION AND LONG-TERM PRESERVATION IN CULTURAL HERITAGE INSTITUTIONS

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Abstract:

Digitization activities, including mass digitization, text recognition and long-term preservation play very significant role in the cultural heritage domain [1]. Digital assets representing cultural heritage are

important as they allow protection of the original objects and at the same time give easy access for reuse in education, research and commerce. Successful projects related to digitized historical content like Europeana, American Memory, Trove and SCAPE prove this importance.

In Poland hundreds of cultural heritage institutions are involved in digitization activities, building together a network of over 80 Polish digital libraries, and making over 1 000 000 digital objects accessible via the web browser [2]. Majority of them uses for this purpose dLibra Digital Library Framework (http://dlibra.psnc.pl/) which is focused on management and on-line presentation of large number of objects and has been developed since 1999 by Poznan Supercomputing and Networking Center (PSNC). Although multiple digital libraries are already available, there are still barriers related to complex coordination of resources, tools, digitization and online accessibility. Recent PSNC works in the digital libraries domain were focused on above issues. As a result PSNC provided a software infrastructure for cultural heritage institutions. Text recognition (OCR), cooperation with external digitization centres, automated conversion of the source data, long-term preservation and on-line access are all covered by the infrastructure, which is composed of dLibra, dMuseion, dLab and dArceo tools. This infrastructure opens a new perspective for the Polish cultural heritage institutions in terms of mass digitization.

dLibra and dMuseion are both dedicated to online presentation of digital assets [3][4]. While dLibra is focused on library documents with strong support for text indexing, periodicals and self-archiving, dMuseion is related to museum objects with focus on themed collections and visual presentation aspects. dLibra and dMuseion are capable to import metadata from bibliographic records or inventory system records, making communication with external systems easier and faster and allowing to reuse data. Moreover, both are able to provide metadata to external systems via the OAI-PMH and OAI-ORE protocols.

dArceo is composed of multiple services responsible for realization of the long-term preservation idea, primarily for the textual, graphical and audio-visual content. The basic idea is an OAIS transformation approach to migration with support for conversion and advanced delivery services. Additionally all the data manipulation services can be shared, so that various institutions can benefit from already available migrations, conversions or advanced delivery techniques. dArceo has been developed in frame of the SYNAT project, financed by the Polish National Centre for Research and Development.

Finally dLab is a digitization workflow management tool, which is responsible for integration of the other tools and assistance in the digitization activities. The idea of dLab is that user creates a digitization task which is composed of activities. For example, a very simple list of activities for a digitization task could include: prepare metadata, digitize document, optimize master files, convert master files to a presentation version, submit presentation version to a digital library, archive master files in the long-term preservation system. Additionally, each activity can be performed by a user (human) or by a machine (automated tool). In the default configuration dLab uses OCR engine to perform text recognition, Document Express or FineReader to create presentation version in DjVu or PDF format, dLibra or dMuseion to make the presentation version available online and dArceo services to preserve master files. Moreover, dLab is also fully configurable in terms of the activities to be performed in the scope of a digitization task; it can be extended

by plugins therefore integrated with multiple tools, e.g. ImageMagick, PDFBox or Tesseract.

Currently dLab and dArceo are used by the Digital Repository of Scientific Institutes - consortium of 16 institutes of the Polish Academy of Sciences (http://rcin.org.pl/). dLibra is a well-known digital library software, used by over 80 digital libraries in Poland, with several deployments abroad. dMuseion is successfully used by the Digitial National Museum in Warsaw (http://cyfrowe.mnw.art.pl/). The content of this paper is to describe the present state of digital libraries infrastructure in Poland, with focus on the tools mentioned above, crucial for daily digital libraries activities.

Keywords: *mass digitization, text recognition, long-term preservation, Poland, dLibra, dMuseion*

ARCHIVES ON THE WEB AND USERS EXPECTATIONS: TOWARDS A CONVERGENCE WITH DIGITAL LIBRARIES

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Abstract:

The activity of building digital environments aimed at offering services and information around archives (finding aids for paper and multimedia archives, digital reproductions, digital-born documents, tools of interaction) should reach the goal of putting together archival standards and schemes with the typical features of digital libraries. The current tendency has been often to adopt two different and separated methodological approaches: on one hand well-formed and standards-compliant archival descriptions (multi-level, providing access just by provenance, material-centric, focused on related descriptions, careless of facilitating general search engines indexing), on the other hand the arrangement of a digital *techa* (horizontal, focused on item-level descriptions based on Dublin Core-like profiles including administrative metadata, providing access by subject and sensitive to the "aboutness", basically user-centric). Today the increasing landing of archives on the Web is forcing a comparison with the model of digital library, highlighting some issues: how could a web archival environment may face users expectations, what content (and how) may be offered to aggregators (portals and web agents), how may we ensure its quality?

Archives on the Web are also stressed on another front: some international studies - mostly in North America - put in evidence that archivists have not yet fully digested that the Web displaying of archival descriptions has an heavily different nature from the traditional presentation (i.e. the paper inventories). This weak awareness brings on that archival information on the Web is characterized on average by a low level of usability and accessibility from the users' point of view. Few scientific studies on digital archives users are currently available, but they document systematically the attitude of users against online finding aids, highlighting some areas

of difficulty: archival terminology, hierarchic structure for descriptions, efficiency of search features, contents visualization. The main issue is that traditional archival finding aids rely heavily on the mediation that archivists play in reference rooms between finding aids and users. The Web undermines this role of mediation forcing the archival information to bear by itself the weight of its being fully comprehensible to any user. Archival descriptions are usable by web users only if compliant with international archival standards, but this is not a sufficient condition: the output is not the input. The application of standards ensures highly encoded archival information (input phase), then it is appropriate its decoding for users (output phase). For an efficient decoding the North American archivists propose an inductive method: building good archival displays - based on the contributions of web design, human-computer interaction studies and cognitive psychology - and checking them through user studies. Thus, programming user study activities inside archival portals' projects looks to be more and more a necessity in order to guarantee that return on investment whose first profit should be users satisfaction.

The paper deals with all these issues, based on the authors experiences and mostly on the recent user study testing activities launched for the prototype of *Una Città per gli Archivi*, a portal disseminating the results of a several years project of research and valorization of documentary funds of the city of Bologna (Italy), including photographic and graphic materials, sound and audiovisual recordings, in addition to paper archives. These user studies provide for a mix of methods of investigation (expert consulting and five focus groups including students, internal archival and ICT staff and generic users) and the interpretation of different types of data, qualitative and quantitative.

Keywords: *archives on the Web, digital library, user studies, standards application, Web quality*

APPROACHING DIGITISATION THROUGH A DIGITAL PRESERVATION PERSPECTIVE

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18th May 2012; Session 5

Abstract:

Purpose: In this paper we consider digitisation of old library holdings not merely as their digital reproduction but as a huge investment aimed to provide wider access to their contents. The role of the digital objects produced is to avoid further manipulation damages of the original valuable items and for that reason they should be preserved on a longer term. This purpose will be achieved if some methods or procedures specific to digital preservation processes are applied during digitisation project planning and workflow.

Background: The European Commission has supported the digitisation of cultural heritage specially the last few years. It resulted into Europeana, the joint portal of European libraries, which collections have recently overpassed 20

million of digital objects. Many funds have been invested in different national and international digitisation projects, which main concern was to provide public access to different types of content. In most European libraries digitisation has been oriented towards providing access to the content of library materials. The produced digital copies were not materials to be preserved but to ensure the necessary quality that is required for different types of user access. One of the reasons for this is that there is always a possibility to repeat the digital reproduction. However, different cost evaluations[1] show that digitisation, especially of old library materials, is a very costly task. In addition, a survey undertaken under the European Commission project NUMERIC reveals that European libraries fund digitisation programs mostly with their own financial resources and undertake it using in-house staff and equipment.[2]

Digitisation requires proper scanning equipment and technology which do not damage library materials and produce high quality copies. Such scanners are usually very expensive. Furthermore, licences are needed for scanning software and scan processing tools, which help us to achieve the characteristics and truthfulness of the originals. In addition, we need trained personnel to implement the task. Even if the digitisation is outsourced, considerable funds are needed for covering the service expenses as well as trained staff is indispensable to do the quality control of the scanned materials. Special case results if we have to deal with fragile and valuable materials. It is very probably that we will not be able to repeat the scanning for some time, so the produced digital copies will be very important for accessing the content of the original library materials in the future.

1 There are several surveys on the cost of digitisation. A recent one has been prepared by Nick Poole, the Collection Trust, in November 2010: The cost of digitising Europe's cultural heritage.

2 Poll, Roswitha: Digitisation in European Libraries : Results of the NUMERIC Project. In: Liber Quarterly, 19(3/4), 2010.

In both cases, when speaking about solely digital reproduction or providing access to protected originals, we need to achieve the best digitisation quality that will last for many years and apply adequate processes in order to achieve as much as possible longer preservation of the digital copies produced.

Methodology /approach: Digital preservation methods and practice are usually implemented to digitally born materials and from the moment when they are produced. These methods are applied during all the phases of the digitisation project, from the materials selection and acquisition, metadata definition, image capturing and processing to the quality evaluation and digital collection management. The aim of these methods is to achieve the best quality of the digital content and to keep it accompanied by the necessary metadata that will help to access to its content in the future. In this paper we discuss the necessity not to produce digital copies of high quality only, but to assure long-term access to the digitisation results. We base our views on the digitisation experiences of the National and University Library of Slovenia developed in the European projects EOD (EC program Culture) and IMPACT (7th Framework Program). A special attention is paid to the image capture and the decisive elements that influence its quality as well as to the optical character recognition (OCR) which provides full-text search functionalities. Digitising texts on old damaged paper or massive quantities of pages can produce many errors and bad quality images that influence on the OCR results.

The implementation of digital preservation approaches to digitisation can improve the quality of the digitisation results and provide their better reuse and, as consequence, higher returns on digitisation investments.

Keywords: digitisation, digital preservation, digitisation planning, digitisation projects

IT'S TIME FOR EMBARKING: EMBARK PROJECT

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18th May 2012; Session 6

Abstract:

EMBARK (Enhance Manuscriptorium through Balkan Recovered Knowledge) is an EU project in the framework of the *Culture 2007-2013* programme, approved in the frame of the part *Support for cultural actions*, section *Cooperation Measures* (projects lasting over a maximum period of two years). The acronym meaning of the name of the EMBARK project is associating on the main project goal, which is "embarking" or including a number of Cyrillic manuscript books into Manuscriptorium, a digital library which is the virtual environment for written historical resources, founded by Czech national library. EMBARK project is responding to the following objectives of the Culture 2007-2013 programme: encouraging of the emergence of European citizenship, promotion of the trans-national mobility of people working in the cultural sector, as well as to the strategic objective of the Programme, to generate results that can be a solid foundation for cooperation in the long run and encourage future initiatives of cultural cooperation at European level.

The coordinator of the EMBARK project is the Czech National library, Prague, the institution with a huge experience in the European projects. The partners in the project are Institute for Bulgarian language, Sofia and National library of Serbia, Belgrade. The third partner, Public library in Veria, Greece, has withdrawn the project at the end of 2010, so the work has been continued with three institutions.

In 20 project months, from September 2010 to April 2012, a lot of research on Balkan-Slavic and Central-European written heritage has been launched. Also, the main issues regarding electronic publishing of Cyrillic and Latin manuscripts have been pointed out through three thematic workshops organised in three partner countries. The first one had the computational linguistics topic, touching the annotating and lemmatisation of the old texts by the software tool *TreeTagger*. The second one was about making the TEI XML electronic versions of manuscripts because one of the tasks for all partners was to provide at least one manuscript in this format. The third workshop was dealing with the characters encoding. There are still some Old Church Slavonic characters not defined by Unicode, that's the reason why Gaiji Bank, a tool for encoding non-Unicode characters has been studied.

The fourth workshop approached the Manuscriptorium tools to the partners and the broader circle of potential partners in Bulgaria and Serbia. It was the practical work with "alive" digital documents and real metadata. The projects were an opportunity for mobility of professionals but through learning and sharing the valuable experiences not only in

the field of manuscripts, but also in the project management, like financing or evaluating in European projects.

In the last project month, April 2012, the final project conference will be organised in Plovdiv, Bulgaria, where the professionals from all three partner countries will present papers resulting from research of Cyrillic and Latin manuscripts and attempting to make a comparison between the two. The final conference will be the part of the broader conference *Europeana and Bulgarian institutions*, which will be the nice opportunity to discuss also about EBMARK in scope of Europeana because Manuscriptorium is the aggregator of historical resources for Europeana. The great finale of the project will be a simultaneous exhibition of prints of the most beautiful parts of the manuscripts from all three partner countries, under the common name: *Ours or alien: written culture in the Balkans and Central Europe in the middle ages*. Public library "Ivan Vazov" in Plovdiv, National library of the Czech Republic in Prague and National Library of Serbia will host this exhibition.

The web site of the project, http://embark.manuscriptorium.com/, contains more information about project activities and outputs. The cooperation of National Library of the Czech Republic, Prague, Institute for Bulgarian language, Sofia and National Library of Serbia, Belgrade has been a direct result of SEEDI network communications. That's how the future of the SEEDI network could look like. Think about it.

Keywords: *EMBARK project, Manuscriptorium, Cyrillic manuscripts, Latin manuscripts, electronic publishing*

CROATIAN DIGITAL LIBRARY INITIATIVES

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18th May 2012; Session 6

Abstract:

In response to the needs of the users in the digital age the National and University Library in Zagreb has been developing projects and services for the foundation of the Croatian digital library. The basic Library's roles to identify, acquire, collect, store, organise and provide long-term access to the national heritage are adapted to suit the rapidly developing networked environment. The Library's digital collections include born digital resources - web publications and digital masters, as well digital reproductions of different library materials. The presentation provides an overview of some current projects and activities:

Digitised Heritage is a web site presenting a selection of digitised rare and unique works from Library's special collections. The most valuable works of the Croatian written heritage have been digitised, such as the first Croatian printed book from 1483, the works of old masters and contemporary artists, along with maps, music prints, posters and photographs.

DAR - *Digital academic repository* is a portal for search and retrieval of electronic theses and dissertations of the University of Zagreb. The system serves as an OAI-PMH compatible

repository for digitised research theses (1880-1952) and digital born theses (from 1986 on). The portal provides a bio-bibliographic reference data base on more than 800 authors created in cooperation with the Miroslav Krleža Institute of Lexicography.

DNC - *Digitised newspapers and journals* is a cooperative portal of the National and University Library in Zagreb and other heritage institutions that provides access to digitised Croatian historical newspapers and journals. DNC is the central point for search and access to digitised serials that aims at improving preservation of unique and rare originals, enhancing development of standardised procedures for digitisation, and enabling coordination and rationalisation of digitisation efforts.

HAW - *Croatian Web Archive* is a system for gathering and storage of the legal deposit copies of Croatian web resources with scientifically or culturally relevant content. The archived content represents part of the Croatian national heritage, and supplements the national collection. The focus is on the born digital content existing on the web only, which documents the stuff of everyday life, social trends, popular events, important sport, political, cultural, or other types of events.

