ACCESSIBILITY OF CULTURAL HERITAGE In the virtual environment of latvia memory institutions

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The aim of research is to evaluate the level of e-service provision in digital collections created by memory institutions (libraries and archives) of Latvia. The problem under study is as follows: digital collections have insufficient usability due to lack of appropriate e-services. The empirical basis for research is e-services of digital collections created by national and regional level libraries, as well as the National Archives of Latvia. The evaluation of e-services is based on 14 indicators within 7 categories: visibility, search, reference, personalization, user participation, instructions, and document delivery. The analysis reveals that the level of eservice development is quite low (only satisfactory): e-services have low visibility, three indicators in personalization category are represented incompletely, and the category of user participation has the lowest rate.

Key words: electronic service, evaluation, digital collection, memory institution

INTRODUCTION

The "Sustainable Development Strategy of Latvia until 2030" highlights the necessity to use the virtual environment for access to cultural content: "New technologies also give an opportunity to use the virtual reality for improvement of the access to culture: to virtual expansion of the culture space of Latvia, preservation and distribution of the values of cultural heritage, to creation of new cultural products and services, as well as to cultural education" (Saeima, 2010, 14). To support the expansion of virtual cultural environment the memory institutions can complement traditional information services with those available via networks.

The data collected by the Central Statistical Bureau of Latvia reflect the use of information and communication technologies (ICT) by inhabitants of Latvia. According to the statistical survey on regular use (at least once a week) of Internet (December, 2012) 70.3% of inhabitants (age 15–74) are active Internet users, and 63.6% of households have access to the Internet (CBS, 2013). The numbers reveal that digital environment attracts a significant amount of

users. Furthermore, they are familiar with advantages of the World Wide Web and ICT in their everyday lives, and they can use these practices also in communication with memory institutions. There is a potential to develop electronic information services (e-services) in the virtual environment of Latvia memory institutions (libraries, museums, archives).

Digital libraries can serve for the expansion of virtual cultural environment. The term *digital library* describes an organization "that provides the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily available for use by a defined community or set of communities" (Dahl M., Banerjee K., Spalti M., 2006, 23). The important aspect in this definition: digital libraries are designed for users' communities. The interaction between digital content and users is achieved through information services. The services ensure that the digital content will be used.

Since 1994, when the digitization process has started in Latvia, a significant amount of digital collections has been created. The major part of them is available via Internet. According to the register of digital collections (created within the research project "National Identity in Digital Environment"¹) more than 130 digital collections are available.

The problem of this study lies in interaction between digital content and users of that content. Practice has shown that there can be a variety of problems affecting the usability of digital collections, e.g., poor interface quality, insufficient collections' visibility, lack of users' interest, etc. This study highlights another problem: digital collections have low usability due to lack of appropriate e-services. The attention is focused on the diversity of e-services that potentially could promote the popularity of digital collections and attract users.

1. DIGITAL LIBRARY SERVICE SYSTEM

There are three significant keywords in the aforementioned definition of the term *digital library*: *organization, resources* and *services*. These keywords characterise three dimensions of a digital library service system.

Register "Digital collections created by Latvia memory institutions". Available: http://www. nacionalaidentitate.lv/nacionalas-identitates-petijuma-programma/datubaze-latvijas-atminasinstituciju-veidotas-digitalas-kolekcijas

The Three-dimensional model of a digital library service system (see Fig. 22) is seen from a perspective of business management. System has the following dimensions (functions): 1) organization; 2) resources; 3) services. This model is used by *Long Xiao* in the case study on development of the *Peking University Library* information services. L.Xiao concludes: "Three axes of organizations, resources and services are complementary in supporting, interacting and enhancing each other. [...] Within the three-dimensional structure each function will influence the other two, and one weakness may lead to a complete failure" (Xiao, Long, 2010, 305). Conclusion sets that services are an integral component of a digital library. It is evident that excellent digital collection will attract low amount of users if e-services will not be on appropriate level.

E-services are "information services retrieved via local server or computer networks" (ITTEA, 2013). These services are closely related to the level of ICT development, as well as to the skills of information professionals in use of ICT. The international researchers recognise: "electronic services librarianship is all about experimentation, development of new resources, innovation, technology watch, new competences for the information professional, frequent retooling as the technologies will inevitably change, and user instruction to empower users to use the electronic resources effectively" (Moyo, Lesley M, 2004, 225). Consequently, the e-services are of evolutionary nature, and their development is a matter of professional competence.

