



Europeana Space – Spaces of possibility for the creative re-use of Europeana’s content
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1 EXECUTIVE SUMMARY

The objective of the Photography pilot is to explore the possibility of innovating photo agencies, archives, museums and education through the re-use of photographic content available online in repositories such as Europeana and to find new business models for the photographic sector in order to find a solution to pressing problems that the present IP-based photography business model presents. It explored the possibilities presented by a creative re-use of photographic heritage. Description of Work, Task 4.2 of WP4 described the Photography pilot as follows:

The Photography pilot will experiment with the creative use of historical photographic material. The first activity will be to collect the content that is ready to be used for the Pilot and to deposit this in the Content Space. The content will be either open images or protected images whose copyright is cleared. Existing technology (i.e. the Eureka Blinkster app) will be applied to create easy-to-use repositories: these will be presented to Pilot users (individuals, students and enterprises) and together partners and pilot users will create new products based on the re-use of historical photographs (e.g. family albums contextualised with historical pictures; colourisation of old pictures; family history and genealogy trees with photographs of the different period). At the end of the process, promotional demonstrators will be prepared for presentation to potential customers/investors.

Photography as a field has changed enormously through the developments of Internet, smartphones and professional photographic equipment being more widely available. The E-Space Photography pilot seeks out new, long-term, sustainable innovations that encourage the re-use of photographic heritage content from trusted sources, from both user as well as business perspectives.

The Photography pilot focused at finding the links between photographic heritage content, the diversity of the general public and professional developers through an intermediate software architecture that allows new ideas as well as valorisation processes to emerge, and translate innovations into new practices, new markets, or new revenue streams.

In order to explore and experiment with the creative re-use of historical photographic material, the pilot has defined three scenarios: the Blinkster app; user-generated storyboards with photographic Europeana content; and an application for augmented reality with photographic heritage images.

While the first scenario can be considered completed and its outcomes positive and the second scenario has been implemented and its testing activity will continue for the following months, the third scenario is still in its executional phase. The completion of these last two demonstrators and the respective outcomes will be ready during the first months of 2016.

The Photography pilot has also succeeded in organising activities involving students, the City Archive and the Erfgoedcel of Leuven as well as citizens, with the aim of raising awareness of the pilot's activity and of collecting more photographic content and stories.

This deliverable gives an overview of the activities, developments and outcomes concerning the three scenarios in terms of functionality, design, accessibility, and content sources. It also presents the results of evaluation and testing of the scenarios, as well as outlining the evaluation activities that are planned in the next few months.

The Photography pilot aims at long-term innovation, and the hackathon is designed to specifically strengthen intermediate layers between ideas and market, in order to contribute to a sustainable innovation culture.

2 INTRODUCTION

2.1 BACKGROUND

Internet and the smartphone have changed photography irrevocably over the past few years with selfies, Instagram, GoPro's and the sheer ubiquity of the images that have completely transformed the place of photography in daily life. They also had a profound effect on professional photography.

Classic business models have suffered from this: news photographers now have to compete with thousands of citizens ready to share their smartphone pictures with news outlets, often having the first scoop on events. The classic photo print shop experiences difficult times, and the need to buy illustrated books or to pay for image rights has decreased since it became possible to download many pictures from the web for free. In particular, the IP-based business models underlying the photo industry are under strong pressure, forcing photo archives, photo agencies, museums and publishers to innovate or perish. While this new situation has brought about many challenges, it also holds tremendous opportunities, some of which are currently underexploited.

2.2 ROLE OF THIS DELIVERABLE IN THE PROJECT

The E-Space Photography pilot focused on the fact that currently there is an enormous wealth of photographic heritage from trusted sources available on platforms such as Europeana, Wikimedia Commons, Flickr commons and the likes, where high digital quality is paired with useful metadata. During the EuropeanaPhotography project, <http://www.europeana-photography.eu/>, some of the E-Space partners contributed almost half a million images from early photography to Europeana, all digitised to the highest standards. Not only are these images true to the source, but the state-of-the-art digitisation means that the maximum information in the analogue source was translated into the digital file. This was demonstrated in the exhibition "All Our Yesterdays," where early photographs from this collection were reprinted in a breathtakingly high quality rendering a dynamic range that was not available before.

The Photography pilot aimed at innovation in photo agencies, archives, museums and education through the re-use of the photographic content available in Europeana and similar open repositories, mixed with copyrighted and user-generated content stemming from modern day photographic practices.

A more durable and radical impact on innovation often comes from the availability of new sources and new raw materials. It is the opinion of the pilot team that the digital cultural heritage now available through sources such as Europeana (with >30 million objects) is such a new source. The E-Space Photography pilot wanted to contribute to this effort and tried to answer the following questions:

- how can users become more proactive in the re-use of digital photographic heritage in Europeana?
- how can they re-appropriate these contents and the past that they represent in their current and future cultural practices?
- how can this increase in the number of proactive users lead to the emergence of real creative industries that build new business models on top of it?

The Photography pilot aimed at long-term innovation, by contributing to a basic layer that brings creative cultural activity to a new, sustainable level. This could be called a “tidal” innovation: making sure that when a new massive availability wave occurs, as is the case now with abundant photographic content flowing from Europeana, it is picked up so that wave after wave there is more impact on the coastline. Innovation can be a word used too cheaply, but it is certain that it covers different meanings and can come in many guises. There is, of course, the innovation that comes directly from scientific research, such as valorisation. And there is innovation coming from bright ideas. Where the first is more and more the result of careful planning and dependent on a steady stream of resources, the latter is more difficult to plan, as there is always some serendipity involved. However, these innovations alone do not necessarily translate into new practices, new markets, or new revenue streams. This is where the Photography pilot found its place, aiming at the general strengthening of the intermediate layers required for many of these new bright ideas and valorisation processes to emerge. Finding the links between the photographic heritage content, the wide variety of general public, amateurs, pro-ams and professional developers through an intermediate software architecture that provides real role identification and task burden sharing while at the same time improving transparency on rights is the real challenge.

2.3 APPROACH

The pilot explores three different scenarios of increasing complexity, spanning a wide range of entry points for users that want to creatively re-use photographic cultural heritage:

- development of the Eureva Blinkster app;
- user-generated storyboards with photographic Europeana content;
- augmented reality with photographic heritage images.