Adrianskoga mora sirena and *Incunabula Croatica* are the most recent digitisation projects aimed to support the establishment of a digital library system for books. Digitised were 150 books on different topics pertaining to the Adriatic coast and islands, as well as 20 Croatian incunabula - the basis for the creation of a greater collection of incunabula kept in Croatian heritage institutions.

The implementation of the *National metadata aggregator* for digital resources enabled the launch of systematic delivery of metadata to Europeana and thus contributed to integrated presentation of the digitisation results in Croatian heritage institutions as well as to the foundation of Croatian digital library. In addition to numerous advantages of digital library services including easier and faster access to books, periodicals, maps and other library materials of interest to scientists, professionals, students and general public, the realisation of these projects provides the basis for the implementation of best practices in digitisation, application of international standards and creation of the national policy for the collection, storage and access to digital materials.

Keywords: *digitisation, projects, Croatia, digitised heritage, digital academic repository, web archive*

A GATEWAY TO EUROPEAN NEWSPAPERS ONLINE: INCREASING AWARENESS OF SHARED EUROPEAN HISTORY AND CULTURE

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18th May 2012; Session 6

Abstract:

Paper presents details of the project "A Gateway to European Newspapers Online" with special focus on participation of University library "Svetozar Markovic" and National Library of Turkey in it. European Newspaper project is a CIP ICT-PSP Best Practice Network project aiming at aggregating metadata on digitized newspaper content for Europeana and grounding basis for more efficient execution of newspaper digitization projects in the future. Three year project worth just over 4 million euros started on February 1st 2012. Project's kick off meeting hosted by the project coordinator Staatsbibliothek zu Berlin gathered representatives from 17 institutions partnering in the project including some of the Europe's leading libraries from 12 countries. By providing a rich diversity of newspaper materials in different languages and alphabets project aims at grounding basis for a more comprehensive outlook at European shared history and culture. By making available newspapers from various European countries accessible through the unique Europeana portal the projects enables users to compare historic perceptions at different countries on the news and articles about exciting events and cultural turning points.

The project main goal is to survey existing collections of digitized newspaper materials and to aggregate metadata on them making Europeana one of the greatest portals for accessing historic newspapers. Besides this project aims at refinement of existing collections of digitized newspaper materials by translating image materials into full text ones by means of OCR (Optical Character Recognition) and OLR (Optical Layout Recognition) for article recognition. Metadata standardization is high on the list of project goals since variety of metadata formats are currently in use describing digitized newspaper materials and in order to improve access to such content, common standards need to be adopted. Project also aims at providing better displaying capabilities and more clear access conditions to digitized newspaper materials. Multilingual and multicultural nature of Europe creates challenges if one is to provide users with easy and seamless browsing experience when exploring collective European historic newspaper pages collection. To overcome this challenge is to translate newspaper pages into living, vivid experience of multilingual and multicultural continent with fragile but rewarding collective history and culture. In this challenge lays the importance of the project "A Gateway to European Newspapers Online" and hope that by 2015 a more rich perspective on historic events may be gained by easily accessible newspaper collections from all over Europe.

Keywords: *"A Gateway to European Newspapers Online", metadata, aggregation*

"BALKAN ROUTES" PROJECT: A NEW PERSPECTIVE ON THE BALKAN PENINSULA FROM THE 16TH TO 19TH CENTURY

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Abstract:

Paper presents details of the project "Balkan routes". The project is a collective effort of three major libraries from the region of South Eastern Europe to digitize and put online on dedicated portal rare books containing accounts of French travelers in the Balkans from 16th to 19th century. The University Library "Svetozar Markovic" in Belgrade, the National Library of Romania and the University Library "St. Kliment Ohridski" in Sofia joined forces in order to digitize 10.000 pages, provide full text access to third of this content and create a dedicated portal for accessing digitized materials. The portal is envisioned as multilingual, providing texts in French, Serbian, Romanian and Bulgarian. Digital materials produced in the course of the project will be searchable and accessible via Europeana. The project worth 100.000 euros is funded by the Francophone Information Highway Fund under the 19th call for projects. The project started on October 1st 2011 and will last for 18 months.

The aim of the project is to present a new perspective of the Balkan Peninsula region from the viewpoint of travelers from a Western European country during the time period in which this region experienced some of the most profound changes in its history. Paper presents in some detail the rationale of the project with strong emphasis on user centric perspective that a contemporary digitization project has to present. The importance of Europeana digital portal is illustrated by the strategy towards dissemination of digital materials in the "Balkan routes" project. Besides presenting digital materials via the dedicated portal the project aims at creation of metadata that will allow Europeana users to browse digital materials created in the course of this project. By expanding the potential user base project aims at projecting a new perspective on the Balkan Peninsula from the 16th to 19th century for the wider European audience.

University Library "Svetozar Markovic" participates in the project as a content provider and a partner that participates in developing online portal. Some of the challenges that appeared in the project so far are presented along with solutions implemented at University Library "Svetozar Markovic". The process of production of full text from scanned images by using OCR (Optical Character Recognition) technology of the French texts from historic printed books is presented. Also some practical points on multilingual portal design are presented. Overall experience of participating in a comparatively smaller, regional digitization project is presented along with analysis of benefits and downsides of such projects.

Keywords: *"Balkan routes", rare books, digitisation, dissemination, multilingual portal*

THE EZISS DIGITAL LIBRARY OF SCHOLARLY DIGITAL EDITIONS OF SLOVENIAN LITERATURE

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18th May 2012; Session 7

Abstract:

The paper presents the eZISS digital library (http://nl.ijs.si/e-zrc/), an on-going effort, which currently contains eight text-critical editions, some representing the most important milestones in the history of the Slovenian language, such as the Freising Manuscripts (FM), the earliest preserved writings in Slovenian as well as the earliest Slavic texts, written in the Latin alphabet, and the Škofja Loka Passion Play (PP), the oldest play written in Slovenian. The other works span from a collection of pre-19th century swearing-in texts, to the collected poems of Anton Podbevšek, a central figure of the Slovenian literary avant-garde and originator of visual poetry. It should be noted, however, that far from being simply digitised books, all the eZISS editions are original works in scholarly editing, authored and digitally published for the first time.

While the library editions are quite varied in terms of the time when the texts were written, genre, and the text-critical apparatus they use, they all share some common characteristics:

- they are encoded according to the Text Encoding Initiative Guidelines, an XML based set of recommendations which is used for many complex digital editions - the complex encodings are therefore well documented and interchangeable between platforms and applications;
- for library display they are converted from the canonical TEI into static HTML using a set of XSLT stylesheets - this enables fixed addresses to (parts of the) texts and allows for a simple server set-up;
- the complete editions (TEI, HTML, XSLT) are all available under one of the Creative Commons - Attribution licences - this enables copying, processing and further distribution of the library, in most cases with the possibility of derived works and commercial use, as long as the authorship of the edition is acknowledged.

The editions typically have a rather complex structure, which spans a wide variety of text types and encoding approaches. Below we list some of the more distinguishing characteristics, which will be elaborated on in the full paper:

- Use on non-standard characters, as evidenced in FM, which contains e.g. phonetic transcriptions and a glossary giving Old church Slavonic translations of the word - such characters are difficult to display, and the editions uses the TEI gaiji module to enable either the use of standard Unicode, or a specialised font using the Unicode Private Use Area.
- Use of multimedia, where the FM contains also a spoken reconstruction or the text, per-sentence aligned with the transcriptions, and PP which links the text

with the video of the performance using SMIL.

- Use of different varieties of linking and segmentation, e.g. double-point attachment of the transcription with its translation, use of link groups to join several transcriptions at different granularities of structure or the use of apparatus to pin-point the differences between two editions of a novel.

The portal also gives access to a dedicated service, which enables the conversion of documents written in Word into TEI documents. The service is meant for users that would like to produce interchangeable TEI documents but are not familiar with XML and TEI. It is also useful as a first step to producing a complex TEI edition, as editing in Word is often easier than in an XML editor. So far it has been used mostly by the collaborators in the project producing the eZISS library. As Word is much less constrained than is TEI, as well as being more visually oriented than TEI, the input documents must necessarily be strictly formatted. The Web page of the conversion service gives a .dot file that defines special styles that should be used in the document, and instruction how to format the file. Furthermore, the service enables validation of the resulting TEI, either formal XML validation, or visual, by converting the TEI document into HTML.

The works for eZISS are well-indexed by Google, in part probably due to the fact that they are linked to from their corresponding articles in Wikipedia. For tracking its use we employ Google Analytics, which reports that about 1,000 people visit the library monthly, with about half from Slovenia.

Keywords: *eZISS, text-critical editions, Text Encoding Initiative (TEI), static HTML, Creative Commons licence*

DIGITAL COLLECTION OF RUĐER BOŠKOVIĆ: THE IMPORTANCE OF CONSERVATION-RESTORATION WORKS IN THE DIGITALIZATION PROCESS

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18th May 2012; Session 7

Abstract:

Within the general fund of the National and University Library in Zagreb, in the collection of manuscripts and old books are kept 170 works of the most comprehensive Croatian scientist Ruđer Bošković. Particularly important materials are the manuscripts, the original correspondence and publications. To protect the works and make them available to Croatian scientists, researchers and the general public, the National and University Library in Zagreb on the occasion of 300th anniversary of his birth has started to run restoration projects and digitizing the works of Ruđer Bošković in order to establish the Digital Collection of Ruđer Bošković.

The research is showing the method and preparation of material for digitization of collection of Ruđer Bošković. The implementation process of digitization of

old material requires the participation of conservation and restoration activities, checking the condition of the materials, documents, the minimum required conservation-restoration interventions to secure and protect the original material from possible damages during the digitizing process.

Prior to conservation and restoration procedures it is described in detail and photo-documented the present situation of collection which includes the degree of damage, structure, types of damages (mechanical, physicochemical, biological), appearance (paper and binding) of the original, and the work execution plan is written. Then sheets of paper are according to the need disinfected, mechanically cleaned, neutralized and strengthened. Depending on the type of paper, type and degree of the damages - appropriate method of restoration is selected (handmade restoration, editing of paper pulp). All processes must be reversible and methods should be nondestructive for the structure and composition of the original. The purpose and goal of conservation and restoration works is to stabilize the materials, to prevent the effects of harmful factors, long-term protection, to extend the durability of library materials which are of national importance. After conservation-restoration works, prepared materials can be send to the next phase of the process of digitization, and in exceptional cases, the scanning is done under the supervision of conservator-restorer. Establishment of Digital collections of Ruđer Bošković covers all aspects of the library profession and is joint work of several NUL departments.

Keywords: *"Ruđer Bošković", manuscripts, conservation-restoration, digitalization, damage*

WORKS OF RUĐER BOŠKOVIĆ IN VIRTUAL LIBRARY OF FACULTY OF MATHEMATICS IN BELGRADE

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18th May 2012; Session 7

Abstract:

The overall objective of the Virtual Library of Mathematics, (http://elibrary.matf.bg.ac.rs),

University of Belgrade, is to implement an as much as possible complete collection of retro-digitized books and other digital documents from the past. The main part of this project relates to an electronic archive which contains first of all old manuscripts transformed into electronic form and their presentation to the general public. The project was initially inclined towards mathematics, but since 2009 the books from other areas are also deposited in the Library. The preference is given to the Serbian authors and works that are related to the scientific and cultural region of Southeast Europe.

Some of the books in the Library are rare and it is known that only a few copies of them are left in the printed form. We felt it was important to preserve their existence in some way. Not

only as a cultural and scientific heritage important for Serbia, but also as part of the World Heritage. We decided to contribute to the preservation of these books and present them to the general public in electronic, digitized form. The project began in 2007 several volunteers. Now, the Library has strong support from the Faculty of Mathematics, University of Belgrade, Mathematical Institute of Serbian Academy of Sciences and Arts (SASA), the National Center for Digitization and the Ministry of Science of Serbia.

Here we present a collection of books written by Ruđer Bošković (1711-1787) that are digitized and deposited in the Virtual Library. These books are the first scientific works written by a scientist of the Serbian origin. This collection includes the following books: *Elementorum Universale Matheseos, A dissertation on the law of continuity and its consequences pertaining to the first elements of matter and of its powers, A Theory of Natural Philosophy,* and *Diary of the journey from Constantinople to Poland.*

Keywords: *"Ruđer Bošković", virtual Library, history of science*

DIGITISATION OF THE AUDIO RECORDINGS OF THE ARCHIVE OF THE INSTITUTE OF ETHNOLOGY AND FOLKLORE RESEARCH AND ITS AVAILABILITY TO THE PUBLIC

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18th May 2012; Session 7

Abstract:

Records of the diverse intangible cultural heritage of the Republic of Croatia are kept in numerous archives and collections. The largest and the most systematic archive of this heritage is situated within the Institute of Ethnology and Folklore Research (IEF) in Zagreb, which has been, since its founding in 1948, steadily increasing its collections of manuscripts and photo, video and audio recordings of the traditional culture of Croats at home, other peoples living in Croatia and of Croats abroad. In keeping with the contemporary trend of opening archives to the public and facilitating access to its archived materials, the IEF is preparing and adapting its archive of intangible cultural heritage for publishing on the Internet. The Institute is working on two large projects in parallel to achieve this goal - the project of digitisation of its archived material and the project of creating a digital repository. Planning and implementing of the repository is conducted within the Institute's project *Croatian Intangible Cultural Heritage, Social Identities and Values*, financed by the Croatian Science Foundation (2012 - 2014).

In presenting the Audio Library of the Special Collection of Ethnographic Material, several key points of the process of digitisation itself and the process of publishing of the material will be addressed, with emphasis on the problems we are encountering. The audio recordings constitute a unique fund of folkloristic and ethnographic documents from oral literature, folklore music and dance, narrations on

customs, architecture, home design and other material about contemporary everyday life, of refugee, migrant and feminist narratives and of recordings of various events and scholarly conferences. Sound is recorded on diverse media, which cannot be easily reproduced due to the lack of technical equipment and the accelerated decay of original recordings. Digitisation is therefore necessary, in the first place to protect the heritage, but also to make it widely available.

Because the Institute is not able to digitise the recordings on its own and it also ought to create an efficient and reliable digital repository which would satisfy the Institute's many needs and specific circumstances, it is necessary to look for experts outside of the Institute as well as to look for the financial support which is indispensable for such projects. During planning and implementation of these demanding projects, different approaches in solving the issues of digitisation, storing and availability have collided, making these issues the key part of our presentation. One example of such a collision is that involving the professional standpoint of our sound specialist on the techniques of digitisation versus the directives of the archival profession and the demands of the ethnologist for authenticity. To depict this in a more vivid way we will present some audio samples, i.e. compare the original recordings with their digital, cleaned and restored versions. We will also present the process of digitisation, processing and storing of digital media, and at the end, the question of fragility and insufficient reliability of the media used to store digital copies, i.e. the need to create multiple copies to secure the recordings. Saving digitised material in a repository is of extraordinary significance, particularly because it enables easier, faster and more precise processing and classification of the material and simplifies its retrieval and manipulation. However, the repository and opening of the archive to the public via the Internet open numerous new questions, from the requirements of researchers and other users of the material to the issue of authorship rights.

