Digital Library of Slovenia
Development Strategy – dLib.si
2007-2010
(Excerpts)

Ljubljana, November 2006
I. Introduction

1. Purpose of this document

The purpose of the »Digital Library of Slovenia Development Strategy – dLib.si 2007-2010« is to devise a strategy leading to creation of a comprehensive national digital library to cover the 2007-2010 period. NUK thus responds both to the EU initiatives and to current library user requirements, dictated also by advanced technology solutions to provide most state-of-the-art and refined information services.

In the above-mentioned period a number of projects will be carried out with the aim to create a modern, accomplished, user-friendly and simple-to-use digital library, which takes into account long-term preservation of most precious collections in the field of cultural heritage, providing access to these to the public at large. The main topics discussed by the Strategy are:

- building a comprehensive digital library,
- establishing organizational structure to support the Digital Library of Slovenia,
- enhancing quality service,
- selecting library materials for digitization at the national level,
- digitization of national collections,
- services offered via dLib.si web portal.

A comprehensive digital library will make use of the value chain approach to electronic publishing, embracing harvesting of publications, digitization, dissemination and long-term preservation of crucial and nationally important library material. Through creation of a comprehensive digital library NUK will become a development and services centre to both the national library network and users of library services. The essence of the digital library can be seen in the cultural heritage held by Slovenian libraries and other institutions are thus welcome to join due to the open source technology of the portal.

We believe that the Digital Library of Slovenia, dLib.si, is an important feature of democracy since information resources are openly accessible to all users, and digital libraries are reaching out a wider audience than »classic« libraries ever did. The population of potential users is global with a wide range of information needs.
II. dLib.si: vision, mission and goals

1. Vision

The Digital Library of Slovenia will play an active role in building the national information society, library network and research community of the future through its collections, services and expertise.

The Digital Library of Slovenia will promote equal opportunities in access to knowledge to all citizens, thus supporting learning, education, research and cultural endeavours of its users, along with creative use of spare time. Access to the nation's cultural heritage in digital form, combined with its long-term preservation, will reinforce the national identity in the virtual environment as well. With a wide range of national and international knowledge resources available it will stand as a foundation for the national learning society, thus enhancing Slovenia's cultural identity and competitiveness amidst European consortium of nations – the European Union.


- Provision of information resources, information and services for the needs of the development of the information society and to foster the socio-economic development of Slovenia.
- Long-term preservation of the national cultural heritage in digital form by maintaining and developing a trusted digital repository / digital archive.
- Building, development and management of digital collections, following user needs, existing legislation and standards, in co-operation with various strategic partners from the fields of culture, science, education and economy.
- Provision of open and free access to digital content, including the development of tools to use it.
- Promoting the digital library as infrastructure to education and research process, lifelong learning of the population, and a feature of democracy with unprecedented access to digital information for all users, regardless of who they are and of location they wish to access the information from.

The National and University Library (NUK) holds the leading position in the development of dLib.si, being responsible for the collection, description and preservation of the national cultural heritage, along with providing access to collections of nation's intellectual memory and scientific literature.

3. Goals

The goals of the digital library strategy have been divided into strategic and object goals. Strategic goals are associated with final results and purposes to achieve by the end date of the Strategy. On
the other hand, object goals can be related to specific cornerstones to reach over the strategy timeline. In this way, object goals can be directly translated into projects whose implementation will be quantitatively measured.

3.1. Strategic goals

S1 To improve accessibility to information resources and library services using modern communication channels

One of the fundamental tasks of a national library can be seen in providing access to the national cultural heritage, including documents in digital form. The digital library promotes access to information resources and services in many ways, thus:

- **users gain access to material stored within dLib.si from any location provided with access to the Internet.** In this way ready access to Slovenian cultural heritage is facilitated to remote users, Slovenians living abroad and citizens of other countries with an interest in the materials;

- **the digital library enhances easy use of library services.** Within the dLib.si portal the required information can be retrieved and browsed using just a few clicks. Besides, dLib.si features the useful option of cross-searching, unavailable in »classic« libraries;

- **the digital library provides a single and highly structured point of access to digital born material.** Due to unparalleled growth of electronic publications, which are made available on various web pages, it is sometimes a daunting task to keep abreast with the latest developments in a given field, let alone search for relevant information. As dLib.si will be organized as a single access point to all nationally important materials, the possibility of retrieving the required information will be greatly improved and speeded up;

- **The digital library will make use of advanced technology in terms of audio interpretation and provision of Braille material.** The digital form of library materials will greatly improve access to contents for library users with special needs;

- **mobile modifications of dLib.si services** will enable the use of library services via diverse mobile devices (mobile phones, handhelds etc.).

