

The National Digital Library of Finland – experiences from collaboration and service development

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The aims of the project

The National Digital Library (NDL, 2008-) is the most extensive cooperation project to date between archives, libraries and museums (ALM) in Finland. The National Digital Library promotes the availability of digital information resources and develops the long-term preservation of digital cultural heritage materials. The priorities of the project are creation of a joint public interface for digital materials and services, digitization of key materials and development of a long-term preservation solution for digital cultural heritage materials. NDL thus has a holistic approach: from the creation of the materials, through usage and services to reliable preservation that keeps digital information understandable and reusable for the future generations as well.

The project is unique in many respects: it brings together the key organizations under the administration of the Ministry of Education and Culture to build a customer-oriented solution that makes easily accessible the digital materials and services of archives, libraries and museums and secures the preservation of these materials for future generations.

As a result of the establishment of the NDL, the information resources of archives, libraries and museums will be combined across organizational boundaries into a rich national complex of materials and services. The joint infrastructures and services bring the practices of ALM organizations closer together, reducing costs while increasing system integration and strengthening co-operation.

Organizations involved in the NDL have also been in close co-operation with the Europeana. Through several EU-projects, Finnish cultural heritage organizations have already made available a wide range of objects from Europeana portal. That content includes old newspapers, works of art, museum objects, news videos, natural scientific literature and private letters. To make the Finnish content's way to Europeana simpler and more sustainable the NDL has set up a national aggregator to Europeana.

Administrative model

The administrative model of the NDL is two-layered. The administration layer consists of the Ministry of Education and Culture as well as the executive and steering groups of the NDL. The service system layer consists of the public interface maintained by the National Library and the consortium of the participating organizations as well as of the follow-up long-term presentation project, led by CSC – IT Center for Science. In addition, there are several working groups nominated for special purposes.

The administration layer make joint long term alignments and strategic decisions, whereas the working teams focus on specific work packages, such as the technical implementation or the usability of the public interface, long-term-preservation standards or for example enterprise architecture of the NDL.

The aim of this administrative model secures the participation of archives, libraries and museums and other key interest groups in the implementation and development of the NDL.

The Public interface Finna

The public interface called Finna, to be launched late 2012 or early 2013, will make it easier for customers to use the services provided by archives, libraries and museums. Users of Finna can search for information and materials and use digital services. The web service can be used to search for images, texts, documents, sound, videos and electronic publications. Thanks to the services integrated into the back-end systems of the partner organizations, users can for example also renew loans, purchase images and submit orders.

Originally, the public interface was supposed to be based on the off-the-shelf software by Ex Libris Group, selected through competitive negotiations. However, the piloting period revealed that the software could not meet the requirements set for the public interface in given time. In January 2012, after the software procurement contract was cancelled, work with Open source software began. Technical core of the current Public interface are VuFind portal software and Solr search engine, complemented with other software. The public interface is maintained and developed centrally at the National Library of Finland in cooperation with participating organisations. Moreover, use of open-source code will enhance international collaboration in developing the service.

Meeting user expectations

There must be a sound reason to start an ambitious project, which stresses the resources of hundreds of organizations and changes their information infrastructures. The National digital library project derives its justification from economic and procedural benefits, but also from the needs of users and their changing expectations. The existing information discovery services and portals of Finnish archives, museums and libraries have not been fully satisfactory to their users for a while. The feedback from the key user groups demands for more effective, all inclusive information services of excellent usability. What has become *de*

facto standard in leisure time social and media applications is expected from tools used at studies and work, too. This phenomenon is a challenge for all of us building these services. Furthermore, it is not enough to know the user expectations that were the agent for launching the project. The user needs must be studied all along the process as the new service becomes reality.

The NDL project has been well ministered on this aspect. End users and their expectations have been considered from the very beginning of the project. Not only the requirement specifications address this need, but also a considerable amount of resources has been assigned to work on usability. As the project has proceeded and the plans have turned into reality the importance of usability has become more obvious. Now, after the shift to open source production and first live demonstrations, it seems essential to create constant dialogue with the prospect user communities.

Some user expectations cannot be foreseen. The service concept itself has features that are completely new to designers as well as to end users. For example, no service in Finland this far has provided the person interested in a museum exhibition with an opportunity to browse the museum catalogue and the relevant literal information of the exhibition topic within the same screen. Such search result representation will be easily available in Finna Public interface. The question remains, will museum visitors actually appreciate such functionality, and how will they wish it to be displayed on the user interface.

The entire process of making Finna meet its future users' expectations requires a lot of effort: The service concept must be designed, tested with real users, and in all likelihood redesigned according to test results. There will have to be demonstrations of different features, which will then be exposed to user studies. Various features available in current information systems must be integrated into the NDL, and their functionality must be tested in real use situations. Not to mention user tests on the novel features, of which there is no experience or expectations yet.

Usability of the Finna Interface

In terms of usability the National digital library is a great challenge, not only within the project but also to the collaboration of all Finnish ALM organizations. Such work that crosses many sectors, needs, and methods is not that familiar to archives, libraries or museums, although each sector has gained experience in knowing their audience. When putting together the usability activities, applicable design approaches and best practices have been consulted. The key instruments of NDL usability work are the Usability working group, the Usability plan, and the way to consider end-users.