2. CORE SET OF E-SERVICES

To define the categories for analysis, the core set of e-services is defined. The selection of e-services has been based on international experience (e.g., Moyo, Lesley M, 2004; Nguyen, Linh, et al., 2012; McLaughlin, Jean E., 2011). Description of e-services is developed from professional literature and standards (e.g., ISO, 2008)

Search

Search is the basic e-service to ensure the retrieval of information according to users' needs. Search is "a feature associated with folders and programs that begins to display results as soon as a keyword is entered" (ITTEA, 2013). There are two basic types of this e-service:

- 1. *search* (simple and advanced). Advanced search enables users to build robust, targeted queries that include search operators (ITTEA, 2013).
- 2. *browse* is possibility "to scan a database, a list of files, or the Internet either for a particular item or for anything that seems to be of interest" (ITTEA, 2013). Best practice confirms the organization of both search facilities for every digital collection (Holma, 2011, 62–63).

Reference

Reference service (digital reference) is the most significant e-service. It helps users to solve information problems without direct communication to information professional. There are three broad functions of digital reference services:

- 1. finding the required information on behalf of users, or assisting users in finding information themselves;
- 2. instruction how to use library resources;
- user guidance in selecting the most appropriate information source (Chowdhury, G. G., Chowdhury, Sudatta, 2003, 228). Two types of the digital reference service are as follows:
- 1. *asynchronous transactions*, which involves time delay between the question and answer sent by e-mail, web forms or using Ask-A-Librarian service;
- 2. *synchronous transactions*, which take place in real-time with an immediate response to the query using chat technologies or video conferencing (Yin-Leng Theng, ed., 2009, 414).

Future development of the digital reference service supports personalization, and ensures the information filtering according to user defined information categories and tasks.

Personalization

Personalization is the characteristic feature of digital libraries. In the context of library databases this term is defined as "feature that enables users to customize, set preferences, and work with filtering technology in ways that contribute to a personalized work environment and respond to individual preference" (McLaughlin, Jean E., 2011, 605).

Personalization is focused on creation of individual workspace: personalized interface and personalized content. Users are able to personalize interface by choosing the preferable screen colour, typeface and layout. Users can also personalize the content (My content) by filtering search results, saving results for later use, exporting results to the other workspaces, or using RSS (*really simple syndication*) as news alert tool.

User participation

The emergence of digital technologies enables library users to engage in and contribute to the development of library services. The participatory e-services can be organized in many different ways, among others as follows (Nguyen, Linh, et all., 2012, 337–339): 1) users being co-creators and information providers; 2) users playing the role of librarians; 3) users having influence on organization of library work, etc. Regarding virtual environment of Latvia memory institutions users can be engaged in delivering appropriate e-content, or comments on available e-content, as well as metadata to digital objects.

Electronic document delivery

Electronic document delivery is "transfer of information traditionally recorded in a physical medium (print, videotape, sound recording, etc.) to the user electronically, usually via e-mail or the World Wide Web" (ODLIS, 2013). In case of Latvia memory institutions users would have the opportunity to acquire digital copies, including high-quality digital copies of cultural heritage objects for digital publishing.

Analysing the potential of aforementioned e-services to improve the accessibility of cultural heritage in the virtual environment, the conclusion can be drawn that services are one of the main directions in the development of digital collections. The keywords for e-resources are – *user oriented* and *user friendly* with focus on user. User participation in this process is the key feature of the new e-service paradigm.

3. LEVEL OF E-SERVICE PROVISION: EVALUATION METHODOLOGY

Empirical basis

The empirical basis for research is the e-services of digital collections created by national level and regional level libraries, as well as the National Archives of Latvia. The selected institutions are creators of 68% (86 collections) of all digital collections represented in the register of digital collections. They are the major participants of digitization process.

The selected collections are available on-line and in open access mode. They are presented in two major ways: 1) as virtual exhibitions; 2) as databases. Evaluation is made for e-services available both via collection's website and via institution's website. If e-services are available via institution's website, the collection's website must have visible links to them.