The Blinkster application allows museum visitors to take pictures of objects and artworks, to give access to further information about the chosen object. By using their smart phone, visitors are able to photograph an item that is then recognized within the Blinkster app’s database to gain access to additional details. The app is pre-populated by the gallery or exhibitor, for the Photography pilot at the “All Our Yesterdays” exhibition, to enhance the visitor’s experience. Content could include further information about the picture provide guidance of where similar pictures could be found, providing a self-guided trail around the gallery.

The storytelling application enables users to build their own collections and stories using photographic content from online cultural heritage repositories in combination with their own material. They can publish their own collections of photographic material, as well as build personalised stories with them, placing CH material in context. The early demonstrator version supported the partners to start defining the detailed functional and technical redesign of the system in order to meet the pilot’s general objective. It was also used to host the virtual photography exhibition “All Our Yesterdays” and share general information about the E-Space Photography pilot. Improvements after the early demonstrator version include additional functional and technical requirements, a Github repository for source code management, revision control, bug tracking and feature requests, and a new and attractive design. The final version is being tested and evaluated in early 2016, followed by further improvements and preparing it for the official launch during the Photography hackathon in Leuven (25-27 February 2016).

The augmented reality application aims to create an interaction between the present and the past, by allowing users to point their phone-cameras at pre-determined places in Leuven, 'retake' these historical pictures and match the original as precisely as possible. This is accompanied by historical background information and related stories and anecdotes. To create the application, 18 photographs from the City Archive were selected, each depicting centrally located places. They ranged from places currently so similar to the past that they are easily identifiable, to places with only a few peculiar details, while others were selected specifically to show how much the city has changed in time. Dozens of new pictures were taken at the selected sites, from different positions, angles, distances, and in different weather conditions. An algorithm was developed to match current and historical pictures. The mobile application will be tested during the hackathon, as well as a Photo Quest competition in the spring of 2016, where participants will be challenged to walk around the city and find today's places that match the old photographs and vice versa. The best matching user will be rewarded.

As with other pilots, the innovation is not technological, but focused upon processes and techniques that spark the imagination of creative re-users who can build upon this experimentation.

2.4 STRUCTURE OF THE DOCUMENT

Following this introductory section, this deliverable contains the following chapters:

- Pilot Execution describes the three scenarios (Blinkster, Storytelling website and augmented reality) and additional activities in detail
- Pilot Outcomes discusses scenario outcomes in terms of functionality and design
- Content Sources briefly lists the content sources used by the pilot
- Project Integration discusses links with some other activities in the project
- Evaluation explains the evaluation procedure of the different scenarios and, where available, provides an overview of the results
- Lessons Learned highlights the challenges of these innovations within the wider field of photography, an explanation of technological decisions and amendments and finally an observation regarding working with different teams and platforms.
- Educational Use discusses the educational legacy of the pilot for curriculum development that can benefit teachers and pupils
- Impact and Sustainability describes the assets of the developed products in terms of using photographic heritage content by professionals and amateurs.
- Future Work outlines pilot work planned for months 25-30 (until July 2016) of the project.
- Conclusions offer some summative thoughts on this deliverable.
- Appendix includes screenshots from the storytelling website as well as posters and flyers for several of the pilot's events.

3 PILOT EXECUTION

The execution of the Photography pilot has involved Fred Truyen (Professor at KU Leuven and Pilot Coordinator), Peter Schelkens and Frederik Temmermans (iMinds), Roxanne Wyns, Sam Alloing and Naeem Muhammad (Libis, within KU Leuven), Barbara Dierickx (PACKED) and, since the summer of 2015, research assistant Clarissa Colangelo (KU Leuven). It also benefitted from the help of two groups of students of KU Leuven from the Masters in Digital Humanities 2015-2016 (Cara Pelsmaekers and Quintus van Galen) and from the Masters in Cultural Studies 2015-2016 (Isidora Badovinac, Bori Csala, Siya Gao, Beatrix Hugyecz and Lenore Lampens).

The pilot was executed and evolved around three main scenarios as defined in the introduction and in D4.2 – *Pilot coordination: information on technical planning* – and D4.3 – *Pilot Prototypes*.

3.1 SCENARIO 1: EUREVA BLINKSTER APP

The Blinkster app of Eureva, which allows museum visitors to take pictures of objects and artworks, to give access to further information about the chosen object, was set up and tested during the EuropeanaPhotography exhibition “All Our Yesterdays,” that took place in Leuven from 1 February to 15 March 2015. The aim was to build a quest for visitors: they could visit the exhibition and use their smartphones to explore the exhibited photographs.



Figure 1: The Blinkster App

In advance of participants using the app as part of their viewing of the gallery, the following items were uploaded to the Eureva database:

- 1024 pixel wide master images (ca 160 photographs);
- the English and Dutch captions by January 2015;
- Five low-resolution reference images for each photograph.

As part of this process, five pictures of smartphone quality had to be taken from the various angles that might be used by visitors, this was to ensure that there would be recognition within the app’s database and the thumbnail image of the correct picture, with its supplementary information would be provided.

Due to this requirement, the Blinkster database can only be populated at a late stage, once the complete exhibition is in place; albeit text is prepared in advance. In the instance of “All Our Yesterdays”, this comprised five images of each of the 160 pictures included. One of the lessons quickly identified was to ensure that the text provided via Blinkster was not a replication of that already on the wall next to the picture.



Figure 2: Reference images for the Blinkster app

Following the “All Our Yesterdays” exhibition, evaluation was undertaken and lessons fed back to Eureka to facilitate further development of the Blinkster app. Once this was done, the Blinkster scenario was completed (in early 2015) and the app then took on a greater role within the Museums pilot.

3.2 SCENARIO 2: USER-GENERATED STORYBOARDS WITH PHOTOGRAPHICAL EUROPEANA CONTENT

The second scenario of the Photography pilot focussed on the development of a storytelling website that enables end-users to build their own collections and stories using photographic content from online cultural heritage repositories such as Europeana and the Digital Public Library of America (DPLA) in combination with their own material. The application allows users to create their own account after which they are able to upload their own images and metadata to their personal repository. They can also search a number of online cultural heritage repositories that are made available by the project’s Technical Space WITH API and select items of interest from the search results to add them to their personal repository. With these items, users are able to publish their own collections of photographic material as well as build personalised stories with them. The strength of the storytelling application is that the mass of photographic material to be found in cultural repositories such as Europeana can now be placed in context, allowing readers to enjoy and learn about the background of the photographs and the personal stories behind them.