S2 To ensure long-term preservation of the digital cultural heritage belonging to Slovenian libraries

An important reason to start building the national digital library can be seen in the possibility of long-term storage of the electronic record, now offered by state-of-the-art information technology. dLib.si will co-operate in preserving the national cultural heritage for future generations in three ways:

- **conversion of analogue materials to a digital format and storage of digital copies in the digital library archive.** Compared to longevity of analogue materials, durability of library materials in digital form can be substantially enhanced, provided that they are appropriately managed. New solutions that present improved durability include regular
replacement of disks, migration to newer formats etc. Practically unlimited durability of digital items can be thus achieved;

- harvesting of the digital-born material (slovenica), published on the network. Due to the ever changing nature of the Internet currently available content on the Internet might well not be available in the future;

- collection of the digital-born material from other sources. Electronic publications are also subject to legal deposit, together with other digital-born material.

The digital archive must have reliable security against unpredictable natural and other disaster in terms of a sophisticated data security system, including off-site storage of data at multiple locations.

S3 To enable partnerships between and co-operation on equal terms with libraries, publishers and other organizations from the fields of culture, education and science

The digital library has put forward new practices in co-operation between the national library and other libraries, publishers, authors and other institutions from the fields of culture, education and science. As the digital library management is based on data in digital form, electronic business methods can be a primary solution to the exchange of data between NUK and its partners.

Easy reproduction of material in digital form has given rise to new concepts of partnership with publishers and authors, which would ensure access to copyrighted materials, at the same time complying with the existing legislation in the field. Access to copyrighted material has to be limited to individuals that have gained the right to use these materials (for instance, through purchase of material in a web shop).

Building dLib.si and provision of smooth service will call for creation of permanent partnerships between NUK and other institutions, also interested in long-term preservation of and access to written and other cultural heritage. Being the leading stakeholder in the dLib.si building, NUK will establish relevant partnerships already in the planning phase of the strategy to create the necessary conditions for co-ordinated collection, preservation and access to library materials.

S4 To increase the presence of Slovenian culture and language on the network

Web content in Slovenian is by and large scattered all over a myriad of less comprehensive web pages. The dLib.si digital library will therefore represent one of the most important centres of Slovenian culture on the Internet, providing greater variety and a structured overview of the Slovenian cultural heritage. dLib.si collections will be linked to The European Library, which will increase the visibility of Slovenian works to citizens from other countries.

S5 To increase the level of use of library information resources and services

The Digital Library of Slovenia, dLib.si, opens up a totally new channel to all informed citizens, in terms of providing access to library information resources and services, together with other institutions from the fields of culture, science and education. An increased use of information resources can be anticipated with younger (and future) generations, who will have found access to
library services through the use of web portal easier and more comfortable. When compared to »classic libraries«, the usability of dLib.si will have significant impact on research and scholarship, considering a faster and simpler information search and retrieval, built into the digital library system.

To achieve an increased level of use of library information resources and services permanent marketing and promotion activities will need to be carried out.

3.2. Object goals

Object goals have been defined as following the life-cycle phases characteristic of digital items, contained in dLib.si. The life-cycle phases can be seen in creation, preservation and access.

O1 Creation of digital content

O1.1 Digitization planning project at the national level

Digitization of library materials will produce digital surrogates for information objects in analogue format. Due to the enormous amount of library materials to digitize it is of critical importance to approach the process systematically, devising a plan to cover the needs at the national level. The national digitization plan is designed in three distinct phases:

- **selection of criteria**, to determine which material will be given higher/lower priority in the digitization process;
- **development of the list of collections**, which will be gradually digitized over the Strategy 2007-2010 time span;
- **development and maintenance of technical specifications** for meeting the objectives of the digitization project to define the quality of digital records (the quality may vary according to various types of material) and a comprehensive metadata specification to describe the intellectual content of the object.