Evaluation categories and procedure

Evaluation of e-service provision is performed using 14 indicators in seven categories (see Table): *visibility, search, reference, personalization, user participation, instructions, document delivery.*

The first category (*Visibility*) characterizes the accessibility of e-services (whether there are unambiguous links to the e-services), and free access to them. Four categories (*Search, Reference, Personalization, User participation*) characterize the core set of e-services. Category *Instructions* reflects the best practice in help information. Category *Document delivery* describes the specific service in digital environment (the maximum score for this category can be reached when the institution has highlighted this service from the whole library service package).

The provision of e-services is evaluated using the quantitative approach. 14 indicators are scored in points as follows: 2 points – indicator is provided in full; 1 point – indicator is provided partly; 0 points – indicator is not provided. Score can reach the maximum amount of 28 points. According to acquired points the diversity of e-service provision is split into four levels from excellent to unsatisfactory:

28-22: excellent provision of e-services;

21-15: good provision of e-services;

14 – 8: satisfactory provision of e-services;

7-0: unsatisfactory provision of e-services.

[1]	Visibility Hyper- H links at H collec-tion's ii website ti website ti
[2]	lity Hyper- links at institu- tion's website
[3]	Search Br
[4]	owse
[5]	Reference Asyn- Syn- chro- chro nous nous
[6]	
[7]	Pers Interface persona- lization
[8]	Personalizatio
[9]	ation Really simple syndi- ccation
[10]	Ut partic: Com- ments
[11]	User Con- tent deli- very
[12]	Instru Help for collec- tion use
[13] [14]	Instructions
[14]	Document delivery

Table. Evaluation categories of e-services provided by digital collections of Latvia memory institutions

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4. PROVISION OF E-SERVICES IN THE DIGITAL COLLECTIONS OF LATVIA MEMORY INSTITUTIONS

4.1. DIGITAL COLLECTIONS OF THE NATIONAL LEVEL LIBRARIES

Digital collections are created by five out of seven (71%) national level libraries. Leaders in digital collection development are **the National Library of Latvia** (NLL) (15 collections) and Library of the University of Latvia (9 collections).

Digital collections of the NLL reflect inherent tendencies in the development of e-services within the national level library group, as well as in organization and provision of access to digital collections in general. Access to digital objects in these collections is organized in several ways: 1) a separate section of library website (HTML documents, e.g., Heritage-1), 2) a specific database management system (e.g., Lost Latvia), 3) a platform and portal of the Latvian National Digital Library (LNDL) (e.g., Latvian and Foreign Prints and Periodika.lv), 4) ACADEMIA repository (e.g., On the Roads), 5) a separate database within the library information system (LIS) ALEPH. E-services are provided according to the way of access.

The NLL collections "Lost Latvia" (score – 19) and "Periodika.lv" (score – 19) have the highest provision level of e-services. The most important positive features of both collections are: user participation in collection's development (delivering comments or content), data retrieval – search and browse, electronic document delivery, as well as instructions (use of collection – search examples) and descriptions of collections (see Fig. 23). Personalization is implemented partly: in Periodika.lv case, users are able to create individual workspace. Links to e-services are available at the NLL website, as well as at the collection's websites.

The average level of e-service provision in the NLL collections is satisfactory (average score -13.4) with tendency to good. Service rating shows that since 2006, when creation of the LNDB was launched, there has been a purposeful progress towards personalization and user participation. E-services of virtual exhibitions have obtained the lowest scores. They were created during the beginnings of digitization, and reflect the limited technological capabilities.

E-service provision of **other national level libraries**² (like the NLL) is on a satisfactory level (average score -12.3 points) (see Fig. 24). The best rate is

² Academic Library of the University of Latvia, Library of the University of Latvia, Fundamental Library of the Latvia University of Agriculture, Scientific Library of the Riga Technical University.

for search service – especially browse type of this service. Browse is available to users even in cases where digital objects are presented in the form of virtual exhibitions (as elements of HTML documents). Collections have appropriate descriptions. In most cases, access to e-services is organized from the institution's website (lack of hyperlinks in collection's websites). Collections are not complemented by synchronous reference service. User participation and personalization are the lowest rating categories, there is a potential for further development.