3.2.1 Work on the early demonstrator

Work on the photographic storytelling scenario started with the setup of an early demonstrator using the Omeka software. Omeka is a free, open-source and flexible web-publishing software for the display of library, museum, archives and scholarly collections and exhibitions. The software is designed with non-IT specialists in mind, allowing users to focus on content and interpretation rather than programming. The software also enables cultural heritage professionals to publish collection-based research and virtual exhibitions.

Omeka already has a robust open-source developer and user communities from around the world. The website provides extensive documentation for developers with an interest in creating new plugins for extending the original Omeka functionalities. This made the Omeka software a good tool to use as the basis for further development for the storytelling application.

The early demonstrator version used most of the standard Omeka functionalities and design templates. It served as a first example for the partners to start defining the detailed functional and technical redesign of the system in order to meet the pilot's general objective in allowing end-users to create their own collections and stories by re-using photographic heritage content. The early demonstrator was also used to host the virtual exhibition of the photo exhibit "All Our Yesterdays" and share general information about the E-Space Photography pilot. As a first test, a connection was created with the Europeana database using the Europeana REST API (<http://labs.europeana.eu/api>). This connection allowed users to search for photographic heritage content in the Europeana repository. Site administrators were also able to select the items of interest and add them to the Omeka database. These items could then be used by the site administrators to build stories and create thematic collections, saving them considerable time in uploading images and adding metadata for items already available through Europeana. In the second phase of the development, this functionality will become available for every registered end-user.



Figure 3: Home page of the early demonstrator version of the storytelling application



Figure 4: Trading Spaces / Changing Places story



Figure 5: Detail of the Trading Spaces / Changing Places story

The content of the early demonstrator version has been moved to the new release of the storytelling application.

3.2.2 Design of the storytelling application

After the early demonstrator release, a new Omeka installation was set up for further development. A list of functional and technical requirements was created with prioritisation categories using the MoSCoW method (Must have, Should have, Could have, Would like). A Github repository (<https://github.com/libis/Espace/>) was set up for the source code management, revision control, bug tracking and feature requests. The work started with the implementation of a new and attractive design drawing attention to the storytelling functionalities and photographic content.

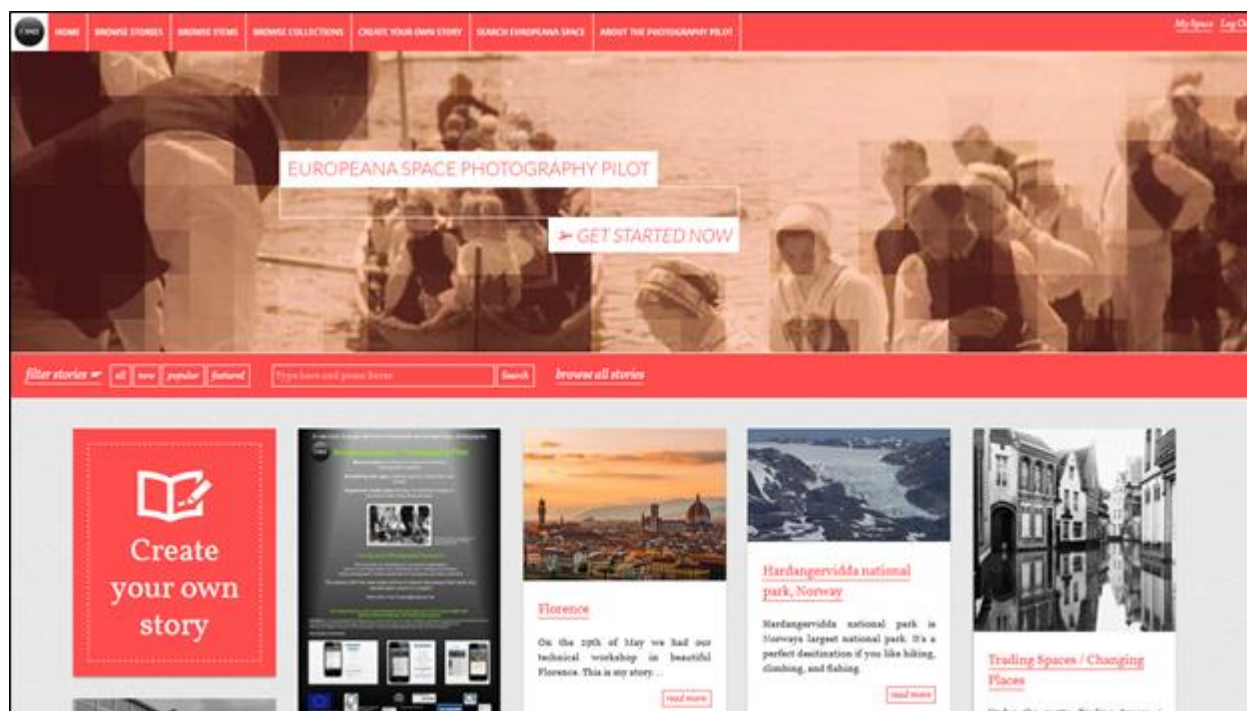


Figure 6: New design of the Photography pilot Storytelling application

While the Omeka software already provided a number of functionalities for creating virtual exhibitions, most of these tools were only accessible for site administrators. The contribution plugin was the only tool allowing users to create an account and submit an item to the repository (e.g. an image + metadata). Once the item was submitted, the contributor could no longer access the submitted items to make changes, assign the item to a collection or use it to build a story. This meant that many of the existing Omeka functionalities needed to be redeveloped in order to allow people to actually build a story.

Another major requirement was the re-use of Europeana content by end-users. To achieve this, a connection with the Europeana REST API would have to be set-up. This plan was altered when it appeared that the WITH API developed within the E-Space project would not only allow us to connect to the Europeana repository, but also to the repositories of the Digital Public Library of America (<http://dp.la/>), DigitalNZ (<http://www.digitalnz.org/>), the MINT aggregation platform and the Rijksmuseum API. In time even more repositories would be connected with the WITH API, providing the users of the storytelling application access to a wealth of content.