The national digitization plan will ensure rational deployment and use of public resources, since it will help avoid duplication in the efforts. A national approach to the issue will be the key to consistency in the quality of digital objects as well as in providing access to them through a single entry point. NUK aims to implement a national registry of digital collections to monitor the digitization activities in the country.

O1.2 Establishing a digital archive

The implementation of software application to harvest slovenica publications on the web will make it possible to collect web pages, electronic publications and other forms of web content, fulfilling criteria to fall into the slovenica category. Thus a snapshot of web-based slovenica will be created (with the exception of contents which will be left out of the harvesting process due to technical limitations) in a given time. The repetitive nature of harvesting will provide an insight into various historical periods and development phases of slovenica on the web.
The harvesting process will be automated to a great extent. A program (»harvesting robot«) will be used to browse the web pages, collecting and archiving all pages and materials meeting the automated harvesting criteria (for instance, the entire .si domain, pages in Slovenian etc.)

**O1.3 Harvesting the digital-born material**

If in compliance with technical standards on the quality and form of the digital record, the digital-born material will be directly stored in the digital archive and subsequently made available via dLib.si web portal. Libraries and other institutions from the fields of culture, education and science, along with publishers and authors, will be in a position to use the dLib.si portal service in order to submit the legal deposit copy of a given publication in digital form.

The great majority of newly published library material in analogue form (for example, printed materials), which is to be included into the NUK collection, originate in digital form before going to print. It is therefore relevant for NUK, as a national depository organization, to make appropriate arrangements with publishers and authors to receive the publications not only in analogue form, but in digital form as well (pre-print). In case the digital copy of the work is copyright protected, NUK will proceed to store the item in the digital archive and no access to it will be provided, whereas in some cases limited access will be provided according to carefully negotiated terms. However, copyright free publications will be added to the publicly accessible part of the digital archive. Needless to say, collection of the digital-born material diminishes the demand for digitization.

**O1.4 Digitization of library materials in analogue form**

The digitization of library materials in analogue form (for example, books, analogue sound and video recordings) consists in conversion from analogue to digital form. The digitization process will follow previously determined plans according to all technical specifications. The most important activities of the digitization process can be seen in:

- conversion of physical or analogue library item into digital form of record (for instance, scanning, recording, image collection...),
- quality control of the digital copy,
- metadata assignment process, and
- transfer of the item, along with its metadata description, into the digital archive.

Efficient workflow organization is called for to cope with digitization, because bulk digitization – despite sophisticated technology – requires a considerable amount of staff time both in dealing with operational tasks and coordinating efforts. A special Centre for Co-ordination of Digitization of Library Materials has been therefore established at NUK, but it is understaffed and needs additional human resources to successfully perform its assignments.

**O2 Preservation of digital contents**
O2.1 Digital archive development

In developing dLib.si, the digital archive stands as one of the core requirements to be taken care of since it will represent a comprehensive and integrated collection of digital resources on slovenica. The digital archive development will employ a highly efficient database structure and software support to effectively manage the archive contents. The basic function of the archive is the long-term preservation of digital-born documents and items that have been digitized including quality control to ensure that original items have not deteriorated in any manner. As to user access to the digital archive, restrictions will be implemented for security reasons. A separate distribution database has been developed to cater for the needs of the dLib.si portal with an emphasis on accessibility, rapidity and security.

O2.2 Designing the database security system

Given the exceptional importance of the long-term preservation and retrieval of the digital content, the provision of database security system stands as an independent goal in itself, with the aim to reduce risk of loss of digital objects practically to zero. The provision of database security system consists of security policy planning and implementation, along with a continuous operation plan to be drawn up.

The two documents will define regulations to ensure proper management of information resources, as well as technological requirements to prevent data loss due to hardware malfunction and other unpredictable events (for instance, earthquake, fire etc.). To achieve optimal security level, a backup dLib.si system will be set up at alternative location to be activated in the event of a primary system failure.

O3 Access to digital content

O3.1 Devising the web portal plan

In its final phase, the dLib.si web portal will provide access to a large number of information resources, therefore web portal design and development can be seen as an independent goal to achieve. The planning document will cover detailed information on the structure, functional entities and basic elements of the user interface with regard to future user needs. In addition, a map of the portal will be added to the dLib.si web site to visually and hierarchically represent user accessible categories within the portal and to allow for alternative map browsing options, the primary option being the use of search engine.