Usability working group

In the beginning of the project, while the requirement specification was being constructed, a working group for usability was established. Experts from archives, libraries and museums were nominated to the Usability working group in order to make a usability plan for the project and supervise usability work during the development of the service. The work has continued to a new level with the open source solution. The new approach to the service

production has shown that the approach to usability work must also be changed and the working group should have a more dynamic role. The Usability Working Group is to be seen as the *community nodepoint*, through which the ideas, best practices, and efforts move not only from the ALM community to the benefit of the project, but to all directions as well.

Usability plan

The Usability plan of the Public interface has also changed during the process. In the beginning the usability plan was based on service production phases. However, along with the open source development and iterative and agile software production methods, the pace and the scope of usability work has dramatically changed. The traditional phase-oriented approach will not provide flexible enough framework for needed activities. During the first months with the new software, we have reorganized the user testing practices and updated the Usability Plan. As the production proceeds, the new plan will serve as an *activity grid*, which will hold together the ever evolving usability work. It will help us to position emerging activities (such as single feature testing with a particular focus group) into the big picture, and give structure to occasional activities (such as collaboration with research institutes).

End-users

The experiences have also changed the way we see the end-users of the Finna service. The first Usability plan included the definition of end-users, and listed the desired target groups of the service. The first concept testing in 2010 was run as a thematic interview to two prospect end-user groups: pupils at secondary school and family researchers. The first user study on the first end-user interface layouts of Finna in 2011 was also directed at pupils at secondary school. As the agile software production begun, we soon noticed that we will need to involve end-users at least twice within three months, and preferably more often. We found ourselves in the middle of frequent user testing, which requires a huge reservoir of potential end-users, of different user roles and backgrounds (pupils, researchers, book-lovers, occasional museum visitors, etc.), dedicated to participate in usability activities when convenient for them. From now on the NDL project will address the end-users of the Public Interface from the viewpoint of *clustered involvement*. This should provide more dynamic and economic way to reach potential users, and engage them to the final service.

Museums' view to the NDL cross-sector cooperation

In its aim to bring together museum objects, books, archival documents and all kinds of cultural historical materials, the NDL has many challenges – both prejudices and simply facts. The ways people search for books are different from searching for, say, coffee cups, photographs, uniforms, private letters or art works. And the best ways of displaying information of different types of objects vary. For a three-dimensional object, you need to give several pictures from different angles, for an insect species maybe a map or statistics, for a photograph, detailed hierarchy of the negative, the original print, a later print or a scanned copy.

To meet all the different aspects, the organization of the National Digital Library has been based on a careful inclusion of all the sectors involved. Archives, libraries and museums all

have their representatives in the executive and steering groups of the project, as well as in its different working groups. Thus, the National Digital Library project requires and enhances cross-sector contacts on many levels of profession – from memory organization management to experts on customer relations, knowledge management, information technologies and many others.

Besides their core function, different networks formed and strengthened during the project are a fertile base for innovative thinking and for an exchange of best practices across the sector borders. On our way to meet the project's main aims – a joint public interface, long-term preservation of digital cultural materials and digitizing collections in all memory organizations – additional challenges or options come into daylight and demand further consideration and measures. Thus, according to our experience, cross-sector collaborating may significantly nourish even development that used to be every party's "own business".

Where the horizontal cooperation is highly productive and creative, another challenge – just as important, is to enhance the vertical interaction within each sector. To give a full added value to any of the sectors – museums, archives or libraries – the innovative input, born out of cross-sector cooperation, must be further developed within the sector. To match this, the sectors as such need to have common structures and procedures of collective planning and decision making.

The representational administrative model of the National Digital Library requires a certain hierarchy within each of the sectors: there has to be a standard way to define parties that may represent the sector's different members. In addition – more important still – there have to be active means for sharing information and for dealing with questions and problems collectively.

On the management level, the Finnish museum sector is quite well organized. Thanks to the governmental structures and due to public funding policies, the roles of official representation are quite well determined. Within the organization of the NDL, the museums are mainly represented by the National Board of Antiquities, The Finnish National Gallery, the Finnish Museum of Natural History and the Finnish Museums Association. The fairly fixed structures and long-term interaction among the different museums makes this representational model possible and successful.

When we consider the operative processes of the project, the responsibilities within the museum sector are less defined and the flow of information has not the support of fixed procedures, as on the level of decision-making. Several individuals or partners from the museum sector are involved and active in different processes of the National Digital Library. Their experiences must be combined effectively, the exchange of ideas and information throughout the sector must be encouraged and platforms created for further developing of innovations, in order to make full advantage of the possibilities offered by the cross-sector cooperation.

Identification of this challenge is evident in many joint efforts going on within the Finnish museum sector. We shall hear more of these projects during this CIDOC 2012 conference – here we can only point out that there is a serious search for a united collection management system, for shared instructions and standards for museum metadata and cataloguing processes, and for the enterprise architecture of collection management in the Finnish museums.

In conclusion

The project has brought significant long-term changes, not only to technical infrastructure but also to ways organizations develop their services and co-operate with each other and their customers.

The increase and intensification of co-operation between organizations has been visible right from the beginning of the project. Convergence has taken place both between ALM sectors and within each individual sector. As services are developed jointly, the solutions chosen have a shared support. Moreover, the lively exchange of ideas and perspectives opens up new ways to cooperate and to meet the needs of our audiences.

During the implementation of the National Digital Library, participating organizations have started their own initiatives for improving co-operation in common standards and information systems. This is extremely important in achieving sustainability for shared services developed in the project. Equally important is involving the end users and having constant dialogue with them in the daily work of designing new services.