By choosing to work with the WITH API instead of the already available and implemented Europeana API, the timing of the storytelling scenario delivery had to be changed. Most functionalities (described in more detail in the section 'Outcomes') were prepared before summer, but had to wait for final testing until the release of the WITH API. A first beta release of the WITH platform was provided in July 2015, but this version was still unstable and not documented. After the production release of the API at the end of August, a new deployment at the end of September brought major changes in the way data was delivered, asking for additional changes on the storytelling application side. The final implementation of the WITH API in the storytelling application was therefore rescheduled for November/December 2015. With this final fix, the entire workflow for creating new collections and stories using online available cultural heritage content is now available for final testing and evaluation in early 2016. The results of this final evaluation will be used to bring further improvements to the application, preparing it for the official launch during the Photography hackathon in Leuven (25-27 February 2016).

3.3 SCENARIO 3: AUGMENTED REALITY WITH PHOTOGRAPHIC HERITAGE IMAGES

As outlined in D4.3 – *Pilot Prototypes*, the augmented reality application stemmed from the idea of enabling historical images to be layered with actual experiences and aimed at creating an interaction between the present and the past. For this purpose, it invites users to retake historical pictures and to match the original as closely as possible.

The test case focussed on a set of historical images from the City Archive of Leuven taken between 1839 and 1939. These photographs had been digitised during the EuropeanaPhotography project and exhibited in the photography exposition "All Our Yesterdays" that took place from 1 February to 15 March 2015. They have also been added to the Europeana repository. The aim was to develop an algorithm that would match the old photographs of the City Archive with the same places in Leuven today. The algorithm would then be integrated in a simple app that allows users to point their phone-cameras at pre-determined places in Leuven and see the old images coming up, accompanied by historical background information and related stories and anecdotes (see section Future Work).

Initially, a careful selection of historical images was made for the development and testing of the algorithm. Browsing through 74 photographs of the City Archive, 18 were selected following the main criterion of depicting centrally located places. Some of the chosen images represent places currently still identifiable and recognisable (Figures 7-8), some present only very few and peculiar details that are still visible today (Figures 9-10), and others were selected as a means to show how much the city has changed in time (Figures 11-12).



Figure 7: Georges Monnoyer de Galland/Gustaaf Verriest. Leuven, c.1920. Brickies assemble recuperated stones intended for reconstruction works on the Brouwershuis by the recently laid out Maarschalk Fochplein. Stadsarchief Leuven.



Figure 8: Leuven, 2015. View on Saint Peter's Church from Rector De Somerplein, once Fochplein.



Figure 9: Edmond Fierlants. Leuven, 1864. The Mechelsestraat with, at the centre, the house 'Jerusalem' alias 'den Schoonenmont'. The row of houses on the right has not survived the fire of 1914 and wasn't reconstructed afterwards. Stadsarchief Leuven.



Figure 10: Leuven, 2015. The square Mathieu de Layensplein, once Mechelsestraat. The statue of the Virgin still stands on the facade of the house.



Figure 11: Edmond Fierlants. Leuven, 1864. The Vismarkt ('Fish Market') with covered market hall; in 1879 this structure was replaced by a monumental construction designed by city architect Eugène Frische. Stadsarchief Leuven.



Figure 12: Leuven, 2015. Although the square is still called Vismarkt ('Fish Market') it presents today a parking lot where the old fish market used to stand.

The second step has been to walk around the city and take pictures of those same places. One picture of each spot was not enough, since the algorithm needs differentiation to work at its best. The algorithm is fed by dozens of images taken from slightly different positions, angles, distances, weather conditions and position of the sun etc.

