CIDOC Conference 2014 - Access and Understanding – Networking in the Digital Era
Dresden 06.09 – 11.09.2014

Europeana Inside – your easy way to Europeana
SHORT PAPER

Conference theme: Metadata
Format: short paper
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Abstract **- Cultural institutions promote their collections by delivering data to digital portals, such as Europeana. However, it often proves to be a time consuming and challenging process: technical, organisational and legal barriers prevent organisations from making collections easy accessible for a wider audience. Europeana Inside aims at removing these obstacles by simplifying significantly the content delivery process.**
Europeana Inside is a Best Practice Network of 26 partners representing major cultural institutions and software providers from 10 European countries. The project is co-funded by the European Union under CIP-ICT-PSP to support the Digital Agenda for Europe.
To simplify the process of contributing content to Europeana, the team of commercial software providers collaborated in the development of the Europeana Connection Kit (ECK). The ECK is designed as a set of modular components, based on functional requirements defined by the participating cultural institutions. The connection kit is set to improve each step of the workflow: from managing the digital collections in the Collection Management System (CMS) of the content partner until the actual supplying of the data and metadata to Europeana or to other portals.
The ECK is developed and released in 4 iterative phases. After the release of each iteration new functionality is given to the content partners, allowing them to test and provide feedback. By the end of the project, 960,000 records will be delivered to the portal using the ECK, including organisations that will have contributed for the first time to Europeana. This paper will focus on the evaluation process of the ECK and on its outcome.

Introduction

Over the past few years the importance of making collections online accessible for a wider audience via portals as Europeana has grown[1]. Cultural institutions have increasingly committed themselves into opening up their cultural (meta)data. However, the process of publishing heritage collections online, often proves to be a path with many obstacles. It is a time consuming and challenging

process: technical, organisational, legal and financial barriers prevent organisations from making collections easy accessible.
Europeana Inside aims at removing these obstacles by simplifying the content delivery process. The project is co-funded by the European Union under CIP-ICT-PSP to support the Digital Agenda for Europe. It is a Best Practice Network of twenty-six partners representing major cultural institutions and software providers from ten European countries[2]. From the start in April 2012 until September 2014, twenty associate technical and content partners joined the project. This makes a total of seventy-four institutions currently involved in Europeana Inside.
To automate the process of contributing content to Europeana, the team of commercial software providers collaborated in the development of the Europeana Connection Kit (ECK). The ECK is designed as a set of modular components, based on functional requirements defined by the participating cultural institutions. The project not only strives to automate the content delivery process to Europeana, it introduces also a route for returning enriched metadata from Europeana back to the CMS of the content partner.
The ECK is developed and released in four iterative phases. After the release of each iteration new functionality is given to the content partners, allowing them to test and provide feedback. At the end of the project content partners will have contributed in a joint effort 960,000 records to Europeana using the newly developed tools.
This paper does not address the overall architecture of the ECK, nor does it give a detailed specification of all components. It focusses on the evaluation process of the ECK and on its outcome[3].

Development of the ECK in four iterative phases

A first step in the development of the ECK was to determine which functional requirements were needed to simplify the content delivery process. Content partners were asked to analyse their own workflow and see which steps could be automated.
As a result, seven workflow steps were defined from managing the digital collections in their CMS until the actual supplying of the (meta)data to Europeana: manage, select, prepare, validate, supply and data acceptance. In the final workflow step, enrich and return a method would be developed for enriched content to flow from the Europeana portal back to the system of the content partner. Each step in the workflow involves a number of functional requirements. A functional requirement that for example resorts under 'Manage' is 'Export management: the system is able to tell which records have been exported when to Europeana'[4].

Workflow step	Description
Manage	All aspects of data management and user management: set of functional requirements that give content partners the opportunity to trace their content (e.g. which records have been exported, which records were altered when and by whom,…).
Select	The selection process: functional requirements allow content partners flexibility in the selection in their CMS of the records they wish to publish (e.g. selection based on specific values, saved

	queries,…).
Prepare	All activities involved in the preparing of data (e.g. the possibility to save mapping to LIDO xml for repeated use,…).
Validate	Validation of the exported content in LIDO xml or EDM (report on irregularities. e.g. missing mandatory fields,…).
Supply	Actual supply of the content to the aggregator and Europeana (e.g. the implementation of either push or pull, in case of an error the system is able to start the supply process again only for the failed records,..).
Data Acceptance	Informs the content partner on the publication of the data and gives the possibility to keep the data up-to-date.
Enrich and Return	Functional requirements that make it possible for enriched metadata to flow back into the system of the content partner.