Being aware of our responsibility for the consequences which our agreements and decisions will have in the future, the process of digitisation is prioritised in the Developmental Strategy of the IEF and its Referral Centre for Intangible Cultural Heritage (currently being established). Increased availability of the material, technological solutions to link data from different databases and media, a database of the conveyors of the intangible cultural heritage and linking with the affiliate institutions of culture in the country and abroad, implemented as a part of the digital repository which is compatible with *Europeanna* are all prerequisites for better connections with related institutions and for participation in projects financed out of EU funds. It is precisely culture that the EU considers to be essential in improving international cooperation.

Keywords: *audio library, audio recordings, folklore, ethnographic documents, digitisation*

THE CYRILLIC MANUSCRIPT *CODEX SUPRASLIENSIS:* A FULL TEXT ELECTRONIC CORPUS

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18th May 2012; Session 8

Abstract:

Codex Suprasliensis (or the *Retkov Miscellany*) is a Cyrillic MS of the late 10th or the early 11th century. It is the largest extant Old Church Slavonic MS from the Preslav literary school of the First Bulgarian Kingdom and one of the earliest testimonials to the reception of Orthodox Christianity among the Slavs. The MS is skillfully written on parchment and contains 24 saints' vitae for March and 23 homilies for the triodion cycle of the church calendar.

The *Codex Suprasliensis* was discovered in 1823 at the Monastery of Suprasl (then in Lithuania, presently in the Podlaskie Voivodeship, Poland). Thanks to the great scholarly interest the MS was divided, for the sake of studying, into three parts which are now kept in the National and University Library in Ljubljana (118 ff.), the Russian National Library in St. Petersburg (16 ff.), and the National Library in Warsaw (151 ff). In 2007, the *Codex Suprasliensis* was listed in UNESCO's Memory of the World Register.

The idea of the *Codex Suprasliensis'* virtual reunion was put forward by the *Repertorium Initiative* working group, lead by Prof. A. Miltenova and based at the Institute of Literature, Bulgarian Academy of Sciences. A project entitled *The Tenth-Century Cyrillic Manuscript Codex Suprasliensis: the creation of an electronic corpus, exploratory workshop, and exhibition* (2010-2012) was initiated by the group and financed by UNESCO. The main goal of the project was a high quality scanning of the three MS parts and an on-line presentation of the united book. In addition, the initiative aimed at developing a concept of an electronic version of the *Codex Suprasliensis'* contents, including the Old Church Slavonic text with critical apparatus, parallel Greek text, English translation, vocabulary, grammatical analysis, and searching tools. The goals required a close cooperation with various institutions, scholars and research initiatives in choosing the most advanced and the most appropriate approaches and tools for their accomplishment. Yet another challenge was the necessity to reconsider the scholarly tradition concerning the *Codex Suprasliensis*, which is the most edited and the most studied witness of the Old Church Slavonic canon. In this respect, the easiest task was the digitization of the MS and making it available on-line for further research and for promoting it among a wider audience. *The Codex Suprasliensis* website accommodates the digital images, both as "page by page" jpeg files, suitable for download, and in an easy to browse "turning pages" form; along with a detailed archeographic, philological, historical and bibliographic overview on the MS, an analytic description of its contents, as well as an exhaustive bibliography (see http://csup.ilit.

bas.bg/). In addition, a *Codex Suprasliensis Thesaurus of Saints and Feasts* was compiled.

A step forward in the study of the MS was the International Conference *Rediscovery: The Tenth-Century Cyrillic Codex Suprasliensis* (Sofia, 19-20 August 2011), organized within the frames of the project. It contributed both to the philological research on the MS and to the development of its comprehensive electronic edition. The latter is now under construction and is supposed to combine the digital images with the electronic text and language corpora, the main principles being a reuse and a revision of the extant authoritative printed and electronic editions, complemented with further comments and linguistic annotations.

The pilot stage of the e-edition included:

- Conversion of the 7-bit ASCII Helsinki transcription (see Corpus *Cyrillo-Methodianum Helsingiense: An Electronic Corpus of Old Church Slavonic Texts:* http://www.helsinki.fi/slaavilaiset/ccmh/ and the *TITUS project*: http://titus.uni-frankfurt.de/texte/etcs/slav/aksl/suprasl/supra.htm) into UNICODE and its XML encoding (advisor: Prof. Ralph Cleminson, UK),
- Alignment of the Old Church Slavonic text and its Greek counterparts (advisor: Prof. David Birnbaum, University of Pittsburgh) and revision of the English translation (advisor: Prof. R. Cleminson),
- Manual annotation of two *Codex Suprasliensis* items (*Vita of St. Paul the Simple*, and *Vita of SS. Paul and Juliana*) with the assistance of the morphological guesser developed by the *PROIEL project* (see: http://foni.uio.no:3000/source_divisions?query=paul; advisor: Dr Hanne Martin Eckhoff, University of Oslo).

For the first time, The *Codex Suprasliensis* project aims at making the famous MS accessible to the global audience, drawing in the expertise of leading scholars, curators and specialists in information technologies.

Keywords: *Codex Suprasliensis, UNESCO, reunion, representation, e-edition*

CROATIAN DIGITISATION PROJECTS OF NEWSPAPERS AND JOURNALS - AN OVERVIEW

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18th May 2012; Session 8

Abstract:

Digitisation is a solution that makes the richness of collections in heritage institutions easily and widely available to users. Historic newspapers and journals are extremely valuable resources for the study of national and local culture, science, history and politics and because of that they are often used by researches and other users. By digitisation, heritage institutions can fulfil their basic role to protect valuable materials and at the same time provide easy access for their users who can browse and search digitised materials on the Web. However, historic newspapers and

journals also prove to be very challenging resources for digitisation because of their complex bibliographic features (changes of titles, editors, publishers, frequency of issuance and so on), as well as their physical features (acid paper that perishes quickly, various formats, etc.). Since the beginning of the 21st century Croatian libraries and other heritage institutions have started digitising the most valuable and sought for items in their newspaper and journal collections. There were quite a few initiatives, started and completed projects.

The aim of this presentation is to briefly present digitisation of newspapers and journals in Croatia. The national digitisation strategy of the Republic of Croatia was devised within the project Croatian Cultural Heritage. This national project for the digitisation of archival, library and museum material was established by the Ministry of Culture of the Republic of Croatia as well as by the central library, archival and museum institutions - the National and University Library, the Croatian State Archives and the Museum Documentation Centre - as project leaders. The main project goals are: creation of new digital content, improvement of its availability, and promotion of a systematic and standardised approach to digitisation of holdings in heritage institutions. Also presented are digitisation activities in the National and University Library in Zagreb that date back to 2001. At the beginning, only isolated titles and even issues or items of newspapers and journals were digitised. However, the results of digitisation were not widely available. Other heritage institutions started digitising their collections as well but the results of these activities were not available to users and could not be searched, sometimes they were available only in the institution, often solely as images. In view of its role as central Croatian library, the National and University Library in Zagreb initiated in 2008 the project to create a specialised cooperative portal for digitised historic newspapers and journals. The result was the creation of a tool that is freely available to all Croatian heritage institutions.

Digitisation projects of Croatian newspapers and journals will be analysed according to several elements: digitising institution, reasons and aims of digitisation, project duration, and realisation ratio. Each project will be analysed for their selection criteria, copyright issues, application of standards and quality assurance, metadata, search availability, financing, web presentation and design.

Finally, the advantages of the portal of digitised Croatian historic newspapers and journals and its benefits and advantages for cooperating institutions are presented. The portal was established to enable production and publishing of digital reproductions on line, as well as browsing and searching of newspaper and journal issues, simple and advanced searches of full text journal articles, enhancing availability of printed national heritage, improving protection of unique and rare originals, creation of a cooperative database of all Croatian historic newspapers and journals, development of standardised and harmonised procedures for digitisation and coordination and rationalisation of digitisation efforts.

Keywords: *digitisation, overview, newspapers, journals, Croatia*

THE DIGITALIZATION OF LOCAL PERIODICALS - PUBLIC LIBRARY KRUŠEVAC

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Abstract:

In this paper we present the *Digitalization of Local Periodicals.* The project is a continuation of the started activities; however, due to non-standard dimensions, i.e. format of newspapers, and the lack of equipment, we needed financial assistance of the Ministry of Culture. By the Digitalization Strategy (2011-2015), a plan was prepared and the material and priorities were selected within the institution for the digitalization of the Local History Collection. By project engagement, the library applied with the competent Ministry of Culture and received funding (2010, 2011) intended for digitalization. The funds obtained are intended for the services of external scanning of material - the library does not have the necessary equipment for scanning A3 size newspapers or the equipment for the conversion of microfiche format to digital form.

Local periodicals were selected as a priority for digitalization. The reasons are: the lack of complete copies of certain volumes of periodicals in all cultural institutions in the city; the absence of certain volumes that were printed between the two world wars; different formats of some issues of a particular volume (hard copy, microfiche, digital copy) as well as the advantages enabled by contemporary technologies in terms of gathering in a single place and in a single format the items of materials located in other libraries.

During 2011, a selected part of local periodicals has been scanned in the National Library of Serbia: "Jugoslavija" published in the period from 1929 to 1933 in Kruševac. Private company "Copy Studio" from Kruševac scanned the newspaper "Kruševac District Government" (1929, 1930) from a private collection, because this paper does not exist in the holdings of the National Library of Serbia. Private company DOCUS Čačak, specialising in IT services of this kind, performed the conversion of the microfiche to digital form at a price considerably lower than planned - so that 12,000 digital images were created instead of 9,000. Their posting on the web is under way.

The "Pobeda" weekly magazine has been continuously published in Kruševac for half a century. It was launched in October 1944 as a weekly newspaper and has been published as a magazine since December 1990. Only one copy of the print edition is available to all users of this material - that from the Library's Local History Collection holdings, which is susceptible to physical damage. We should particularly emphasise the needs of the users to photocopy individual pages, which accelerates the physical deterioration of the material.

In terms of protection of this valuable material for future generations as well as its easier online use and presentation to a wider community of users regardless of its physical location, and the possibility of a more democratic use of documentary material in terms of a 24/7

service, we think that this material should be digitalised. The project of digitalising the Pobeda weekly magazine should develop in several phases.

Phase I: Given the "Pobeda" format, 46 x 36 cm - external scanning in the National Library of Serbia. During 2011, the copies of the issues for the period from 1944 to 1957 have been scanned. Within the limits of received funds, the plan for 2012 is to scan the annual volumes from 1958 to 1974. The total number of pages is 12,480.

Phase II: Continuation of activities on scanning the "Pobeda" magazine, annual volumes from 1975 to 2000 - 26 annual volumes (approximately 13,520 pages).
The total number of pages is around 31,000, which implies as many digital images. The digitalized material will provide relevant information necessary for different kinds of research relating to the cultural and economic life in Kruševac as well as relevant data from daily life necessary for the preparation of term papers, secondary school and university graduation theses. At the same time, this database is a valuable source for writing monographs whose subject is local history as well as for writing biographies of prominent individuals, but also for the reconstruction of the entire life of a city, its architecture and events in the past.

Keywords: *digitization of local periodicals, Local History Collection, preservation and access to cultural heritage*

ARCHIVE OF THE MATHEMATICAL INSTITUTE OF THE SERBIAN ACADEMY OF SCIENCES AND ARTS - DIGITIZATION OF THE REPORTS FROM THE MEETINGS OF THE SCIENTIFIC COUNCIL (1948 - 1964)

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Abstract:

The Archive of the Mathematical Institute of SASA (MI SASA) exists from the date of the establishment of the Institute as its integral part, and includes more than a dozen of handwritten notebooks (i.e. reports, diaries, and journals), that testifies to its financial, administrative, technical, cultural, scientific and other activities. Although the archive is formally open to the public, in practice, access to information is limited, so there is an initiative to, using the digitization, preserve the archival material and provide a presentation and open access to the users. Using the example of digitization of the oldest preserved report manuscript from the meetings of the Scientific Council of MI SASA (1948 - 1964), this paper deals with following questions: 1) the standards of digitization of the old manuscripts in the absence of a unified national strategy for digitization of the cultural heritage, 2) the handwriting off-line recognition by training the existing OCR softwares, such as the Tesseract, 3) the named

entity recognition - automatic extraction and linking of a person, other named entities and keywords from the digitized manuscripts in order to facilitate its effective search. The results of this paper are presented in HTML presentation.

Keywords: *MI SANU Archive, cultural heritage, digital preservation, OCR/ICR, NLP, NER*

Ljubljana v BiTiH
BiTi v Ljubljani

MODEL PRIPRAVE IN IZVEDBE PROJEKTOV DIGITALIZACIJE - PRIMER OSREDNJESLOVENSKE REGIJE

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Izvleček:

Mestna knjižnica Ljubljana je v projekte vzpostavitve in delovanja medregijskega domoznanskega portala Kamra vključena že od samega začetka. Portal je nastal zaradi teženj po organizaciji domoznanskih zbirk v digitalni obliki na nivoju posameznih območij, ki jih je za potrebe splošnih knjižnic opredelil Pravilnik o osrednjih območnih knjižnicah, kakor tudi za promocijo domoznanskih gradiv knjižnic in povezovanja med različnimi ponudniki v lokalnem okolju.

Prispevek se osredotoča na problematiko zbiranja in izbiranja gradiva, primernega za vključevanje v konceptualno zasnovane vsebinske sklope - t.i. domoznanske zbirke na portalu Kamra. Obravnava primere urejanja avtorskih pravic na gradivih, uporabljenih na spletu. Pri tem izpostavlja pridobivanje dovoljenj za uporabo digitaliziranih gradiv, ki so bila prvotno razstavljena v fizični obliki, torej pri prenosu domoznanskih razstav iz fizičnega okolja knjižnic v digitalne domoznanske zbirke. Mestna knjižnica Ljubljana se namreč pogosto odloči za digitalizacijo pomembnejših domoznanskih razstav postavljenih v Slovanski knjižnici. Prav za potrebe portala Kamra je leta 2010 zasnovala tudi projekt Moja ulica, v okviru katerega knjižnice osrednjeslovenskega območja raziskujejo zgodovino, razvoj, kulturni utrip ter življenje ljudi posameznih lokalnih ulic in mestnih predelov ter nato svoje izsledke objavljajo v obliki digitalnih zgodb na portalu Kamra. Zgodbe tako predstavljajo virtualne, trajno zapisane delčke v mozaiku lokalne dediščine osrednjeslovenske regije. Pri svojem delu se Mestna knjižnica Ljubljana poskuša čim bolj povezovati z drugimi kulturnimi institucijami, društvi in posamezniki ter na ta način uporabnikom portala zagotoviti dostop do domoznanskega gradiva, do katerega bi bilo drugače težje priti.

V prispevku je prav tako obravnavano določanje poslanstva ter dopolnjevanje konceptov Digitalne knjižnice Slovenije (dLib.si) in Kamre na področju digitalizacije domoznanskih vsebin. Ob koncu pa prispevek opozarja na problematiko financiranja oziroma pridobivanja sredstev za projekte digitalizacije.

NAČRTOVANJE PROJEKTOV DIGITALIZACIJE V MARIBORSKI KNJIŽNICI KOT OBLIKA MEDINSTITUCIONALNEGA SODELOVANJA NA OBMOČJU

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Izvleček:

Modernizacija, povezana s hitrim razvojem informacijske tehnologije, vse bolj krha tradicionalne vzorce dela in mišljenja knjižničarjev. Od njih zahteva, da se prilagodijo in stopijo v korak s časom, predvsem pa, da nekoliko spremenijo svoja vrednostna merila in jih podredijo vse večjemu številu uporabnikov, vajenih udobnega iskanja informacij. Digitalizacija postaja del vsakdana.