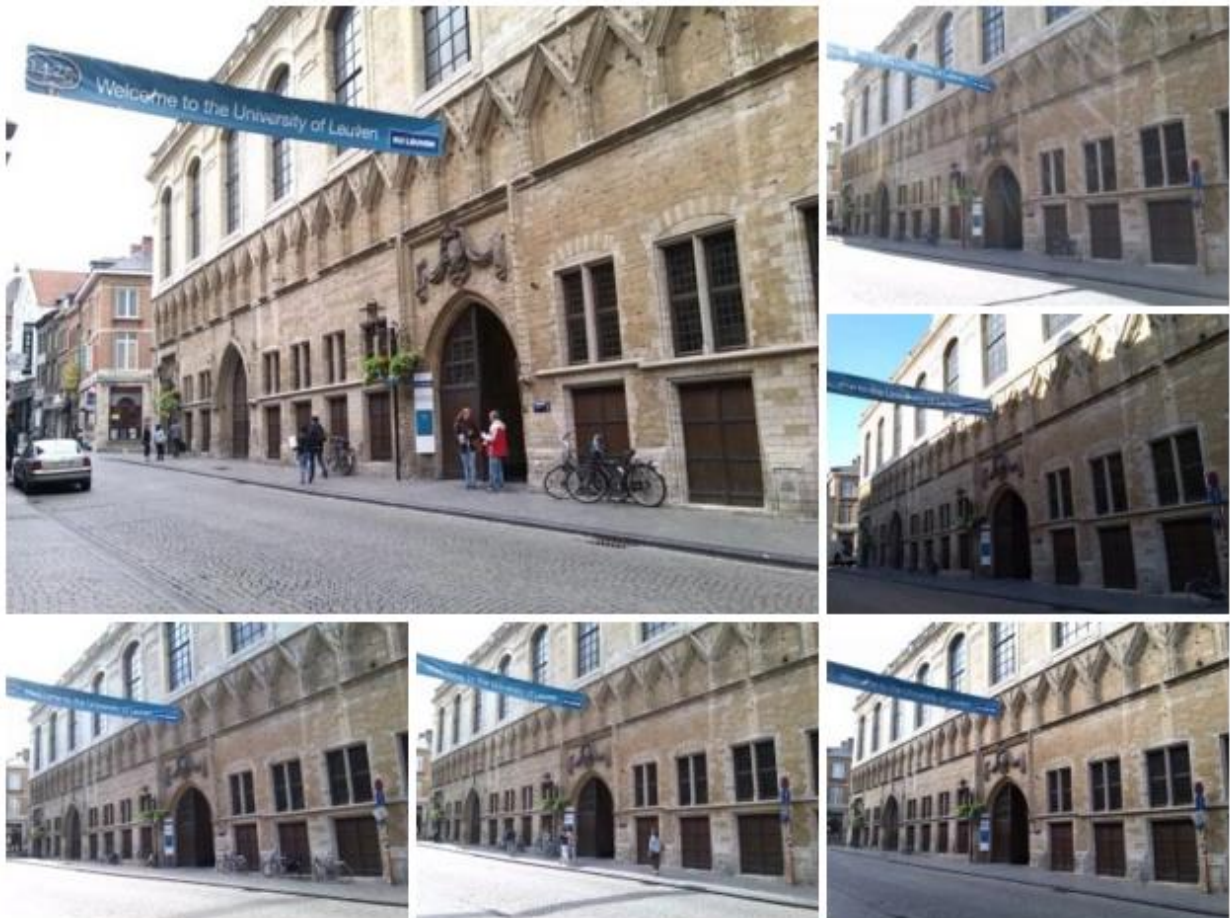


Figure 13: Example of the same spot photographed with some variations

Thereafter, these images were assigned a manual ranking based upon how well they matched the original in order to create a reference system for the algorithm. Due to the significant differences between the original images and the new images, the algorithm cannot detect enough matching features points between a new image and the corresponding original reference image. Therefore, the algorithm is trained to match the manual ranking. As such, the user is given the impression that the score is based on similarity with the original image.

This algorithm offers a foundation for new applications and will be provided to participants of the hackathon. The development of a mobile application that can provide the user with the score in real time has started. Not only can this app be of great value for tourists visiting Leuven and citizens who want to rediscover the city, but it will also become part of an entertaining event to be held during the spring of 2016: a competition in the form of a Photo Quest in Leuven, where participants will be challenged to walk around the city and find today's places that match the old photographs and vice versa. The best matching user will be rewarded. The development of the application is done in collaboration with two students from the Masters in Digital Humanities at KU Leuven.

3.4 OTHER ACTIVITIES

As for demonstration activities, and in order to attract a diverse audience of developers, creative businesses, students from the cultural studies and computer sciences, cultural and tourism sector, the Pilot organised:

- A targeted communication campaign distributing posters, leaflets and mailings. Promotion was also undertaken through the channels of the City Archive of Leuven, the Erfgoedcel and the university, on a regional news outlet (Streekkrant) and with Google Ads. A blog (www.espacephotography.com) was set up in order to be able to post news concerning the events related to the Pilot not only in English, but also in Dutch, targeting the citizens of Leuven, and its activity was monitored through Wordpress statistics. Facebook and Twitter were used to share and give visibility to the blog posts.

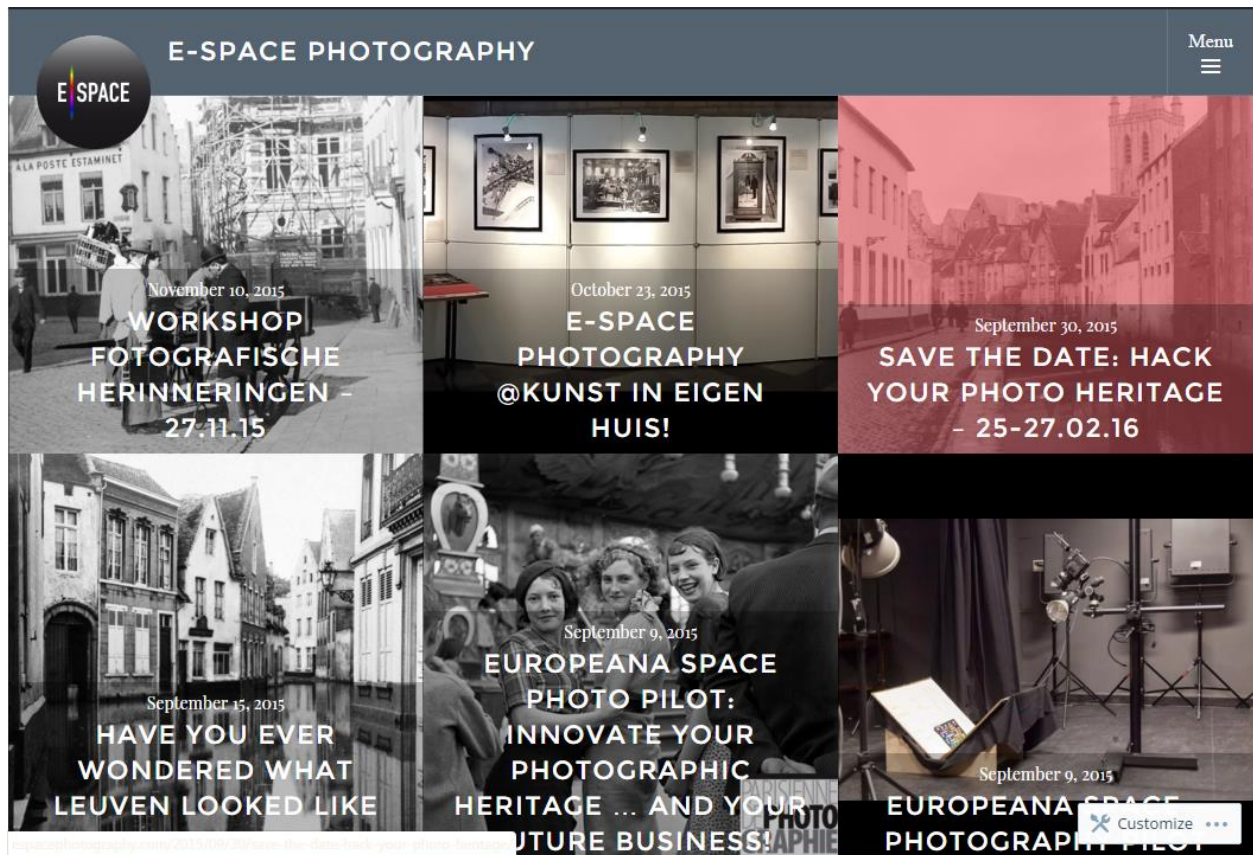


Figure 14: The E-Space Photography pilot's blog

- A Photographic Memories Workshop (“Workshop Fotografische Herinneringen,” in Dutch) on 27 November 2015 in collaboration with the Leuven City Archive and the Erfgoedcel Leuven, to raise awareness of the pilot and collect more photographic material and related personal stories of citizens. The day was devoted to creating a connection between past and present photography, a central theme of the pilot. To this aim, the event took place in the City Archive of Leuven, where visitors could get to know its photographic collection (which is also available on Europeana); citizens were asked to bring their own old photographs, negatives, and even glass plates depicting past life in the streets, squares and marketplaces of Leuven, and get them professionally digitised by top digitisation expert Bruno Vandermeulen and collaborators; a Wet Collodion demonstration by photographer Frederik van den Broeck was organised to show one of the early photographic techniques, and the newly-produced tintypes and ambrotypes were digitised on the spot.