Table 1: Overview workflow steps

Based on the set of detailed functional requirements, the technical team started on the development of the ECK in four iterative phases. One of the main advantages of this iterative approach was that new functionality was given to the content partners in four different phases, allowing them to test and find bugs while there was still time to correct them in the following iteration[5].
In each of the four iterations, functional requirements were tested and evaluated. Every iteration focused on certain steps in the workflow. Iteration 1 was mainly concerned with selecting and preparing data in the CMS of the content partner[6]. Iteration 2 focused on management overview of status and made it possible for content partners to trace their content[7]. Two new requirements were added at the start of testing iteration 3: the supply of data via push or pull and functionalities that made it possible for enriched metadata to be returned to the CMS of the content partner[8]. For iteration 4, the production version, no new functionalities were added. It focused on refining functionalities tested in previous iterations[9].

Evaluation process

Europeana Inside runs for thirty months (April 2012 - September 2014). A great part of the time was spent on the development and implementation of the ECK on one side and on testing and evaluating the functionalities on the other. The first iteration was released in April 2013 and tested in May 2013, the last iteration – iteration 4 production – was released in June 2014 and tested in July 2014.
There are twenty-six partners in the project of which thirteen content partners. Every content partner was assisted by their technical partner for testing each iteration. However, there was no one-on-one relation between technical partners and content partners. Some content partners were using the same CMS and thus testing with the same technical partner (e.g MuseumPlus is used by the Royal Museums of Art and History – KMKG-MRAH (BE), Stiftung Preussischer Kulturbesitz - SPK (DE), National Gallery-Alexandros Soutzos Museum - NAG (GR) and Benaki Museum - BEN (GR). While on the other hand some technical partners did not have a direct content partner within the project. They relied on an associate testing partner to make sure the functionalities could be evaluated.

The test and evaluation process was carefully outlined from the start. Good communication and co-operation between technical partners and their liaised content partner was the key to successful testing. A communication plan was sent to all partners at the beginning of the first testing phase. In preparation of each testing period technical partners shared their test plan with their content partner. The plan included an overview of the requirements that were developed and how they needed to be tested. In preparation for testing iteration 2 and 3 meetings were held in small groups with the technical partners and their testing partners. These meetings strengthened the collaboration between the partners. At the end of each meeting, content partners knew what to expect and how to test it.
After the release of each iteration, content partners had one month to test the new functionalities in their system and to complete the evaluation forms. Once the forms were completed and sent back to the content coordinator, a general report with the results from all partners followed the month after and was made available to the entire consortium. In the same or in the following month, the results were presented and discussed in meetings. Technical partners learned on these occasions how the test process could be improved and were functionalities needed to be refined.

Iteration 1 ECK - 2013		
April	**May**	**June**
Release iteration 1 Preparing for testing iteration 1: • Test plan • Evaluation forms	Testing and feedback from the content partners on bugs, usability, improvements and recommendations	• Reporting and feedback to all partners. • Refinements for the next iteration.
Iteration 2 ECK - 2013		
September	**October**	**November and December**
Release iteration 2 Preparing for testing iteration 2: • Meetings with TP and CP • Test plan • Evaluation forms	Testing and feedback from the content partners on bugs, usability, improvements and recommendations	• Reporting and feedback to all partners. • Refinements for the next iteration.
Iteration 3 ECK - 2014		
March	**April**	**May**
Release iteration 3 Preparing for testing iteration 3: • Meetings with TP and CP • Test plan • Evaluation forms	Testing and feedback from the content partners on bugs, usability, improvements and recommendations	• Reporting and feedback to all partners. • Refinements for the next iteration.
Iteration 4 ECK production - 2014		
June	**July**	**August**
Release iteration 4 Preparing for testing iteration 4: • Test plan • Evaluation forms	Testing and feedback from the content partners on bugs, usability, improvements and recommendations	Reporting and feedback to all partners.

Table 2: overview test process

To gather as much feedback as possible, the partners completed three evaluation forms. The first evaluation form focussed on the presence of the functional requirements. Content partners evaluated whether the requirement was implemented in their system and worked. They checked the boxes with accepted (A), not accepted (NA) or not tested (NT). They could also include suggestions and comments for improvements. For the evaluation of the last two iterations – iteration 3 and 4 – more attention was paid to usability. Content partners were asked to rate the requirement: how easy is it to understand and perform the functionality (very easy, easy, difficult or very difficult) and why? If the requirement was too complicated for the content partner to fully understand and to carry out without assistance from the technical partner, then improvements were required.
A second evaluation form – the content partners survey – evaluated the test process of the iteration (e.g: was there sufficient technical support; did you experience difficulties in filling out the evaluation forms,...). The results of these surveys were used to simplify the test process for the following iteration.
An additional survey was included for testing the third and fourth iteration that gathered results on testing content re-ingestion. In this process content published and enriched on the Europeana portal would go back into the system of the content partner. The goal of the survey was to evaluate the quality of the metadata (which fields are enriched, are you satisfied with the enrichments, what is the main advantage of the enrichments,….).. The survey was made in close collaboration with Europeana.