V zadnjih letih se tako vse več slovenskih knjižnic sooča z vprašanji, kakšno gradivo naj izberejo za digitalizacijo, kje naj pridobijo čim več sredstev, kako naj uredijo avtorske pravice, kako naj digitalizirano gradivo čim bolje promovirajo ipd. Knjižnice z bogato domoznansko tradicijo ter dragocenimi domoznanskimi zbirkami se vsaj pri izbiri gradiva srečujejo z manj dilemami, saj je digitalizacija, kljub temu, da pomeni nemajhen finančni zalogaj in da je vanjo vloženega veliko časa, potrpljenja in intelektualnega dela, enostaven način za lažje in hitrejše dostopanje do knjižničnega gradiva, odpiranje in promoviranje zbirk ter zaščito originalnega gradiva.

Ena od posebnih nalog osrednjih območnih knjižnic, ki jih (so)financira kulturno ministrstvo, je koordinacija zbiranja, obdelave in hranjenja domoznanskega gradiva, kamor se prav tako uvrščajo projekti digitalizacije. Ker je Mariborska knjižnica osrednje območna knjižnica, smo o njih začeli razmišljati tudi mi. Zaradi zgodovinskih okoliščin, povezanih z nastankom Univerzitetne knjižnice Maribor ter oblikovanjem njihove domoznanske dejavnosti, se je Mariborska knjižnica z načrtnim organiziranjem domoznanstva začela ukvarjati razmeroma pozno. Ker so domoznansko gradivo načrtno zbirali, obdelovali in trajno hranili v Univerzitetni knjižnici, Mariborska knjižnica nikoli ni imela zbirk dragocenega in redkega gradiva. Zaradi tega je bila na začetku svoje 'digitalne' poti v toliko večji zagati, kaj sploh digitalizirati. Kljub prvotnim zadregam se je kmalu izoblikovala izhodiščna strategija, da bi s projekti digitalizacije uporabnikom čim bolj približali gradivo o območju, ki ga knjižnica pokriva z mrežo krajevnih knjižnic, ne glede na to, katera ustanova to gradivo hrani. Na ta način se je knjižnica začela povezovati z različnimi institucijami in nastali so prvi partnerski projekti.

Pri prvem tovrstnem projektu sta leta 2007 sodelovali Mariborska knjižnica in Osnovna šola Lovrenc na Pohorju. Ker o Lovrencu ni veliko dokumentarnega gradiva, smo se odločili digitalizirati raziskovalne naloge nekdanjih učencev tamkajšnje osnovne šole. Prvi del projekta je bil zaključen v letu 2008, ko je bilo digitaliziranih 72 nalog, njihovo število pa smo nekoliko povečali še v naslednjih dveh letih, ko je bil zaključen drugi del projekta. Raziskovalne naloge smo objavili na portalu Kamra, projekt pa predstavili na Jezernikovih dnevih, ki vsako leto avgusta potekajo v občini Lovrenc na Pohorju.

Zamisel za naslednji partnerski projekt je nastala ob razstavi o gradu Vurberk, ki je potekala v Knjižnici Duplek, eni od enot Mariborske knjižnice. Gradivo za razstavo je

prispevalo Turistično društvo Vurberk, ki je bilo zainteresirano, da razstavo nadgradimo z digitalizacijo gradiva. K sodelovanju smo povabili še Knjižnico Ivana Potrča Ptuj in Univerzitetno knjižnico Maribor ter v letu 2010 digitalizirali 46 fotografij gradu in tamkajšnjega sanatorija za pljučne bolezni, ki je med obema vojnama deloval v gradu, 12 starih razglednic s konca 19. in začetka 20. stoletja, 1 drobni tisk ter 5 starejših knjig o Vurberku. Gradivo smo najprej objavili na portalu dLib, nato pa skupaj s kratko zgodbo o kraju in gradu Vurberk še na Kamri.

Čeprav ne digitaliziramo toliko kot mnoge druge splošne knjižnice, se trudimo, da bi prav s skupnimi projekti čim bolj odprli domoznanske zbirke, ki jih imajo ustanove na območju, ter jih približali uporabnikom. Projekt, ki ga načrtujemo v letu 2012, nastaja v sodelovanju Mariborske knjižnice s Pokrajinskim arhivom Maribor. Digitalizirati nameravamo izbor gradiva iz obsežne zapuščine Tovarne avtomobilov Maribor, enega od stebrov mariborske povojne industrije. S tovarno je bilo vse do njenega propada v začetku 90. let 20. stoletja povezanih veliko mariborskih in okoliških družin. Ker je tema še vedno aktualna, upamo, da bomo zbudili zanimanje čim širšega kroga uporabnikov, kar je tudi glavni cilj naših projektov.

OHRANJANJE DIGITALIZIRANE KULTURNE DEDIŠČINE

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Izvleček:

Digitalizacijo mnogi razumejo kot navadno reprodukcijo in jo primerjajo s fotokopijo na papirju. Investicije, ki se vlagajo v celotni proces digitalizacije (oprema, kadri, znanje in podobno) pa kažejo, da je digitalizacija več kot navadna reprodukcija. Poseben primer je, ko je gradivo tako poškodovano, da ga z digitalizacijo želimo zaščititi od nadaljnjih manipulacij. Pri tem moramo biti pozorni, da pri digitalizaciji dosežemo maksimalno kakovost, tako da bomo po potrebi skenograme ohranili tudi trajno.

V predstavitvi bo podrobno obravnavan celotni proces digitalizacije od faze načrtovanja do realizacije. Osredotočili se bomo na digitalizacijo vsebin na papirju. Predstavili bomo, kako je treba načrtovati projekt digitalizacije, katere lastnosti morajo imeti skenerji za kvalitetno digitalizacijo, kako dosežemo želeno ločljivost in barvno globino, s katerimi težavami se srečujemo pri starem tisku, kakšne predelave skenogramov potrebujemo po opravljeni digitalizaciji, zakaj so pomembni metapodatki za trajno ohranjanje in podobno.

DIGITALIZACIJA IN PAPIR

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Izvleček:

Papir je bil in ostaja primarni nosilec informacij kljub temu, da je nanj zabeleženo le 0,01 % vseh informacij, zapisanih na medije. Največji vpliv na okolje pri proizvodnji papirja predstavljajo poraba svežih surovin (les iglavcev in listavcev), polnil ($CaCO_3$), pomožnih sredstev (pigmenti, klejiva, veziva, retencijska sredstva, ...) in procesnih kemikalij (kisline in baze), vendar izmed vseh naštetih ima največji vpliv na okolje poraba svežih voda. Za proizvodnjo 1 tone papirja je navkljub sodobnim proizvodnim postopkom izdelave papirja z delno ali popolno zaprtimi krogotoki potrebno tudi do 60 m^3 sveže vode. Vpliv proizvodnje papirja na okolje pa se ne konča s porabo svežih voda. Upoštevati je potrebno še porabo električne energije (cca. 10.000 MJ/t_{pap}), obremenitev odlagališč (35 % odpadkov predstavlja papir) in onesnaževanje zraka (proizvodnja papirja, dovoz in odvoz proizvodov). Našteti dejavniki ne govorijo v prid uporabi papirja, vsaj z okoljevarstvenega vidika, vendar ne smemo zanemariti dejstva, da papir predstavlja bistven člen sodobnega življenja in da je uvedba in razširitev informacijskih tehnologij (osebni računalniki, telefaks, internet ipd.) povečala povpraševanje in porabo papirja ravno na podlagi udobja, ki ga papir kot medij nudi. Pomemben podatek, ki pa govori v prid porabi papirja je, da je papir sestavljen iz povsem naravnih materialov, ki so bili iz narave vzeti in se vanjo, brez večjih in trajnejših posledic vrnejo. Tehnologija predelave in ponovne uporabe papirja je dodobra poznana in razdelana ter je s stališča družbeno odgovornega ravnanja nujno potrebna. Digitalizacija je doprinesla k višji porabi električne energije, tako za proizvodnjo naprav, kot njihovo uporabo in ponovno predelavo. V splošnem je mnenje privržencev digitalizacije, da je papir nepotreben. Vendar zapis na papirju ima trajno vrednost, medtem ko je zapis na digitalnem mediju nima, saj se nahajamo v elektromagnetem polju, ki pa negativno vpliva na elektromagnetni zapis. Digitalni zapisi zahtevajo poleg navedenega nenehno posodabljanje, tj. vzporedno z razvojem operacijskih sistemov in strojne opreme. Knjiga, predvsem pa njena vsebina, predstavlja za ohranjanje kulturne dediščine neizmerni zaklad. V primeru uporabe knjige je potrebno zgolj poznavanje abecede, dočim za branje zapisov iz digitalnih medijev, je potrebno poleg osnovnega znanja pismenosti še kar nekaj tehničnega znanja rokovanja tako s strojno, kot tudi programsko opremo. Negativni učinki digitalizacije niso zaobšli papirne in papirno-predelovalne industrije. Zahteve trga po manjši količini grafičnih papirjev (časopisni, revijalni, pisalni, tiskovni) se poznajo pri upadu povpraševanja, tako vhodnih surovin, kot tudi polizdelkov in izdelkov. Obenem se je posledično tudi zmanjšal obseg predvidenih investicij v posodobitev obstoječe proizvodne opreme oz. v nakup novih linij. Poleg naštetega se je zmanjšal tudi delež posredno in neposredno zaposlenih. V papirni in papirno-predelovalni industriji je na področju Evropske Unije zaposlenih 1,9 milijona ljudi v 200.000 podjetjih. Papirna

in papirno-predelovalna industrija v Evropi predstavlja 6,5 % prometa, ustvarjenega v proizvodnem sektorju, oz. 80 milijard evrov ali 16 milijard evrov dodane vrednosti letno. Evropska Unija ne sme dovoliti, da bi papirna in papirno-predelovalna industrija in njej sorodne proizvodne verige (grafična, gradbena, logistična, itd.) zašle v večje težave, saj bi to pomenilo ogrozitev edinstvenih dosežkov industrije v nepretrganem izdelovanju in potrošnji njenih proizvodov ter ne nazadnje bi se z ukrepom odpuščanj ogrozilo socialno ravnovesje. Vrednost papirja, v vseh njegovih oblikah predstavlja jedro potreb družbe. Kakorkoli, panoga se sooča s težkimi časi, saj na področje grafičnih papirjev neposredno močno pritiska digitalizacija. Konkurenčnost globalnega trga znatno vpliva na stroške delovne sile, osnovnih proizvodnih surovin in energentov. Proizvodni stroški regije znotraj evropske unije pa niso konkurenčni tudi zaradi okoljevarstvenih predpisov in direktiv, ki zavezujejo proizvajalce, da jim sledijo in jih izvajajo, kar znatno vpliva na končno ceno surovin, polizdelkov in izdelkov. Navedeno je privedlo do zmanjševanja delovnih mest, vodilnega položaja in konkurenčnosti na trgu.

DIGITALIZACIJA ARHIVSKEGA GRADIVA ARHITEKTA EDA MIHEVCA

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Izvleček:

Arhitekt Edo Mihevc je v svojem dolgem ustvarjalnem obdobju, še zlasti med 50. in 70. leti 20. stoletja močno posegel v razvoj urbane krajine in arhitekture, še zlasti v slovenskem delu Istre, kjer je večji del urbanega okolja posredno ali neposredno povezan z njegovim delom.

Pokrajinski arhiv Koper je leta 2007 z darilno pogodbo s strani vdove Ane Jontez Mihevc pridobil to dragoceno gradivo, s čimer je postalo dostopno širši javnosti. Mihevčev arhiv je bil hranjen na treh lokacijah (dom v Portorožu, dom v Ljubljani, nekdanji kabinet in klet na Fakulteti za arhitekturo), v Pokrajinski arhiv Koper pa je bil prenesen predvsem iz preventivnih vzgibov, saj je bilo gradivo na vseh treh lokacijah ogroženo zaradi mikroklime (vlaga, prah) ter, predvsem v javnih prostorih kleti Fakultete, zaradi nevarnosti nenadzorovanega odnašanja arhiva, ki je takrat bilo še nepopisano. Arhiv arhitekta Eda Mihevca (1911-1985) ima vse večji pomen za raziskovalno področje arhitekturne zgodovine kot obče zgodovine medvojnega in predvsem povojnega obdobja v Sloveniji. Poseben kulturno zgodovinski pomen ima za slovensko Istro, saj je bil arhitekt Mihevc s sodelavci in študenti avtor prvega celostnega regionalnega načrta za slovensko obalo, za severozahodno Istro ter urbanističnih načrtov za posamezna obalna mesta in njihove širitve; slednji so bili v veliki meri uresničeni, tako Mihevčev opus danes zaznamuje kulturno krajino in kolektivno identiteto slovenskega oz. severnoistrskega obalnega prostora.

S pridobitvijo namenskih sredstev v letih 2010 in 2011 smo izvedli digitalizacijo načrtov kot najbolj občutljivega dela pridobljenega gradiva. Načrti so v glavnem na pavs paprju različne kakovosti in zaradi nepazljive intenzivne rabe ter neprimernih dodatkov

mnogi tako poškodovani, da jih bo potrebno pred digitalizacijo predhodno restavrirati. Digitalizacijo načrtov smo zaupali podjetju Mikrografija d.o.o. iz Novega mesta.

Hramba tega arhivskega gradiva predstavlja številne probleme; nekateri so tipični za dokumente moderne arhitekture (obseg zaradi številčnosti variantnih rešitev, obsežno merilo grafičnih dokumentov urbanističnih del, kvaliteta pavs papirja, razpršenost gradiva tudi v drugih javnih arhivskih fondih (okrajni ljudski odbori) in v privatnih arhivih, pomanjkanje osnovnih vsebinskih popisnih podatkov (datacije, imena ...) itd.). Nekateri problemi so pa specifični: za številna uresničena dela je celotno gradivo izginilo (morda izgubljeno, morda uničeno), kar lahko hipotetično povezujemo z dejstvom, da gre za arhitekta, ki je bil skozi celotno obdobje svojega delovanja izrazito kritiziran zaradi kontroverznosti svojih rešitev. S slednjim, zgodovinsko-političnim ozadjem je povezan problem varovanja te dediščine polpretekle zgodovine in pomanjkanja historične distance do tega obsežnega korpusa dediščine.

DIGITALIZACIJA KATALOGOV S ČIPKAMI IN VZORCEV ZA KLEKLJANJE V MESTNEM MUZEJU IDRIJA IN ČIPKARSKI ŠOLI IDRIJA

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Izvleček:

Čipkarska zbirka Mestnega muzeja Idrija obsega čipke, trgovske kataloge s čipkami, vzorce za klekljanje, klekljarske pripomočke in materiale ter tekstilije s čipkami.