Figure 15: Wet Collodion demonstration during the Photographic Memories Workshop

- The Open Book “Leuven Then and Now” in the framework of the second scenario (utilising the work of the Open and Hybrid Publishing pilot). A group of five students from the Masters in Cultural Studies at KU Leuven collected stories from the citizens of Leuven and re-used the photographs on Europeana mixing them with images of today’s life.
- A one-day event to kick-off the Photography hackathon (3 December 2015) was planned, with the following programme:
 - 16:00 Coffee, welcome for hackathon prep event participants: Fred Truyen
 - 16:30 Presentation E-Space project: Antonella Fresa
 - 17:00 The E-Space pilots: Frederik Temmermans (iMinds)
 - 17:30 Presentation Photography pilot: Naeem Muhammad (LIBIS)
 - 18:00 WITH platform (NTUA video)
 - 18:30 Break & snack
 - 19:00 Presentation TV hackathon & Results: Gregory Markus (Beeld & Geluid)
 - 19:30 Open Knowledge Foundation: Pieter-Jan Pauwels (OKF)
 - 19:30 Photography hackathon explanations and discussion: Fred Truyen
 - 20:30 Reception, meet & greetUnfortunately, the week before the event took place; it had to be cancelled due to the increased terrorist threat level in Brussels.

- The pilot took also part into the exhibition “Kunst in eigen huis,” which took place on October 22-23, 2015. This was an art exhibition organised by the “Senioren KU Leuven,” an organisation of retired employees of KU Leuven, UZ Leuven and Alma, in collaboration with students of the university. The aim was to get in touch with the older group of citizens of Leuven in order to raise awareness of the pilot’s search of photographic content and stories.



Figure 16: The Photography pilot present at the Exhibition “Kunst in eigen huis” with images from “All Our Yesterdays: Andere Tijden / Andere Steden”

4 OUTCOMES

4.1 SCENARIO 1: EUREVA BLINKSTER APP

With more than 160 photographs and captions in English and Dutch, the Photography pilot was able to deliver a working Blinkster app in the context of the photographic exhibition “All Our Yesterdays” (1 February to 15 March 2015). Within the confined time frame of the exhibition, it has been possible to only deliver an Android application and not yet an iOS version. The app was able to detect the photographs the users were pointing at and provide the related information. At the end of the visit, the app allowed users to access a personal database featuring the images they retrieved during the visit. Due to the working mechanism of the Blinkster app, the pictures to be uploaded to the database for the photo recognition could only be taken once the exhibition was in place.

The application was tested during the exhibition by a limited number of students and the try-out produced positive results, as outlined in Chapter 7 on Evaluation.