4.2. DIGITAL COLLECTIONS OF THE REGIONAL LEVEL LIBRARIES

Out of 28 **regional level libraries** digital collections are created by 15 (54%) libraries. The register of digital collections shows that 46 digital collections of these libraries are available via Internet. Significant amount of digital collections is created by Ventspils Library (13 collections), Jelgava Scientific Library (6 collections) and Limbaži Main Library (6 collections).

One of the highest average ratings (score – 18 points) has the collection of Kuldīga Main Library "Kuldīga: history, events, people". The collection is presented integrating HTML documents and LIS ALISE potential. LIS ALISE provides search of digital objects, personalized workspace (My List) for a given work session, as well as RSS alert for new item addition. Furthermore, e-reference service Ask a librarian! is available from every page of the library website (collection's part of website has contact information) (see Figure 4). Electronic document delivery is highlighted from the library service package. E-services of this collection could be improved towards user participation (delivery of comments or content).

Level of e-service provision of the regional level libraries is considered to be satisfactory (score -12 points). Visibility of digital collections at the institutions websites, as well as browse and asynchronous reference service is provided on sufficiently high level. Categories such as user participation and personalization (interface customization and content syndication) have the lowest score. The regional level libraries do not provide synchronous reference service (see Fig. 25).

4.3. DIGITAL COLLECTIONS OF THE NATIONAL ARCHIVES OF LATVIA

Register of digital collections shows that different departments of **the National Archives of Latvia** have developed 42 digital collections. Significant part of them (36%) have been created by the Latvian State Historical Archives (5 collections) and the State Archive of Latvia (SAL) (10 collections).

The SAL is a leader in virtual exhibitions. Since 2004 there has been carried out the purposeful creation of virtual exhibitions. These virtual exhibitions reflect potential of this relatively simple way of publication. A characteristic positive feature of all SAL collections is the detailed browse option. They also have an extensive description of references, creators, as well as help information for use of the collections, and explanation of the copyright. Collections can be improved towards personalization and user participation. The collection's websites in most cases are not related to the SAL website where more e-services are available (e.g., reference service and document delivery).

Level of e-service provision in digital collections of the National Archives is considered to be satisfactory (score -9 points) (see Figure 3). As shown by the analysis, browse service is the typical e-service of these collections. It is considered as good practice in the organization of virtual exhibitions. Examples of good practice are also descriptions of collections, which allow to evaluate the competence of creators, credibility of sources, and to understand selection criteria and terms of copyright of the digital objects.

CONCLUSIONS

The analysis reveals that e-service provision of all groups of institutions is provided on *satisfactory* level (score from 8 to 14 points from 28 maximum obtainable): higher rating of e-service provision is given to the NLL digital collections – 13.4 points, other national level libraries – an average of 12.3 points, regional level library group – an average of 12 points, and the National Archives digital collections – an average of 9 points.

There are some common features in the provision of e-services in digital collections created by Latvian libraries and archives:

1. The level of e-service development is quite low (only satisfactory). Implementation of new e-services is an active process related to professional skills of creators therefore they should be promoted and improved.

- 2. E-services have low visibility. Quite often information about them is provided on the institution's website, and is not presented on the collection's website.
- 3. Creation of digital collections in some cases is a result of project-based activities. After project's conclusion collections often are neglected. Promotion of these collections could be supported by RSS, and by visibility. Analysis of e-service categories reveals significant problems in the follow-

ing respects:

- Reference category is represented only by asynchronous reference service. In some cases this service is attributed to the conventional expression Ask a librarian! and is highlighted from the package of library services. In some cases it is available at each section of library website, and from the collection's website. In most cases this service is presented within the library contacts, which is not clear.
- 2. Three indicators in personalization category are represented incompletely. Interface customization is developed only in some institutions' websites (e.g., portal of the University of Latvia). Individual workspace for a given work session is provided by LIS ALEPH and LIS ALISE. Some institutions' websites provide the content syndication (RSS). But in most cases it is not clear to which section of the site RSS is applicable, and whether it applies to acquisitions of digital collection.
- 3. The lowest rate has the category of user participation (delivery of comments or content). The user participation could be a step into direction of the best international practice.

Continuing development of e-services for digital collections, attention should be paid to the best international practices and characteristics that are defined for this type of services: interactivity, participation, personalized approach.