Pomemben vir za raziskovanje razvoja idrijske čipke so trgovski katalogi, v katerih so nalepljeni primeri klekljanih čipk, ki so se v preteklosti izdelovale na Idrijskem. V njih lahko proučujemo različne vzorce, motiviko, tehnike in elemente, oblike in velikosti čipk, njihovo uporabnost itd. Največ katalogov je bilo last podjetja Firma Franc Lapajne, ki je imelo od 90. let 19. stoletja dalje vodilno mesto pri trgovanju s čipkami v Idriji.

Eden izmed večjih fondov vzorcev za klekljanje je fond vzorcev Zorke Rupnik, ki obsega 3.797 vzorcev, narisanih s tušem na pavs papirju. Idrijčanka Zorka Rupnik je bila najpomembnejša risarka vzorcev po 2. svetovni vojni, zaposlena v podjetju Čipka, ki je vplivala na oblikovno podobo današnje idrijske čipke.

Zaradi avtentičnosti, starosti in občutljivosti gradiva smo se odločili za njegovo digitalizacijo. Podjetje Digitalizacija d.o.o. nam je v letu 2009 digitaliziralo 6 prodajnih katalogov klekljanih čipk z začetka 20. stoletja, v letu 2011 pa 1.050 vzorcev za klekljanje iz fonda Zorke Rupnik iz 2. polovice 20. stoletja. Tako smo se izognili rokovanju z originali, ki so sedaj primerno arhivirani, uporabniki pa lahko kataloge in vzorce za klekljanje pregledujejo s pomočjo računalnika v dokumentaciji muzeja. Še vedno pa se nam postavlja vprašanje dolgoročnega hranjenja digitaliziranega

gradiva tako v arhivski obliki kot v muzejskem dokumentacijskem programu.

Zbirko vzorcev za klekljanje v Čipkarski šoli Idrija sestavljajo vzorci narisani na pavs papirju, ki so namenjeni uporabi v procesih izobraževanja. Vzorce se razmnožuje pri zunanjih izvajalcih s tehniko polmokrega kopiranja (blue print), ki se v svetu vse bolj opušča. Posledično se vzorci, tudi če z njimi pazljivo ravnamo, poškodujejo. Iz omenjenih razlogov smo se odločili za digitalizacijo dela zbirke šolskih vzorcev v podjetju Digitalizacija d.o.o. Naša zahteva je bila, da se ohrani velikost originala (merilo 1:1) in da so digitalizirani vzorci opremljeni s potrebnim tekstovnim delom (avtorstvo in drugi podatki). V postopku dela se je kot pozitivno izkazalo, da so bile odstranjene moteče nepravilnosti, sicer prisotne na originalnih vzorcih.

Z digitalizacijo smo na eni strani arhivirali in zaščitili originale, na drugi strani pa želimo omogočiti dostop do vzorcev in možnost iskanja po zbirki tudi učenkam, učencem ter učiteljicam na dislociranih oddelkih šole. Zaradi objektivnih razlogov nadgradnje digitaliziranih vzorcev, to je uporabe v praksi, še nismo izpeljali. Odprta ostajajo predvsem naslednja vprašanja:

- format vzorcev - digitalizacija je zaradi omejitev pri izpisu tiskalnika omejena na format do velikosti A3, čeprav so vzorci tudi večji;
- dostopnost digitaliziranih vzorcev na dislociranih enotah šole na način, ki bi čim bolj zmanjšal možnost zlorabe vzorcev (avtorske pravice);
- način prenosa digitaliziranega gradiva v materialno gradivo s specifičnimi zahtevami glede obstojnosti barve, trdote papirja itd.

V podjetju Digitalizacija d.o.o. smo digitalizacijo idrijske čipke sprejeli kot izziv. Sam postopek digitalizacije čipke je posebnost, saj je čipka dejansko 3D objekt. Za uspešno digitalizacijo smo izbrali manj konvencionalno pot: svetlobo smo usmerili pod določenim kotom in tako dosegli 3D izgled čipke. Predstavitev na kongresu bo slikovito pokazala rezultate.

Poleg čipk smo digitalizirali vzorce za klekljanje. Uspeli smo optimalno pripraviti datoteke za uporabo v nadaljnem procesu klekljanja. S profesionalnim pristopom smo odpravili vse nepravilnosti in tako močno olajšali razmnoževanje vzorcev. Nov izziv bo digitalizacija že uporabljenih *papircev*, ki so preluknjani, prepognjeni, zviti ...

3D DIGITALIZACIJA IN VIZUALIZACIJA SITULE Z VAČ

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Izvleček:

Projekt 3D digitalizacije in vizualizacije situle z Vač je bil izveden v začetku leta 2011 v sodelovanju Narodnega muzeja Slovenije, ki hrani situlo, in podjetja MFC.2 d.o.o., ki med drugim razvija in izvaja tudi storitve 3D digitalizacije in vizualizacije.

Zastavljeni cilji projekta so bili zasnovani na način, da na enem samem, znamenitem in dragocenem primeru predmeta kulturne dediščine pokažemo:

- kaj nam omogočajo sodobne metode in tehnologije na področju 3D digitalizacije in vizualizacije;

- kako lahko varno in zelo kakovostno digitaliziramo objekte kulturne dediščine;
- kako veliko uporabno vrednost ima 3D zajem in vizualizacija pri varovanju, ohranjanju, raziskovanju, izobraževanju in promociji kulturne dediščine.

Cilji projekta:

1. kakovosten 3D zajem situle, njene oblike in teksture;
2. 3D predstavitev situle in njenih detajlov s strokovnimi opisi;
3. 3D stereoskopska projekcija s pregledovanjem s 3D očali in upravljanjem objekta na daljavo;
4. 3D računalniška animacija, ki predstavi nekatera dejstva o situli na podlagi strokovnih interpretacij;
5. javna predstavitev rezultatov projekta ob kulturnem prazniku 8. februarja 2011 v Narodnem muzeju Slovenije.

Zajem 3D podatkov situle je bil izveden z nekontaktno aktivno metodo 3D skeniranja s strukturirano belo svetlobo in sočasnim digitalnim zajemom teksture.

Na podlagi visokokvalitetnih fotografij situle je bila izdelana 3D Flash animacija za pregledovanje objekta in njegovih detajlov. Aplikacija za pregledovanje po vsebini je prirejena za interakcijo preko zaslona na dotik. Omogočeno je rotiranje situle okoli vertikalne osi in interaktivno izbiranje in pregledovanje vtolčenih prizorov na situli. S klikom na posamezni prizor na situli se odpre novo okno s fotografijo in strokovno interpretacijo prizora.

Za atraktivno javno predstavitev situle za obiskovalce na razstavi smo izdelali stereoskopsko animacijo situle, ki lebdi in se vrti v atriju stavbe Narodnega muzeja. Obiskovalci so si lahko s pomočjo 3D očal na velikem platnu ogledali animacijo in upravljali z lebdečo 3D situlo na daljavo s kretnjami rok. Na ta način je bilo mogoče približevanje, oddaljevanje in rotiranje situle okoli poljubne osi.

Izdelali smo 3 minutno 3D računalniško animacijo z naslovom '*Zgodba situle z Vač*'. Scenarij je bil izdelan na podlagi strokovnih interpretacij. Animacija na kratko predstavi nastanek situle, obdobje in ozemlja s situlsko umetnostjo, odkritje situle na Vačah konec 19. stoletja ter uporabnost situl v obdobju njenega nastanka z animacijo ene izmed figuralnih upodobitev oz. prizorov, ki so vtolčeni na situli. Animacija vsebuje tako besedilno, zvokovno kot slikovno predstavitev.

Po zaključku tehnične izvedbe ciljev projekta smo želeli predstaviti rezultate in preveriti odziv laične in strokovne javnosti. Odločili smo se za javno predstavitev z naslovom '*Tretja dimenzija situle z Vač*', in sicer na kulturni praznik, 8. februarja 2011, v atriju Narodnega muzeja na Prešernovi v Ljubljani, ko je bil tam prost vstop za obiskovalce.

Obiskovalci so si lahko ogledali situlo v 3D obliki na zaslonu na dotik in na ta način opazovali njene značilnosti ter pregledovali risbe, fotografije in strokovne interpretacije figur s situle. Slika z zaslona na dotik je bila prikazana tudi na velikem platnu, tako da si je prebiranje po vsebini hkrati lahko ogledovalo veliko število prisotnih.

Na ekranu velikega formata se je neprestano vrtela 3D računalniška animacija zgodbe o situli z Vač.

Preko 3D projektorja in elektronskih očal so si obiskovalci lahko ogledali stereoskopsko animacijo, ki pričara 3D učinek, enak tistemu v 3D kino dvoranah.

Preizkusiti je bilo možno novo tehnologijo upravljanja s 3D objektom na daljavo.

V živo si je bilo mogoče ogledati tudi postopek 3D skeniranja s profesionalno opremo za zajem oblike in teksture objekta.

Predstavitev je trajala cel dan, ogledalo pa si jo je nekaj čez 1000, večinoma naključnih

obiskovalcev. Odzivi obiskovalcev vseh starosti in stopenj izobrazbe ter najrazličnejših strokovnih profilov so bili odlični in samo dokazujejo, kako nujno je predstavljati našo kulturo in dediščino na moderne načine z uporabo najnovejših tehnologij, ki pritegnejo tako laično kot tudi strokovno javnost.

Z izvedbo projekta v opisanem obsegu smo pokazali uporabno vrednost novih 3D tehnologij zajema in vizualizacije na področju kulturne dediščine, kot so:

- omogočanje množičnega in interaktivnega dostopa do 3D vsebin kulturne dediščine;
- dodano vrednost 3D digitalnih podatkov o objektu za izobraževalne in študijske namene, javne predstavitve, razstave in promocijo dediščine;
- nove možnosti pri načinu podajanja informacij o objektih kulturne dediščine;
- uporabniku prijazen, intuitiven in atraktiven prikaz objektov v digitalnem oz. virtualnem okolju.

DOKUMENTIRANJE KULTURNE DEDIŠČINE

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Izvleček:

Pri dokumentiranju kulturne dediščine je pomembno, da se zavedamo, kaj je potrebno dokumentirati. Lastnosti in obseg obravnavanega objekta so osnova za nadaljnjo pripravo celotnega delovnega postopka. Naslednje vprašanje, na katerega ne smemo pozabiti, je rezultat dokumentiranja. Kaj bo rezultat dokumentiranja in za kaj ga bomo uporabili. Ti dve osnovni vodili nas usmerjata skozi vmesne faze dela: katera tehnologija zajema podatkov je za posamezno nalogo najbolj primerna, katero metodo obdelave podatkov bomo uporabili, kakšna bo stopnja detajla, kje se lahko pojavijo problemi, kakšen bo končni rezultat ter kako ga bo mogoče uporabiti in načrt hranjenja pridobljenih in obdelanih podatkov in rezultatov. Za različne objekte dokumentiranja so primerni različni načini zajema podatkov, ki zahtevajo različno obdelavo. V samem postopku zajema in obdelave surovih zajetih podatkov je pomembno, da so že prvi koraki prilagojeni zahtevam in nameravani nadaljnji uporabi končnih rezultatov. Pravilna izbira metode dela lahko prihrani čas pri obdelavi podatkov in izdelavi končne dokumentacije. Za dokumentiranje obstoječega stanja poslikav se uporabi drugačne načine zajema kot za dokumentiranje stavb ali celih območij. Namen dokumentiranja je lahko ohranjanje spomina na zatečeno stanje v določenem trenutku z obveznim arhivskim hranjenjem pridobljenih rezultatov ali pa osnova za pripravo projektov in nadaljnjih posegov ter izvajanje le teh na ogroženem objektu.

Postopke dokumentiranja moramo prilagoditi zahtevam in zmožnostim. Zajeti in neobdelani podatki so brez pravih spremljevalnih opisov izgubljeni. Dokumentacija mora vsebovati zapise o uporabljenih orodjih, postopkih in končnih rezultatih. Le tako lahko iz primerno hranjene in dostopne neobdelane dokumentacije in spremljevalnih opisov s poglobljeno analizo pridobimo uporabne podatke. Ti so lahko osnova za nadaljnjo nadgradnjo obstoječe dokumentacije, ki ne vodi v podvajanje podatkov ali celo nenamerno zavajanje uporabnika.

Dokumentacija mora biti shranjena v obliki

in na način, ki bo zadovoljil potrebe bodočih uporabnikov. Nepravilno hranjenje arhivskega gradiva lahko povzroči nepovratno škodo. Oblike zapisov, ki jih v bodoče ne bo mogoče prebrati, so neprimerne za hranjenje. Poleg velikih zmožnosti digitalnih baz podatkov nikakor ne smemo pozabiti na dolgoročno hranjenje analognih oblik. Zavedati se moramo, da preteklost ohranjamo za bodočnost, vključno z različnimi načini hranjenja različnih arhivskih gradiv.

REGISTER SLOVENSKIH ROKOPISOV 17. IN 18. STOLETJA: REPOZITORIJ, DIGITALNA KNJIŽNICA IN RAZISKOVALNO OKOLJE

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Izvleček:

Rokopisi, zlasti slovenskega slovstva, so bili v sistemu literarnih ved na Slovenskem nekoliko premalo upoštevan segment gradiva. Bili so deležni obrobnih obravnav, zagotovljene so jim bile krajše omembe v širših pregledih slovstva, redko ali nikoli pa niso postali predmet specializiranih študij in znanstvenih objav. Temu ustrezno je tudi stanje obdelanosti tega gradiva v arhivskih in knjižničnih zbirkah. Vodniki po gradivu ponujajo zasilne, zelo skope informacije o rokopisih, iz katerih pogosto ni mogoče razbrati določnih podatkov o jeziku, vsebini in zgodovini rokopisa.

Glede na stanje raziskav rokopisov v slovenskem jeziku tako v okviru slovenistike kakor tudi v okviru arhivistike in kodikologije je bilo neogibno potrebno, da se ohranjene rokopise podrobneje evidentira in razišče, pri tem pa se uporabi enotno, smotrno in dosledno izvedeno metodo, ki bo zagotovila, da bo raziskava dala trajno uporabne rezultate.

Upoštevajoč ta izhodišča smo se odločili za raziskavo, katere rezultati bodo sproti zajeti v podrobno in rigorozno strukturirane opise rokopisov. Tako je nastala ideja o Registru rokopisov, v katerem naj opisi rokopisov prestavijo analitične izsledke raziskave, te pa naj dopolnjujejo pripadajoče digitalne slike ali faksimili, ki vizualno predstavljajo vir in ga odpirajo nadaljnjim raziskavam. Tako je po treh letih dela nastal spletni portal „Neznani rokopisi slovenskega slovstva 17. in 18. stoletja" (NRSS), ki je javnosti dostopen na naslovu <http://ezb.ijs.si/nrss/>.

Glavni rezultat raziskave je *Register slovenskih rokopisov 17. in 18. stoletja.* Trenutno vsebuje opise prvih 100 rokopisov in čez 7.000 strani digitalnih faksimilov. Glavni kriterij za vključitev je bil, da mora biti glavnina besedila napisana v slovenščini do konca 18. ali začetka 19. stoletja. Poleg rokopisov, shranjenih v ustanovah osrednje Slovenije, želimo postopoma vključiti tudi druge slovenske regije; začeli smo s Koroško, ki ima specifično in najstarejšo pisno tradicijo.