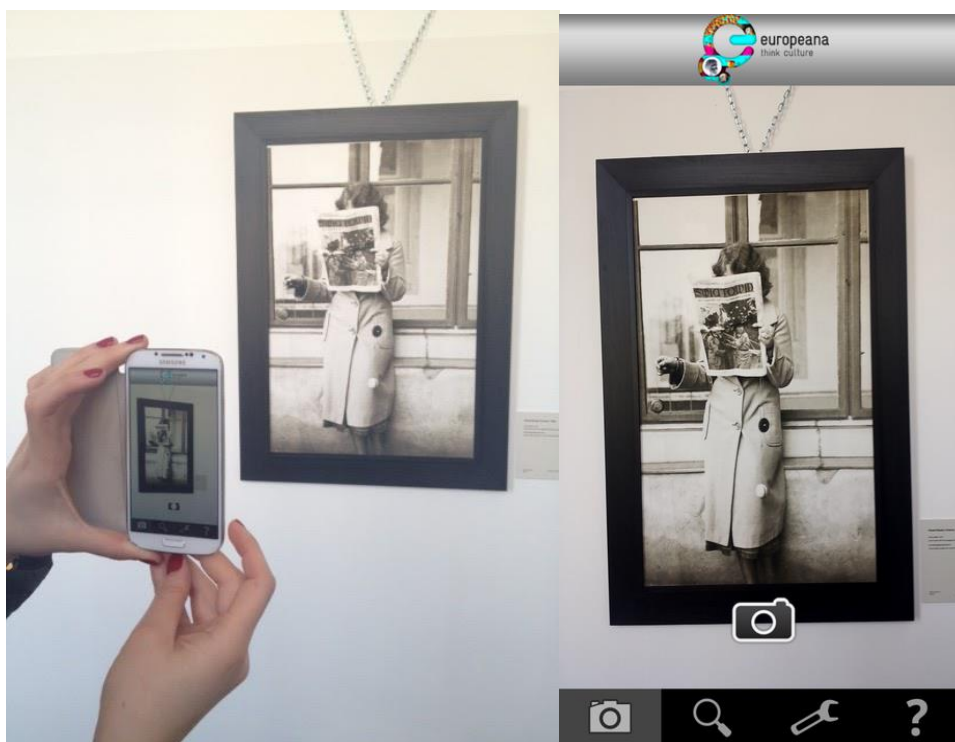


Figure 17: The camera feature of the Blinkster App

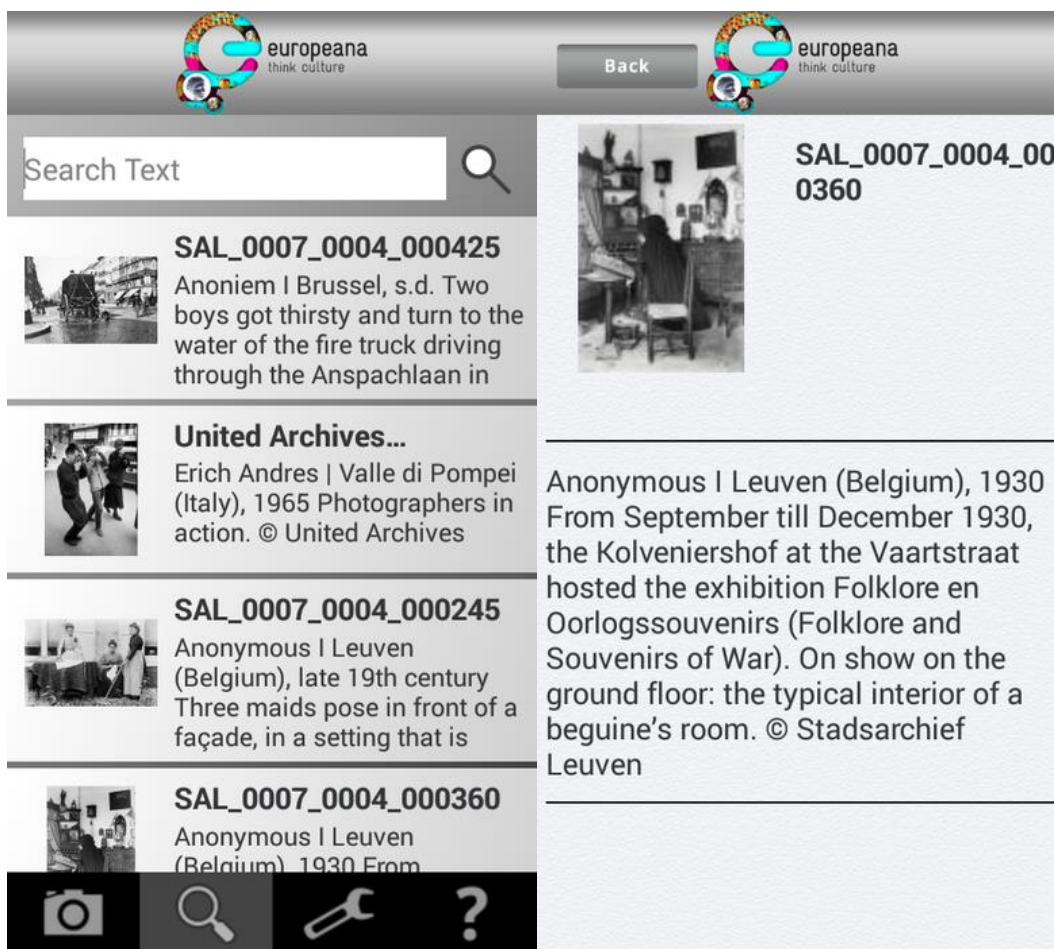


Figure 18: List of results and detail of an item

4.2 SCENARIO 2: USER-GENERATED STORYBOARDS WITH PHOTOGRAPHICAL CONTENT

The Photography pilot storytelling application allows end-users to build online stories that showcase a group of digital objects in combination with narrative text. Using pre-built themes and layouts, users can build complex pages without any programming knowledge. The storytelling website is currently available through the following link: http://www.heron-net.be/espace_test/. The web address will be changed to a more appropriate URL on its release. The above link will remain accessible and redirect visitors to the actual site.

4.2.1 Functionalities of the storytelling application

The storytelling website publishes user-generated stories and collections with a focus on photography and photographic heritage. Members of the public can easily create a personal account, in order to produce such stories and collections. After registration users can add items to their personal repository in order to use them in the stories they create. To enable this, the photography pilot has used the Omeka open-source software and its plugins. Some of these plugins have been modified and extended to implement the storytelling features mentioned in the requirements document.

On the storytelling website visitors can now:

- search and browse published stories, items and collections;
- search for items in Europeana, DPLA, DigitalNZ, MINT and the Rijksmuseum;
- learn how to build stories with the step-by-step guide;
- and create their own account on the website to start building their own stories.

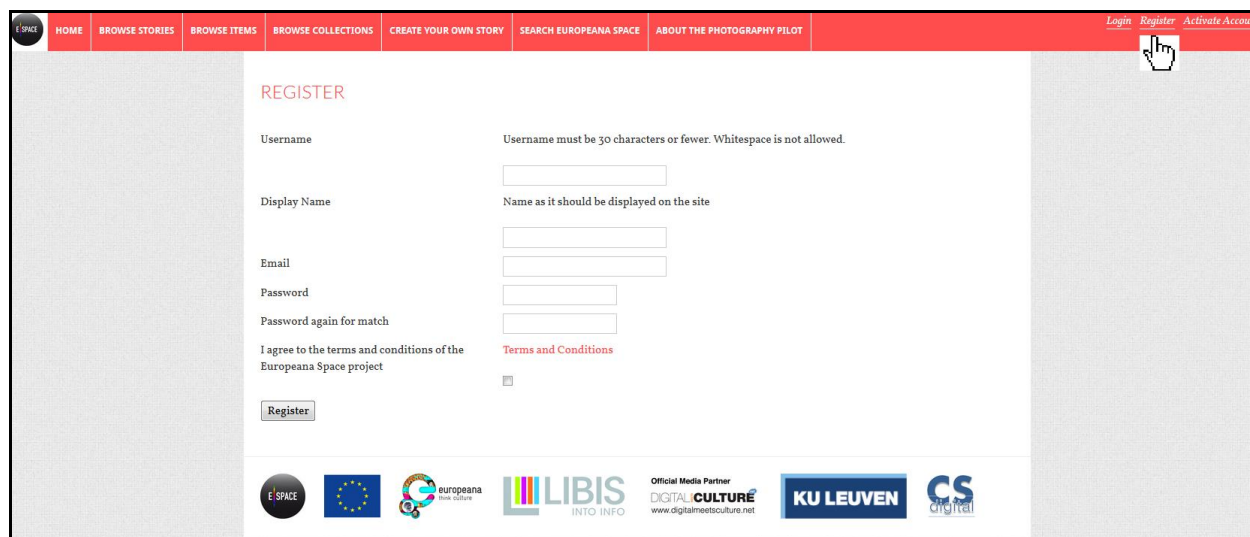


Figure 19: Create an account

Registered users can start adding items to their personal repository (log-in required) with the following functionalities:

- upload personal items with “Add an item”;
- search several online repositories (currently Europeana, DigitalNZ, MINT and The Rijksmuseum), select items from the search results and add these to their personal space using the “Search E-Space” functionality;
- add selected items or own items to a collection, allowing them to build thematic groups to use them later on to build a story.