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LATVIJOS ATMINTIES INSTITUCIJŲ SUSKAITMENINTŲ KOLEKCIJŲ Elektroninės paslaugos

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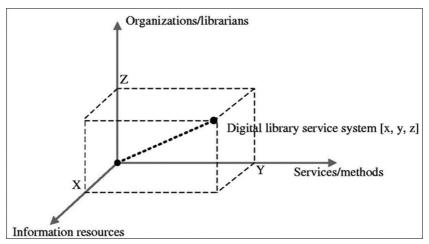
SANTRAUKA

Nuo 2010 m. spalio mėn. Informacijos ir bibliotekų studijų departamentas (Latvijos universitetas, Socialinių mokslų fakultetas) dalyvauja nacionalinėje tyrimų programo-

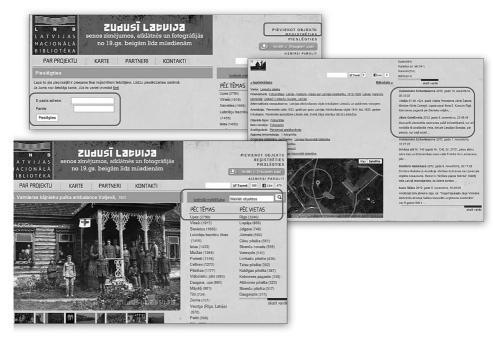
je "Nacionalinė tapatybė". Tyrėjų dėmesys sutelktas į kultūros paveldo skaitmeninimą, suskaitmenintų kolekcijų matomumą visuomenėje, taip pat į jų kokybę (panaudojimo galimybės, naudingumas ir pristatymas). Informacija apie skaitmenintas kolekcijas buvo surinkta į skaitmenintų kolekcijų registrą. Pranešimo ir pristatymo tikslas – išanalizuoti Latvijos atminties institucijų (archyvų ir bibliotekų) skaitmenintų kolekcijų elektronines paslaugas. Dėmesys sutelkiamas į elektroninių paslaugų, kurios galėtų prisidėti prie kolekcijų populiarinimo ir vartotojų susidomėjimo, įvairovę ir kokybę. Įvairios skaitmeninimo veiklos padarinys – skaitmeninių kolekcijų, svarbių lavinimuisi ir tyrimams, gausa. Daugelis jų internete laisvai prieinamos. Analizuojama kilusi problema – tinkamų elektroninių paslaugų trūkumas. Tiriama elektroninių paslaugų, kurios galėtų būti teikiamos atminties institucijose, įvairovė tarptautinėje praktikoje. Tyrimo empirinis pagrindas – Latvijos archyvų ir bibliotekų suskaitmenintos kolekcijos ir įrašai suskaitmenintų kolekcijų registre.

Tyrimo rezultatai atspindi gerąją elektroninių paslaugų tarptautinę praktiką, Latvijos archyvų ir bibliotekų elektroninės aplinkos padėtį, taip pat galimybes plėtoti veiklą šiai padėčiai pagerinti.

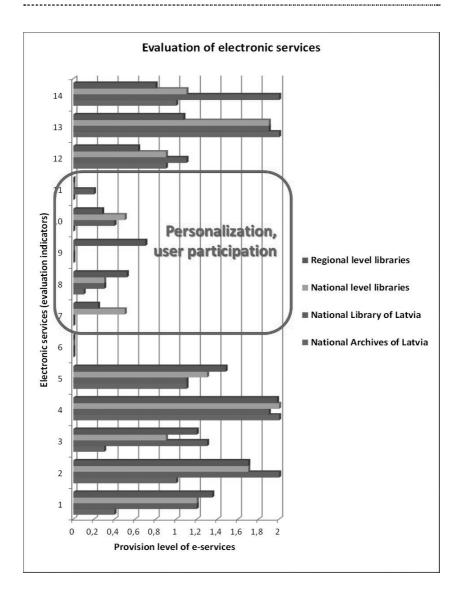
Fig. 22–25 look at p. 253–255



22. Three-dimensional structure of a digital library service system (Xiao, Long, 2010, 305).



 Examples of e-services of the collection "Lost Latvia" (© National Library of Latvia; available: http://www.zudusilatvija.lv).



24. Provision level of e-services in digital collections of Latvia memory institutions (according to 14 indicators the average for all collections).