Za rokopise, ki so čakali na naše raziskovanje, smo pripravili model opisa, t.j. sklop parametrov, ki smo jih nato na vsakem rokopisu preverili in sistematično opisali. Model za opise rokopisov, zajete v Registru, temelji na priporočilih TEI Guidelines for

Electronic Text Encoding and Interchange (TEI P5), zlasti na poglavju 10 - Manuscript description. To pomeni, da so bili opisi izraženi s pomočjo strukturnih oznak XML, določenih s tem standardom, po katerem se ravnajo tudi mnoge druge podobne elektronske zbirke. Smernice TEI za opis rokopisov v jeziku XML združujejo skupne elemente raznih evropskih doktrin o deskripciji rokopisov, vendar hkrati omogočajo, da uporabniki po svojih potrebah poudarijo določene prvine.

Smernice TEI za opis rokopisov smo pri označevanju aplicirali dosledno in označevalne sheme TEI nismo v ničemer spreminjali. Med raznimi možnostmi, ki jih označevalna shema TEI dopušča, pa smo praviloma izbrali zahtevnejše, bolj strukturirane načine. Tako smo pri opisu rokopisov uporabili zvečine vse elemente, ki jih predlaga omenjeni modul TEI, vendar smo v večjem obsegu navajali podatke o vsebini in zgodovini rokopisov, izmed kodikoloških podatkov pa predvsem tiste, ki služijo dataciji in prostorski umestitvi rokopisov.

Oznake XML, ki smo jih uporabili v našem označevalnem modelu, so strnjene v štiri oz. pet standardnih sklopov, s tem pa tudi v metodološko natančno razmejena področja opisa vsakega rokopisa.

Tako urejene in strukturirane zapise je bilo potrebno postaviti v spletno aplikacijo, ki zmore podatke skupaj z digitalnimi slikami rokopisov procesirati in predstaviti uporabniku na zaslonu. Tu torej ne gre več za označevanje (mark-up), temveč za spletno tehnologijo, povezano z iskanjem in prikazom podatkov. Uporabljena je bila platforma Fedora Commons, ki je odprtokoden sistem za upravljanje z raznoliko vsebino. Fedoro Commons smo izbrali, ker je sistem tehnološko ustrezen, saj podpira upravljanje digitalnih dokumentov, zapisanih v XML, temelji na sprejetih standardih, je zasnovan kot odprta koda in ima široko bazo uporabnikov in dokumentacije, saj je v zadnjih letih postal eden od de facto standardov za odprte digitalne arhive, zbirke in knjižnice.

V prispevku podrobneje predstavimo *Register slovenskih rokopisov 17. in 18. stoletja* z več gledišč: kot repozitorij podatkov s področja digitalne humanistike, kot iskalni sistem (torej kot digitalno knjižnico) in kot raziskovalno okolje za nova odkritja.

DIGITALNE INVENTARNE KNJIGE ENTOMOLOŠKIH ŠTUDIJSKIH ZBIRK PRIRODOSLOVNEGA MUZEJA SLOVENIJE

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Izvleček:

Poslanstvo Prirodoslovnega muzeja Slovenije je zbiranje, varovanje in konzerviranje premične kulturne dediščine naravega izvora in njena predstavitev najširši javnosti.

Vsa dediščina je podrejena zakonodaji, ki se spreminja, razvija in sledi novim spoznanjem. Na mednarodni ravni je pomembna konvencija, ki so jo leta 1972 sprejeli na Unescovi generalni konferenci v Ženevi in je začela veljati leta 1975. Na državni ravni pa je Ministrstvo za kulturo izdalo Pravilnik o vodenju inventarne knjige premične kulturne dediščine, na katero se posebej nanašajo tudi določila Zakona o varstvu kulturne dediščine (Uradni list RS, št.

122/2004, 16/2008-ZVKD-1 in 16/2008). Vsak predmet v zbirki, ki predstavlja inventarno enoto, ima eno inventarno številko, ki identificira predmet. Predmeti z inventarnimi številkami se vodijo v inventarnih knjigah.

Tradicionalne muzejske inventarne knjige so bile rokopisne, z razvojem računalništva in informatike pa prehajamo na digitalne inventarne knjige in podatke iz njih delimo in razširjamo na medmrežju. Za posredovanje metapodatkov iz naravoslovnih inventarnih knjig uporabljamo razširjeno inačico standarda *Dublin Core* imenovanega *Darwin Core*, ki se v mednarodni skupnosti uporablja za posredovanje podatkov o biodiverziteti.

Poleg klasičnih inventarnih knjig, predpisanih z zakonodajo, smo v Prirodoslovnem muzeju Slovenije pripravili tudi slikovne inventarne knjige

(primer http://www2.pms-lj.si/oddelki/entomologija/zbirke_zgodovinske.html#schmidt), ki so nam postale dostopne z razvojem in pocenitvijo digitalne fotografije in barvnega tiska, ter razvojem novih grafičnih formatov (npr. jpeg2000). Slikovne inventarne knjige dopolnjujejo klasične inventarne knjige pri skupinah, ki jih imamo obdelane, določene do vrste in zato inventarizirane. Pri zbirkah, za katere v muzeju nimamo specialistov, pa do ureditve in dokončne inventarizacije nadomeščajo klasične inventarne knjige in so pomemben dokument o zbirki, na osnovi katerega je možna tudi osnovna določitev gradiva. Slikovne inventarne knjige hranimo v tiskani obliki, dostopne pa so tudi na svetovnem spletu:

<http://www2.pms-lj.si/oddelki/entomologija/zbirke.html>.

Zanimivo je, da so se kustosi (in tudi amaterski zbiralci) že v preteklosti pri praktično vseh vrstah entomološkega gradiva, od gradiva, hranjenega v fiksativih, do mikroskopskih preparatov, držali koncepta inventarne številke in inventarne knjige. Izjema so le suhe entomološke zbirke, kjer se ta koncepti ni uveljavil. Uvedba in razvoj črtne kode nam je olajšala tudi inventarizacijo suhih entomoloških študijskih zbirk v Prirodoslovnem muzeju Slovenije. Na primerek, prepariran na entomološki igli in opremljen z etiketo z osnovnimi podatki, dodamo listek s črtno kodo. Pri vnosu podatkov najprej odčitamo črtno kodo, nato pa dodamo identiteto vrste in podatke iz etikete ali pa povežemo z že obstoječimi podatki iz podatkovne zbirke.

Digitalne inventarne knjige služijo tudi kot vir metapodatkov za posredovanje podatkov mednarodni strokovni javnosti in javni dostopnosti podatkov na medmrežju. Kot primer naj navedmo posredovanje podatkov Prirodoslovnega muzeja Slovenije v GBIF (Global Biodiversity Information Facility http://data.gbif.org/) (primera: http://data.gbif.org/datasets/resource/624 in http://data.gbif.org/datasets/resource/626).

TEŽAVE IN PREPREKE PRI INOVATIVNI UPORABI DIGITALNIH VSEBIN NA PRIMERU METAISKALNIKA PO PODATKOVNIH ZBIRKAH V SLOVENSKI KULTURI

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Izvleček:

V Društvu Ljudmila, laboratoriju za znanost in umetnost, že nekaj let za Ministrstvo, zadolženo za kulturo, razvijamo Culture.si, slovenski portal za mednarodno sodelovanje v kulturi. Vsebina portala so izvirni enciklopedični članki o slovenskih kulturnih institucijah, producentih, prizoriščih in ostalih kulturnih entitetah. Ker gre za mednarodni portal, so vse informacije v angleščini. Ministrstvo je kmalu ugotovilo potrebo po slovenski različici, za katero smo bili v društvu mnenja, da ne sme biti samo enostaven prevod angleškega portala, saj je njegova vsebina prilagojena tujim uporabnikom in ustrezno obdelana. Angleški Culture.si je predvsem uredniško podprt portal, ki temelji na strateško izbranih vsebinah in podatkih o slovenski kulturi. Taka uredniška politika izhaja iz namenov portala in iz dejstva, da ni drugih, že obstoječih in relevantnih spletnih virov, ki bi dosegali zadane cilje. Zaradi naštetih dejstev bi bil prevod, priredba ali ponovno pisanje predstavitvenih besedil v slovenščini neracionalen, končni učinek pa za slovenskega uporabnika premajhen, da bi v portalu našel dodano vrednost.

Na področju digitalizacije kulture v Sloveniji že vrsto let vznikajo spletne iniciative, večinoma podprte z javnimi sredstvi in posvečene posameznim umetnostnim in kulturnim področjem. Praviloma gre za všečne portale s kvalitetnimi vsebinami, ki se sčasoma tudi izboljšujejo.

Kljub bogastvu vsebin, ki ga je tak razvoj prinesel, je uporabnik, ki želi te podatke najti in uporabiti, soočen s praktično nepremostljivimi ovirami:

- podatkovne zbirke so razdrobljene po več deset spletnih mestih;
- za preiskovanje se uporabljajo različni iskalniki z različnimi uporabniškimi vmesniki in nekonsistentnim delovanjem;
- tudi preiskovanje s splošnimi spletnimi iskalniki je težavno - številni podatki so iskalnikom popolnoma nedostopni, a tudi ostali se porazgubijo v množici irelevantnih zadetkov;
- strojno preiskovanje in obdelava obstoječih podatkov je praktično nemogoča;

Kot rešitev smo zasnovali metaiskalnik, ki bo uporabniku na enem mestu omogočal preiskovanje vseh podatkovnih zbirk o slovenski kulturi in pregledno izpisovanje zadetkov. S tem bo uporabniku omogočeno preiskovanje in pregledovanje zadetkov iz vseh zbirk na enem mestu, ponudnikom zbirk pa bo zagotovljena večja vidnost in dostopnost njihovih vsebin. Ker bo omogočal izvoz strojno berljivih podatkov, bo pomagal tudi vzpostaviti okolje za razvoj drugih specializiranih spletnih servisov za slovensko kulturno industrijo.

Za začetek smo izdelali prototip metaiskalnika, ki ga bomo predstavili na kongresu. Ta namesto uporabnika dostopi do obstoječih iskalnikov, iz dobljenih strani z rezultati postrga relevantne zadetke in jih prikaže uporabniku na karseda konsistenten način.

Pri tem naivnem pristopu smo se seveda hitro

srečali s težavami:

- Podatke iz iskalnikov dobimo v obliki, namenjeni človeškemu uporabniku, zato moramo zadetke iz njih 'postrgati', tj. analizirati HTML izpis in uganiti, kje so relevantni podatki.
- Strganje je programersko zahtevno, saj je treba za vsak vir podatkov napisati poseben strgalnik. Nekateri iskalniki vračajo rezultate v semantično slabo strukturiranem in nekonsistentnem HTML izpisu in zato zahtevajo zapletene algoritme, ki so nagnjeni k napakam.
- Zaradi osveževanja in nadgrajevanja spletnih strani se HTML izpisi iskalnikov sčasoma spreminjajo, in tako zahtevajo dodatno delo na strgalnikih.
- Različni iskalniki različno razumejo iste iskalne zahteve, zato je popolnoma konsistentno preiskovanje nemogoče, že delna konsistenca pa zahteva precej dela na strgalnikih.

Pri tem gre za težave, ki ne zadevajo samo našega metaiskalnika, temveč vsak poskus ponovne uporabe obstoječih podatkovnih zbirk o slovenski kulturi, in tako zavirajo razvoj inovativnih spletnih storitev in posledično sodelovanje, razvoj in raziskovanje v slovenski kulturi.

Za odpravljanje teh težav bo potrebno sodelovanje upravljalcev obstoječih podatkovnih zbirk o slovenski kulturi, zato smo pripravili Pobudo za interoperabilne javne podatke v kulturi, s katero predlagamo:

- Oblikovanje minimalnih skupnih tehničnih standardov, ki bodo olajšali pridobivanje in prikazovanje podatkov iz različnih virov, ter zagotovili dolgoživost in dostopnost javnih podatkovnih zbirk na svetovnem spletu. Predlagani standardi naj temeljijo na sodobnih, odprtih rešitvah, ki so usmerjene v prihodnost.
- Javna spletna mesta naj omogočijo dostop do strojno berljivih podatkovnih virov in iskanje v skladu s priporočenimi standardi.
- Interoperabilnost naj bo pogoj za pridobivanje javnih sredstev in vodilo pri vsakem projektu, katerega jedro so informacije javnega značaja.

S sprejemom in uveljavitvijo te pobude bomo omogočili:

- pravilno delovanje našega in drugih iskalnikov, metaiskalnikov in agregatorjev
- preprostejše izvažanje podatkov v skladu z zakonsko zahtevanimi standardi (Eureopana itd.)
- Skladnost z evropsko Direktivo o ponovni uporabi informacij javnega sektorja

GEORAZČLENJEVANJE METAPODATKOVNEGA OPISA KULTURNE DEDIŠČINA

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Izvleček:

Prostorska lokacija v zadnjih letih z razvojem dostopnejših GIS tehnologij postaja eden najpomembnejših vidikov opisa predmeta kulturne dediščine. Atribut lokacije v formalizirani obliki so geokode ali prostorske koordinate, ki nedvomno povečujejo možnosti iskanja, vizualizacije in analize vsebine. Tradicija uporabe geografskih informacijskih sistemov za arhitekturno in arheološko dediščino je dolga vsaj trideset let. Slovenski register nepremične kulturne dediščine je med prvimi s prostorskimi koordinatami enot dediščine pokril celotno ozemlje. V zadnjih letih, predvsem s projektom Europeana, pa postaja vidik prostorske lokacije pomemben tudi na področju premične in žive dediščine.

V prispevku je zastavljeno vprašanje, kako določiti prostorske koordinate objektom in predmetom kulturne dediščine, če niso bile zajete v dokumentacijski sistem upravljanja (muzejski predmeti, arhivsko gradivo, knjižno gradivo, živa dediščina ...) in predstavimo enega od načinov: georazčlenjevanje.

Opredelili bomo definicije georazčlenjevanja, metode in pristope, predstavili kratko analizo in zaključili s predstavitvijo priporočil za uporabo metode georazčlenjevanja.

Georazčlenjevanje je proces, v katerem s programsko opremo določimo tekstualnim informacijam prostorske koordinate. Primeri georazčlenjevalnikov so Yahoo!Placemaker, Geocoder.us, Google Maps Geoparser, FindAddress, MapQuest, Edinburgh Geoparser, Europeana*Connect* Geoparser in drugi. Omenjeni georazčlenjevalniki se razlikujejo po pristopu, metodi, načinu uporabe ter po programskih orodjih oziroma vmesnikih.

V prispevku bomo podrobneje obravnavali Europeana Geoparsing Service (v1.0 beta), ki uporablja imenik zemljepisnih imen GeoNames. Podrobno bo predstavljena analiza, ki razkrije natančnost in uporabnost samodejnega določevanja koordinat. Pri testiranju smo uporabili kot vzorec podatke Registra kulturne dediščine Slovenije. Namen analitičnega testiranja storitve je bilo identificirati razlike med dejanskimi in georazčlenjenimi koordinatami ter določiti število prepoznanih imen, ki so bile georeferencirane na ustrezno lokacijo v prostoru. Predstavili bomo metodo in rezultate analize.