Contributing 960,000 records to Europeana

Content partners not only tested and evaluated the ECK, they used the new tools to deliver content to Europeana. At the end of the project 960,000 high-quality records needed to published.
The evaluation forms reveal that content partners were increasingly satisfied with the test process and the new functionalities. Some content partners said to be ‘very disappointed’ after testing the first iteration, while giving the ECK an overall evaluation of ‘good’ after testing iteration 4. Content partners mention among the strong points that the ECK makes it easier for them to trace their content. They are able to do an easy search to determine which records were when exported. Content partners also praise validation and preview. The ECK makes it possible to validate LIDO xml before it is supplied to the aggregator. Invalid records can be corrected in time. Content partners were furthermore satisfied to be able to export their records into a valid LIDO xml and supply it directly to the aggregator via push or pull and not by manual upload.
Among the weaker points there were comments on usability. Content partners experience most difficulties with the mapping (e.g editing of the mapping, interpreting the logfiles,..). Some of them stated that without technical knowledge or assistance they are not able to execute the functionality. Secondly, many of the functional requirements were dependent on the services from Europeana. Content partners could for example not test the requirement *The system can keep the data that are already in Europeana -up-to-date*. They could keep their data up-to-date in one of the two aggregators in the project - Culture Grid and the Inside Dark Aggregator – but not on Europeana.

Conclusions

European Inside aimed at removing the obstacles for cultural institutions to contribute data to online portals like Europeana. At the start of the project content partners critically evaluated their own workflow to determine which requirements were needed to simplify the process. Based on these results, technical partners successfully collaborated in the development of the ECK and released it in four iterative phases. This iterative approach ensured the participation of the content partners in the further development of the connection kit: based on their feedback technical partner refined and altered functionalities. After testing four iterations, content partners are overall speaking of an easier way to publish their content on Europeana.

By working closely together the project thereby succeeded in creating a tool that simplifies the content delivery process to Europeana and managed open up new digital cultural content from European cultural institutions using the new tool.

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[1] Dietrich, Daniel and Joris Pekel, 'Open Data in Cultural Heritage Institutions', *European Public Sector Information Platform. Topic report No.2012/04*, 2012. See: http://www.epsiplatform.eu/content/new-topic-report-open-data-cultural-heritage-institutions).

[2] Collections Trust (UK), Knowledge-Integration (K-INT) (UK), Stiftung Preussischer Kulturbesitz (SPK) (DE), Zetcom (DE), Postscriptum Information Architecture (GR), Stichting Digitaal Erfgoed Nederland (DEN) (NL), KU Leuven – LIBIS/KADOC (BE), Szepmuveszeti Muzeum (FAB) (HU), KE Software Ltd (UK), Royal Museums of Art and History, Brussels (KMKG-MRAH) (BE), Petőfi Irodalmi Muzeum (PIM (HU), National Gallery-Alexandros Soutzos Museum (NAG) (GR), iMinds (BE), Magyar Nemzeti Múzeum (MNM) (HU), Stichting Europeana (NL), Adlib (NL), Stiftelsen Länsmuseet Västernorrland (SLV) (SE), Monguz Ltd (MON) (HU), Semantica (SEM) (SI), Institut Royal des Sciences Naturelles de Belgique (RBINS) (BE), Skinsoft (FR), Benaki Museum (GR), House of Images (Xantys) (UK), Ecomuseu Municipial do Seixal (SEIXAL) (PT), Mobydoc (FR): see http://www.europeana-inside.eu

[3] For the technical specifications of the ECK, see: Europeana Inside: *D4.6 Technical Specification*, http://www.europeana-inside.eu.

[4] For information on the requirement analysis and a comprehensive list of all functional requirements, see Europeana Inside *D2.1 Requirements analysis* and *D2.4 Functional Requirement* (http://www.europeana-inside.eu). The requirement analysis process for EUInside was described in: Muhammad, Naeem; George Koutalieris, Marco Streefkerk, Nathalie Poot, Sam Alloing and Roxanne Wyns, 'A Model to Anticipate and Analyse Requirements of Heritage Organisations Wishing to Actively Participate in Europeana', in: *Digital Heritage International Congress*, October 2013, Marseille, France.

[5] Europeana Inside: *D4.6 Technical Specification*, http://www.europeana-inside.eu .

[6] Test results iteration 1: Europeana Inside *D4.1 (v1) Control Export Evaluation Report* (http://www.europeana-inside.eu).

[7] Test results iteration 2: Europeana Inside *D4.1 (v2) Control Export Evaluation Report* (http://www.europeana-inside.eu).

[8] Test results iteration 3: Europeana Inside *D4.3 (v1) Export Evaluation Report* and *D4.4 Content Re-Ingestion Report* (http://www.europeana-inside.eu).

[9] Test results iteration 4: Europeana Inside *D4.3 (v2) Export Evaluation Report* (http://www.europeana-inside.eu).