O3.2 Further development of the web portal

Creating and managing content for a sophisticated, dynamic and expandable web site should primarily result in a user friendly interface to search, retrieve and browse the digital objects, available via dLib.si. The foundation of the web portal operation can be thus seen in the digital object database that stores digital items in a variety of formats (PDF, JPG, MP3 etc.), optimized for web browsing.
Further development of the dLib.si portal will ensure its long-term usability and up-to-date approach, thus also including:

- Development of new services within the dLib.si portal, bringing added value to the users. Additional services will determine new ways of access to library materials, together with access to most diverse materials;
- Recurrent improvements of the user interface with the aim to largely facilitate the use of the web portal. Improvements of the user interface will take into account current trends and guidelines in design;
- Implementation of future web technologies to make sure that the dLib.si portal keeps pace with on-going developments in the field.

Further development of the web portal will be based on careful identification of the needs predefined in the plan.

O3.3 \textit{Development of the dLib.si user interface}

An independent goal can be identified in the user interface development to allow for content management of the dLib.si portal. The user interface will provide the portal manager with the following functionalities:

- A simple-to-use tool to add new materials and to apply changes in the existing ones,
- Sorting materials by category,
- Metadata description update,
- Adding collections to the TEL portal (The European Library).

In web portal design the current Web Accessibility Guidelines apply, as specified by W3C, \url{http://www.w3.org/}.

O3.4 \textit{Web portal marketing}

Insofar as a comprehensive service, reaching the widest audience possible, the web portal needs to be appropriately marketed. In this regard a market-driven strategy will be defined and subsequently carried out, taking into account all basic elements of online marketing. An effective marketing strategy will help raise public awareness of dLib.si in terms of perceiving it as one of the cornerstones in the digital environment. Major attention will be paid to acquiring feed-back information from the users of the dLib.si services, thus representing a starting point in further development.

Activities in the fields of dissemination of information, promotion and marketing of the digital library will be focused on the following stakeholders: education and research community (students, teachers, university collaborators, research staff), business community (journalists, designers, creative arts representatives, entrepreneurs), library community (representatives of all library types), general public (local community, families, tourists, participants in the lifelong learning process), government agencies and policy makers, museums and archives, IT businesses.
O3.5 Educating and training librarians and library users

A systematic approach to continuing education of librarians is called for to enhance the use of digital library facilities, which will be carried out in co-operation with strategic partners. To achieve an efficient and wide-spread use of the digital library it is primarily necessary to inform the library users about its possibilities for use, along with provision of relevant assistance in the use of services. Creation and development of elaborate training programmes intended for librarians and other digital library users therefore make part of the overall digital library strategy.

O3.6 Evaluating the dLib.si digital library

The digital library evaluation issue has been theoretically well backed up and some concrete evaluation results, based on various evaluation methods, have been made available. Elements to evaluate can be seen in appraisal of performance, effectiveness and quality assessment in terms of system and technological solutions; we can approach evaluation from the services point of view, for example, measuring the volume of use, quality and relevance of digital collections, user satisfaction and benefit etc. Both quantitative and qualitative data collection methods apply, depending on the type of information to assess. Collected information will represent a sound basis to decide upon future development of dLib.si. NUK will devise an evaluation method in terms of data collection, analysis and interpretation to assess the performance of dLib.si over the strategy time span.
III. Strategy: Implementation Plan

The strategy will be implemented on the basis of projects that generate direct and indirect impact on the achievement of pre-set strategic goals. The projects can be divided into four groups:

- development projects,
- research projects,
- organizational projects,
- digitization projects.

Estimated values of the projects have been defined, taking into account various elements, such as duration of the projects, internal staff effort and contribution of external collaborators to cover the projects’ time span. The value of internal staff effort has been calculated using in-house cost price estimates which include total gross earnings (salaries) of the staff and all costs incurred by their work (premises, operational expenditure etc.). Thus, per hour value amounts to € 35.

External staff expenditure hovers around € 50 per hour, whereas the price of digitization amounts to € 0.31 per page. In case purchase of new equipment is envisaged, the value has been added to the final sum.