V sklepnem delu prispevka bodo predstavljena priporočila za uporabo georazčlenjevanja za področje kulturne dediščine, ki so nastala na podlagi analize in testiranj. Podana bo ocena prednosti in omejitev uporabe georazčlenjevalnika pri geokodiranju kulturne dediščine glede na enostavnost pristopa, učinkovitost in prostorsko natančnost ter s tem povečanje možnosti za dostopnost kulturne dediščine, kulturni turizem in raziskovanje kulturne dediščine.

JEZIKOSLOVNI VIRI STAREJŠE SLOVENŠČINE

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Izvleček:

Prispevek predstavi tri jezikovne vire, ki zajemajo starejši slovenski jezik, in sicer jezikoslovno označeni korpus z ročno pregledanimi oznakami, ročno pregledani leksikon starejšega besedišča in avtomatsko označeno večjo zbirko besedil z ročno pregledanimi transkripcijami. Predstavljeni viri imajo dva namena. Po eni strani omogočajo empirično podprte jezikoslovne raziskave (korpus, zbirka) in referenco za zapis in pomen starinskega in zastarelega besedišča (leksikon), po drugi pa lahko služijo kot učne oz. testne podatkovne množice za razvoj jezikoslovnih tehnologij, ki nato omogočajo lažje iskanje po polnem besedilu digitalnih knjižnic, posodabljanje besednih oblik za lažje branje starih besedil in razvoj boljših programov za razpoznavanje besedila iz skenogramov (OCR).

Ročno pregledani korpus obsega 1.000 vzorčenih strani iz preko 80 različnih besedil iz let 1750-1900, dve enoti pa sta s konca 16. oz. 17. stoletja. Korpus vsebuje nekaj več kot 250.000 besednih pojavnic, pri čemer je vsaki besedi pripisana sodobna oblika, lema in oblikoskladenjska oznaka. Zastarele besede imajo poleg posodobljene oblike pripisane tudi najbližje sodobne ustreznice. Tako ima npr. pojavitev besede 'ajfram' v korpusu pripisano sodobno obliko 'ajfrom', lemo 'ajfer', oblikoskladenjsko oznako 'Som', oz. 'Samostalnik, občni, moški spol' in sodobno ustreznico 'gorečnost'. Korpus je bil najprej avtomatsko označen, nato pa v več korakih ročno pregledan, pri čemer je bila popravljana tako transkripcija kot tudi naštete oznake.

Leksikon je avtomatsko izluščen iz ročno pregledanega korpusa, poleg tega pa so mu bile dodane besedne oblike iz zbirke besedil, ki se v korpusu ne pojavljajo - tudi tem besednim oblikam so bile ročno pregledane oznake, ravno tako pa je bil naknadno pregledan še celoten leksikon. Leksikon tako vsebuje samo korpusno izpričane oblike, urejen pa je v geselske članke. Vsak vsebuje geslo, torej lemo, njeno oblikoskladenjsko oznako in sodobno ustreznico, nato vse posodobljene oblike, te pa njihove zgodovinske različnice, pri čemer je vsaka pospremljena s primeri uporabe iz korpusa. Tako ima npr. 'ajfer / Som / gorečnost' geselski članek, ki vsebuje dve posodobljeni obliki 'ajfra' in 'ajfrom', pri čemer ima slednji dve zgodovinski različnici, 'ajfram' in 'aifram'. Slednja ima primer uporabe '...shaz noi frihtei tu shebranje karbo sdei udrukono is velzhim *aifram* noi is flisam inu is andohtjo 3 vezhiere saporedama...' (Tapravi inu tazieli Colemone-Shegen, 1800, str. 183). Leksikon trenutno vsebuje preko 25.000 gesel (kar vključuje tudi sodobne besede, ki se pojavljajo v starih besedilih), 50.000 besednih oblik in 70.000 zgodovinskih oblik.

Tretji vir starejše slovenščine je večja zbirka besedil, ki je po strukturi podobna korpusu, s to razliko, da so jezikoslovne oznake besedam pripisane avtomatsko s pomočjo programa ToTrTaLe. Program besedilo najprej razdeli na pojavnice (tokenizacija), nato besede posodobi (transkripcija), posodobljene besede oblikoskladenjsko označi ('tagiranje') in jim pripiše osnovno obliko (lematizacija). Program se večino modelov nauči iz podatkovnih množic, predvsem ročno označenega korpusa starejšega in sodobnega jezika in leksikona starejših in sodobnih besed. Zbirka obsega

okoli 5 milijonov besed in vsebuje ročno korigirana besedila iz treh virov:

- slovenske knjige in izdaje časopisa 'Kmetijske in rokodelske novice', ki jih je zagotovil NUK v okviru EU projekta IMPACT (5.000 strani),
- digitalna knjižnica AHLib (http://nl.ijs.si/ahlib/), ki vsebuje slovenske prevode izvorno nemških knjig (100 knjig),
- izbrane slovenske knjige, dostopne na http://sl.wikisource.org/wiki/Wikivir:Slovenska_leposlovna_klasika

Tu velja opomba, da so besedila AHLib in NUK tudi služila kot osnova za izdelavo korpusa in leksikona.

Vsi trije opisani viri (korpus, leksikon, zbirka) so enovito zapisani v skladu s priporočili za zapis besedil TEI, Text Encoding Initiative Guidelines. Priporočila temeljijo na standardu XML in so namenjena za zapis besedil v znanstvene namene, uporabljajo pa se za večino kompleksnejših izdaj v digitalnih knjižnicah, kot tudi za zapis jezikoslovno označenih korpusov in leksikonov. Viri so dostopni tako za prenos, po licenci Creative Commons, kot za pregledovanje, korpus in zbirka preko konkordančnika, leksikon pa skozi pregledovalnik, vse na naslovu http://nl.ijs.si/imp/.

Trenutno zaključujemo korpus in leksikon, pri zbirki pa še delamo na pretvorbi zapisa Wikivir v TEI in na izboljšavi avtomatskega označevanja. V prihodnosti nameravamo povečati tako korpus kot tudi leksikon, vendar je že trenutna velikost opisanih virov zadostna, da lahko omogočijo zanimive korpusno podprte diahrone raziskave slovenskega jezika.

iKNJIGA - NOV MEDIJ?

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Izvleček:

19. januarja 2012 je družba Apple® predstavila nov standard digitalnih knjig, iBooks® 2 za iPad®. Gre za paket novega programa (*iBooks Author®*) za izdelavo vsebin z novim digitalnim formatom (*iba*), izboljšan čitalnik *iBooks® 2* in ustaljeno distribucijo preko spletne trgovine *iTunes®*.

S stališča slovenske kulturne dediščine želimo preveriti privlačnost novega medija in učinkovitost razmeroma enostavnega dostopa do trga, oboje z namenom promocije slovenske kulturne dediščine. Pripravili smo tri objave, ki merijo na različne strokovne in nestrokovne javnosti. Gre za ponovno izdajo znanstvene monografije avtorja Andreja Pleterskega (*Mitska stvarnost knežjega kamna*) v slovenskem in nemškem jeziku ter namensko izdelano poljudnoznanstveno iKnjigo avtorja Benjamina Štularja (*Srednjeveška Ljubljana. Arheološke raziskave*).

Digitalni izdaji A. Pleterskega smo izbrali zaradi trenutne atraktivnosti teme v Sloveniji in Avstriji. Nestrokovne javnosti in predvsem zamejsko politično dogajanje je namreč razburkala izdaja znanstvene monografije Deželnega muzeja v Celovcu v decembru leta 2011. Korektno znanstveno monografijo

je vladajoča deželna politična struja na avstrijskem Koroškem hipoma zlorabila za dnevno politične potrebe. Slednje je kot odmev v osrednjih slovenskih dnevnih časopisih doseglo tudi slovensko javnost.

Temo za poljudnoznanstveno iKnjigo smo izbrali po dveh kriterijih. Prvi je bila atraktivna tematika, drugi pa zadostna količina že pripravljenih multimedijskih vsebin.

Vse tri iKnjige smo vložili v postopek objave na spletni trgovini iTunes® manj kot tri tedne po objavi programa za izdelavo vsebin. Na konferenci želimo predstaviti naš pogled na uporabnost novega medija ter prve odmeve oziroma branost. Predstavili bomo tudi pravilnik o avtorskih pravicah, ki ga uveljavlja novi medij. Na podlagi branosti v prvih mesecih bomo lahko podali začetne ocene uporabnosti novega medija za popularizacijo kulturne dediščine.

SPLETNE ZBIRKE NA SPLETNI STRANI SLOVENSKEGA ETNOGRAFSKEGA MUZEJA

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Izvleček:

Vas zanima nočna panorama Ljubljane ali pa pogled na nebotičnik iz 30 let prejšnjega stoletja? Kako pa je bila videti Cerknica v istem času? Kakšna je videti alpska hiša? Na kakšnih posteljah so spali pred petdesetimi leti? Ste športni tip in vas zanimajo priprave jugoslovanskih atletskih reprezentantov leta 1953? Sta Anton Codelli in Leo Poljanec res sodelovala pri gradnji brezžične radiotelegrafske postaje v nemški koloniji Togo? Le kaj je cvetnonedeljska butara? Je dvoboj med Korošico in Kranjico res upodobljen na panjski končnici? Le kaj je roš? Kakšni dimniki so krasili strehe v Artiži vasi? Odgovore na vsa ta neobičajna vprašanja najdete v Spletnih zbirkah SEM!

Dokumentacija Slovenskega etnografskega muzeja hrani številne zanimive fotografske zbirke, ki so predmet zanimanja tako s strani etnologov kot ostale zainteresirane javnosti. Zaradi lažje dostopnosti smo leta 1997 kupili prvi skener in začeli skenirati posamične fotografije. Leta 2007 smo se odločili za sistematično digitalizacijo najbolj iskanih zbirk fotografij. Leta 2009 smo nadaljevali z digitalizacijo (deloma z zunanjimi izvajalci) ter sodelovali v evropskem projektu Athena. Zavoljo večje popularizacije našega gradiva smo se odločili celotne zbirke objaviti na spletnih straneh in jih predstaviti javnosti.

Vse zbirke so skupaj z metapodatki dokumentirane v programu Minok, ki nam omogoča izdelavo *html* katalogov. Ker nismo bili zadovoljni s statičnim prikazovanjem teh katalogov, smo ta *html* izvoz uporabili za razvoj nove aplikacije, ki nam omogoča dinamično prikazovanje naših predmetov in fotografij: t.i. galerijski pogled, možnost samodejnega prikazovanja fotografij, filtriranje po ključnih besedah in geolokacijah, prikazovanje geolokacij na zemljevidu ter možnost naprednega iskanja po katalogu.

Zunanji izvajalec nam je izdelal program *Galerist*, ki omogoča uvoz *html* kataloga v spletno stran. Galerist omogoča številne možnosti: sortiranje in urejanje posamezne enote, dodajanje geolokacij, izdelavo

zaključenih zbirk in podobno. Spletno aplikacijo *Galerist* smo integrirali na našo spletno stran in vzpostavili t.i. galerijski pogled. Ta aplikacija deluje neodvisno od spletne strani, ki temelji na CMS programu Drupal. Kasneje smo ugotovili, da ima ta neodvisnost tudi svojo slabo stran - mnogi obiskovalci namreč iščejo želeno preko osnovnega iskalnika spletne strani - ne pa preko Galerista. Drupal najde tudi posamičen zapis, vendar pa prikaže ta element znotraj celotne zbirke, kar otežuje enostavno iskanje. Vsled tega smo se odločili, da celotno zbirko uvozimo v Drupal in tako olajšamo iskanje in poenostavimo izpis posamičnih zadetkov. Tako lahko sedaj iščemo elementa tako v Drupalu kot Galeristu.

Leta 2010 smo na naših spletnih straneh objavili *Spletne zbirke SEM* . Razdeljene se na *Zbirke predmetov* (*Cvetnonedeljske butare, Kosova zbirka, Ljudska glasbila, Modeli za modrotisk, Orala, Panjske končnice, Pokrivala,Plastične pustne maske, Rovaši, Vraževerje, Zbirka Milana Kovača in Žimnata sita* na http://www.etno-muzej.si/sl/zbirke-predmetov), ki vsebujejo fotografije predmete iz naših muzejskih fondov, ter *Zbirke fotografij* (fotografije iz 32 terenov t.i. Orlovih ekip ter albumov: *Vekoslav Kramarič, Rado Kregar, Matija Murko, Slavko Smolej, Veno Pilon, Jernej Šušteršič, Tiskovni urad, Togo Album, Fran Vesel, Zbirka starih fotografij in Zbirka športnih fotografij Marka Račiča*, na http://www.etno-muzej.si/sl/zbirke-fotografij), ki so zbirke fotografij iz dokumentacije SEM. Skupaj je predstavljeno 55 zbirk z več kot 23.000 enotami.

Naše analize (spletna statistika) in odzivi uporabnikov preko elektronske pošte nam potrjujejo domnevo, da so te zbirke zanimive za splošno javnost. S tem je tudi dosežen naš osnovni cilj - to je popularizacija kulturne dediščine, saj pogosto spoznavamo, da ljudje razen stalnih razstav ne vedo, kaj vse hranimo v muzejih. Digitalizacija se je financirala z evropskim projektom Athena - naše zbirke se tako prikazujejo tudi na Europeani. *Spletne zbirke SEM* pa seveda niso končan projekt in jih vseskozi dopolnjujemo z novimi zbirkami.

DIGITALNE VSEBINE NA RAZSTAVI NOVO MESTO 1848 - 1918 v DOLENJSKEM MUZEJU NOVO MESTO

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Izvleček:

V Dolenjskem muzeju Novo mesto smo se pri načrtovanju razstave Novo mesto 1848-1918 prvič odločili, da bodo sestavni del razstave tudi digitalne vsebine. Pri pripravi vsebin smo sledili naslednjim ciljem: vsebina in celostna podoba digitalnih vsebin je načrtovana in oblikovana vzporedno z načrtovanjem razstave, izvedba je taka, da zadovolji potrebe različnih starostnih skupin obiskovalcev, digitalne vsebine bodo v času trajanja razstave dostopne s pomočjo ekranov na dotik v sklopu razstave, kjer je tudi možnost projiciranja in uporabe le-teh za tematska predavanja ali reševanje v skupinah, istočasno pa bodo v celoti dostopne na medmrežju na samostojni internetni strani (www.novomesto1848-1918.si).

Glede na zgoraj zastavljene cilje smo pripravili tri digitalne vsebine: fotogalerijo, kviz in igro.

Fotogalerija je zasnovana enako kot vsebina na razstavi in v katalogu, le da je pri digitalnih vsebinah dodano sodobno Novo mesto in

zvočni posnetki orkestriona. Naslovi vsebin so: Avstrijsko cesarstvo, Krka in Novo mesto, Mesto in mestni simboli, Podobe mesta in ljudi, Uprava in gospodarstvo, Društveno in družabno življenje in Novo mesto danes. Ob tej priložnosti smo tudi digitalizirali vpisno knjigo meščanske garde, knjigo gostov narodne čitalnice, vpisno knjigo kazinskega društva, album razglednic in diplomo častnega meščana. Vse knjige so objavljene v šestem vsebinskem sklopu. Vsaka fotografija ima kratek podnapis. V času trajanja razstave so možne tudi tematske projekcije, ker omogoča aplikacija sprotno in enostavno izbiro gradiva po lastni presoji, kar je veliko bolj prikladno pri izvedbi predavanja, kot če imamo pripravljeno projekcijo v kakšni manj prilagodljivi aplikaciji (npr. Power Point). V fotogaleriji je 564 strani skeniranega gradiva. Znotraj posamezne vsebine so na začetku objavljene fotografije gradiva, ki je v kataloškem delu publikacije, sledi razširjeno gradivo, ki ga lahko vidimo na razstavi in dodatno gradivo, ki se nanaša na obravnavano vsebino.

Kviz je zasnovan tako, da je na voljo 40 vprašanj, ki se vsebinsko nanašajo na vsebino razstave in kataloga. Vsako vprašanje ima tri kratke odgovore, med katerimi je eden pravilen. Ob vprašanjih je tudi fotografija, ki pojasnjuje pravilni odgovor. Aplikacija samostojno izbira deset vprašanj in reševalcu sproti podaja informacijo pravilnega oziroma napačnega odgovora. Na razstavi se kviz lahko uporablja individualno ali pa pri skupinskih obiskih s pomočjo projekcije kot hitri test po ogledu razstave. Kviz je namenjen vsem starostnim skupinam, ki že obvladajo veščino branja.

Računalniška igra z naslovom Lov rakov v reki Krki je prilagojena igranju najmlajših obiskovalcev. Grafika je enostavna, vsebina pa je povezana z Novim mestom v obravnavanem času. Igralcu podaja informacijo o legi Novega mesta na polotoku reke Krke in o nekaterih objektih, ki so bili ob reki (leseno kopališče, star most, jez in mlin). Lov rakov pa zato, ker je bila reka Krka s pritoki do izbruha račje kuge največje lovišče rakov jelševcev na Slovenskem, saj so jih po nekaterih podatkih letno nabrali do 100 000 in jih dobavljali v vsa večja mesta tedanjega Avstrijskega cesarstva.

Smiselnost digitalizacije gradiva in uporabe na razstavi je po našem mnenju sledeča. Skenirali smo 564 strani gradiva, ki je zelo dragoceno za preteklost Novega mesta. To so prve fotografije in razglednice Novega mesta in meščanov in že omenjene vpisne knjige prvih novomeških društev. Pri digitalizaciji smo naročili arhivske kopije in kopije za rokovanje in uporabo na razstavi in medmrežju. Originalno gradivo je v depojih, kajti za rokovanje je na voljo v digitalnih zapisih, kar zadošča veliki večini uporabnikov.

S pomočjo digitalizacije in uvrstitve teh vsebin na razstavo smo lahko bistveno razširili ponudbo slikovnega gradiva našim obiskovalcem. Objava gradiva v katalogu in na razstavi je zaradi različnih vzrokov vedno številčno omejena, z digitalizacijo se je pa število bistveno povečalo. Zlasti vpisne knjige so veliko bolj sporočilne, ker so dostopne vse strani in ne le ena ali dve, kot je običaj pri klasičnem razstavljanju.

Z objavo gradiva na medmrežju smo bistveno povečali dostopnost gradiva. Vpisne knjige so zanimive tudi za rodoslovce, ki lahko iščejo podatke svojih prednikov iz Novega mesta.

Okvirno vsebino razstave lahko potencialni obiskovalci pregledajo doma in upamo, da digitalne vsebine vzbudijo zanimanje za ogled razstave. Pogosto se med muzealci pojavlja dilema, ali je smiselno vso vsebino razstave objaviti na medmrežju, kajti morda potem obiskovalci ne bodo prišli v muzej. Moja lastna izkušnja je ravno obratna. V kolikor vidim več informacij o razstavi na medmrežju in te vzbudijo moje zanimanje, se lažje odločim za ogled razstave. Prav zaradi tega smo v fotogaleriji dodali rubriko Novo mesto danes, ker želimo predstaviti tudi sodobno Novo mesto ter tako razširiti krog potencialnih obiskovalcev mesta in razstave.

Prilagoditev vsebin z možnostjo projekcije na razstavi omogoča hitro prilagajanje tematsko zaokroženim in časovno prilagojenim predavanjem, (npr. lahko naredimo kratko predavanje o narodno prebudnih razglednicah, o društvih v Novem mestu, o meščanski noši, o maškaradi itd).

Digitalne vsebine so na voljo tudi profesorjem v šolah, ki lahko pred ali po obisku razstave v muzeju z učenci pregledajo teme, ki jih zanimajo.

Razstava je odprta od novembra leta 2011 in pokazalo se je, da so digitalne vsebine zelo zanimive za obisk družin. Zlasti otroci se pogosteje zadržijo pri računalnikih in uporabljajo vse tri ponujene vsebine, starši si pa med tem ogledujejo razstavo. Pričakovala sem, da bodo otroci več uporabljali kviz in igro, vendar so jim očitno zanimive tudi fotografije, še zlasti posnetki ljudi npr. portreti meščanov, družin, maškar in članov društev.

Težav pri vključevanju digitalnih vsebin na razstave in sploh digitalizacije v našem muzeju je več. Največji sta pa vsekakor kadrovska podhranjenost in finančne zmožnosti. V muzeju nimamo ustrezno usposobljenega uslužbenca, katerega delovno področje bi bilo zgolj dokumentacija, računalništvo, digitalizacija ali informatika. Vsak kustos skrbi za muzejske zbirke (kar vključuje spremljane gradiva v depojih, iskanje restavratorjev in konservatorjev, vodenje analogne in digitalne dokumentacije itd), raziskuje in pripravlja razstave in razstavne kataloge, komunicira z javnostjo s pomočjo vodstev, objave gradiva itd. Na primeru te razstave to pomeni, da sem sama pripravila vsebinsko zasnovo razstave, izbor in pripravo gradiva,, delo na terenu, večmesečno delo v arhivu, pisanje teksta za katalog, aktivnosti v zvezi s prilagoditvijo razstave za slepe in slabovidne in vsebinska in logistična priprava digitalnih vsebin. Zame najtežja naloga je bila ravno priprava digitalnih vsebin, a ne vsebinska, pač pa izvedba. Veliko časa sem posvetila iskanju informacij o različnih možnostih izvedbe, iskanju izvajalcev in predračunov. Pri iskanje predračunov za izvedbo in razlagi izvajalcem, kaj pravzaprav želimo in kakšne so možne rešitve glede objave digitalnih vsebin na razstavi in medmrežju, sem kar nekajkrat naletela na odgovor, da je svetovanje že del posla in mi bodo pri tem pomagali šele potem, ko bodo izbrani. Pogosto so vse dodatne aktivnosti v zvezi s pripravo razstave, tudi vključevanja digitalnih vsebin, odvisne od samoiniciativnosti kustosa in razumevanja finančnega vodja projekta.

Prav tako je težka odločitev, kateremu izvajalcu v Sloveniji zaupati digitalizacijo gradiva, ki zahteva ustrezno rokovanje in izvedbo. Odločamo se na osnovi izkušenj sorodnih institucij. Gotovo bi nam bil v pomoč register izvajalcev s tega področja, s katerimi imajo institucije v Sloveniji, ki so vodilne na področju digitalizacije gradiva, dobre izkušnje.

Naslednje vprašanje je ustrezno dolgoročno arhiviranje digitalnih vsebin. S tem, ko digitaliziramo gradivo, naredimo šele prvi korak. Morda bi veljalo razmisliti o skupnih letnih izobraževanjih s tega področja za vse kulturne institucije, ki se ukvarjamo s temi vprašanji.

V dosedanji praksi se vsaka institucija po svojih zmožnostih in prioritetah odloča za digitalizacijo. Priprava razstave je gotovo primeren trenutek, ko lahko združimo predvideno digitalizacijo za več možnih ciljev: priprava razstavnih panojev, drobnih tiskovin in kataloga, digitalnih vsebin na razstavi in tudi objavo gradiva na medmrežju. Smiselnost vsega tega pa bo pokazal šele čas.

S fotogalerijo, kvizom in računalniško igro želimo razstavo približati tistim, ki jim je svet digitalnih vsebin bližje in jih hkrati spodbuditi za ogled naše razstave v živo. Zato lepo povabljeni v Novo mesto na sprehod skozi drugo polovico 19. stoletja. Razstava bo na ogled do 24. 2. 2013.

VEČRAZSEŽNOSTNI PRIKAZI NARAVNE IN KULTURNE DEDIŠČINE V PROJEKTU DEDI

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Izvleček:

DEDI je akronim za Digitalno enciklopedijo naravne in kulturne dediščine na Slovenskem, ki je nastala v okviru dveh prototipnih raziskovalno-razvojnih projektov DEDI in DEDI II v obdobju 2008 do 2010. Projekta sta sofinancirala Ministrstvo za visoko šolstvo, znanost in tehnologijo ter Evropski sklad za regionalni razvoj v okviru prototipnih raziskovalno-razvojnih projektov e-vsebine in e-storitve. Gre za prvo digitalno večmedijsko predstavitev slovenske naravne in kulturne dediščine, ki preko spleta kar najširši javnosti na enem mestu ponuja verodostojne, kakovostne in kompleksne (sestavljene) vsebine. Prikaz digitalnih vsebin običajnih formatov (tekst, video, zvočni zapis in fotografija) je obogaten z geografsko informacijo, ki je hkrati prikazana dvo- in/ali tri-razsežnostno, lahko pa tudi štiri-razsežnostno s časovno komponento. 4D modeli prikazujejo 3D modele objekte v času, kar pomeni, da lahko simuliramo pretekla, sedanja in prihodnja stanja objektov, njihovo spreminjanje, rast, upadanje ali nihanja. 3D in 4D modeli povečajo nazornost, plastičnost in atraktivnost prikaza objektov laičnim uporabnikom, s tem pa se poveča zanimanje za enciklopedijo. Tehnološko je projekt realiziran z lastnim razvojem programske opreme konzorcijskih partnerjev s področja informacijskih in spletnih tehnologij, ki so preko delnih informacij o objektu, uspeli umestiti v prostor vse objekte nepremične kulturne dediščine in naravne dediščine. Za 2D prikazovanje se v praksi najpogosteje uporablja spletna platforma Google Maps, kjer pa pogosto pride do težav takrat, ko želimo prikazati večjo količino podatkov, saj postane množica nepregledna. Podatke je za uporabo v enciklopediji potrebno strukturirati in jih povezati v smiselne celote, kar je ena od glavnih prednosti Geopedie, interaktivnega tematskega atlasa, ki uporabnikom omogoča dodajanje in urejanje vsebin o Sloveniji. Za tri-razsežnostne prikaze je uporabljeno Gaea+, trirazsežnostno vizualizacijsko orodje, ki v kontekstu resničnega geografskega prostora na preprost način omogoča prikaz poljubnih prostorskih informacij in obogateno vizualizira interaktivne sprehode skozi prostor.

Znotraj projekta je bilo pripravljenih več naprednih deditek (kot imenujemo dinamične interaktivne večmedijske predstavitve) nekaterih nacionalno pomembnih objektov kulturne in naravne dediščine. Napredne dediteke povezujejo zapise več objektov dediščine v interaktivne zaključene zgodbe in jih še dodatno nadgrajujejo, kot npr. napredna

dediteka 'Martin Krpan in njegov čas', ki digitalizirano pripoved 'Martin Krpan z Vrha' iz leta 1858 opremi z brano besedo; tako lahko bralec sliši tudi zven jezika Levstikovega časa. Objekti so bili izbrani po kriteriju regionalne in vsebinske uravnoteženosti. V prispevku podrobneje predstavljamo 4D simulacijo rasti mesta Ljubljane in virtualno rekonstrukcijo kabineta Žige Zoisa.

Za mesto Ljubljana je narejena 4D simulacija rasti mesta na osnovi zgodovinskih in sodobnih virov, tj. 3D prostorski prikaz s časovno komponento. Kot vir so uporabljeni stari načrti Ljubljane, digitalni model reliefa, državne topografske karte in sodobni mestni načrti ter podatki katastra stavb. Stavbe so prikazane tridimenzionalno na modelu reliefa, ki je za vsako epoho razvoja mesta prekrit s karto tistega obdobja. Rast mesta je prikazana tudi dvodimenzionalno dinamično na karti s prikazom naraščanja števila tlorisnih prikazov stavb in z izohronami rasti mesta.

Za Zoisovo hišo je izdelan 3D prikaz skenirane zunanjosti Zoisove hiše ter del notranjosti hiše z virtualno rekonstrukcijo njegovega kabineta, v katerega je umeščena zbirka mineralov. Nekaj primerkov iz zbirke je tudi 3D skeniranih, prav tako je digitaliziranih nekaj del iz Zoisove pisne zapuščine.

VIRTUALNI SVET RAZSTAV

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Izvleček:

Narodna in univerzitetna knjižnica skriva za svojimi zidovi številne zaklade. V depojih svojih posebnih zbirk, kot so Rokopisna zbirka, Zbirka starih tiskov, Kartografska in slikovna zbirka, Glasbena zbirka, Zbirka posebnega knjižničnega gradiva, Zbirka serijskih publikacij in Zbirka tiskov Slovencev zunaj Republike Slovenije hrani na papir ali druge medije zapisano slovensko kulturno dediščino. Zaklade potegnemo na dan ob priložnostnih razstavah, vendar ob takih in podobnih dogodkih zmoremo predstaviti le majhen del bogastva. Prav zato se je leta 2008 rodila ideja, da bi gradivo iz bogate Nukove zakladnice predstavili tudi na virtualnih razstavah, s katerimi smo želeli javnosti predstaviti pomembne sklope gradiva, ki imajo samostojno vrednost in so pomembni ne samo kot dokumentarno gradivo, temveč imajo tudi zgodovinsko ali umetniško vrednost. Tako je bila februarja 2008 objavljena prva virtualna razstava z naslovom *V belini še belejša tiha svečka* s podnaslovom Ljubljana na svojih prvih razglednicah. S pomočjo bogate zbirke razglednic, ki jih hrani Kartografska in slikovna zbirka so avtorji prikazali podobo našega glavnega mesta iz začetka 20. stoletja. Kmalu so sledile še druge razstave, ki so sprva posnemale klasično postavljanje: model je bil narejen fizično na papirju, z lepljenjem posameznih slik in besedil na papirni trak.

Pred dobrima dvema letoma smo postavljanje spletnih razstav poenostavili. Datoteke izvorno digitalnega in digitaliziranega gradiva, ki so v formatu jpg, uvozimo v Microsoft Office program Power point kot album. S pomočjo že obstoječih orodij oblikujemo vsako jpg datoteko, npr. dodamo okvir, opisno besedilo... Po končanem oblikovanju diapozitive shranimo

kot datoteke v jpg formatu. Zadnji korak priprave spletne razstave je uvoz pripravljenih jpg datotek (diapozitivov) v program Cooliris, ki ga uporabljamo za spletno postavitev razstav.

V prispevku na primerih virtualnih razstav *V belini še belejša tiha svečka, Ateljejski fotografi na Slovenskem,* cikel fotografij *Štirje letni časi* fotografa Frana Krašovca in fotografij *Popotresna Ljubljana 1895,* podrobneje predstavljamo postopek izdelave virtualnih razstav tako iz vsebinskega kot iz tehničnega vidika.

ZAZNAMKI