SEARCH EUROPEANA SPACE (296 TOTAL)

Search By

Select Search Source

Europeana DigitalNZ Mint Rijksmuseum

of 3 [Next Page](#)

Make Collection Name



Selection	Title
<input type="checkbox"/>	
DigitalNZ(100)	
<input type="checkbox"/>	 Charles Darwin
<input type="checkbox"/>	Charles Darwin
<input type="checkbox"/>	Science story - Charles Darwin
<input type="checkbox"/>	COOKE, Arthur Charles Darwin
<input type="checkbox"/>	COOKE, Arthur Charles Darwin
<input type="checkbox"/>	 Portrait of Charles Darwin

Figure 20: Add items from Europeana, DigitalNZ, Mint and Rijksmuseum to your own repository

Other options for registered users:

- changing account details and managing personal items, collections and stories at all times;
- consulting and using the items of other registered users, without however the ability to edit or delete these items. The storytelling application is envisaged as an open system, allowing re-use of content between its participants;
- adding one of the Europeana rights statements for own contributed items in the “Rights” element (<http://pro.europeana.eu/page/available-rights-statements>). This option is of particular importance for users adding personal photographs such as family albums, since they might not be inclined to share such personal items for commercial re-use.

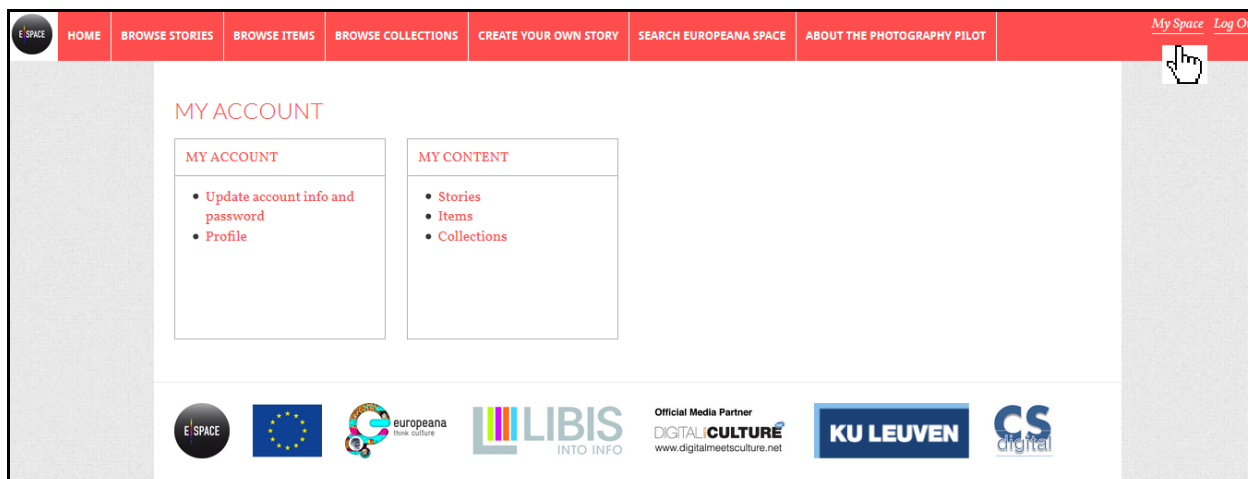


Figure 21: My Space dashboard giving registered users access to their account, profile and content

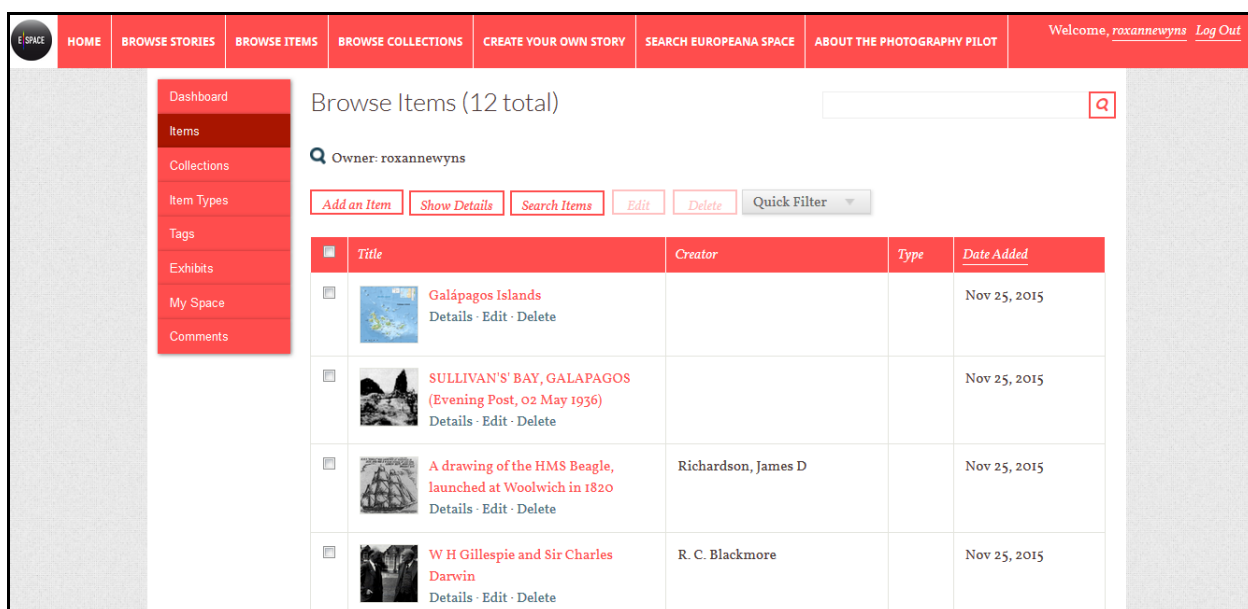


Figure 22: Personal item repository

Furthermore, users can:

- build their own stories using items from the repository. They can create multiple pages and subpages using different kinds of layouts. These can easily be selected within the exhibit builder. Items that are geo-referenced can also be shown on a map. When the story is ready, the user can publish it on the website for all visitors to see and enjoy;
- post comments on published items (Figure 23). Owner of those items can moderate comments;
- share stories (Figure 24) to various social media platforms (e.g. Facebook, Google+ and Twitter). The “AddThis” sharing tool has been integrated in the storytelling website to achieve this;
- print published stories;
- email published stories. The email contains a link to the story and a custom user message. Users can choose among various available email clients to share their stories.

Comments

Your name

Website

Email (required)

Comment

Allowed tags: <p>, <a>, , , , ,

B I U HTML

Figure 23: Posting comments on items

[Home](#) > [Stories](#) > [All our yesterdays](#)

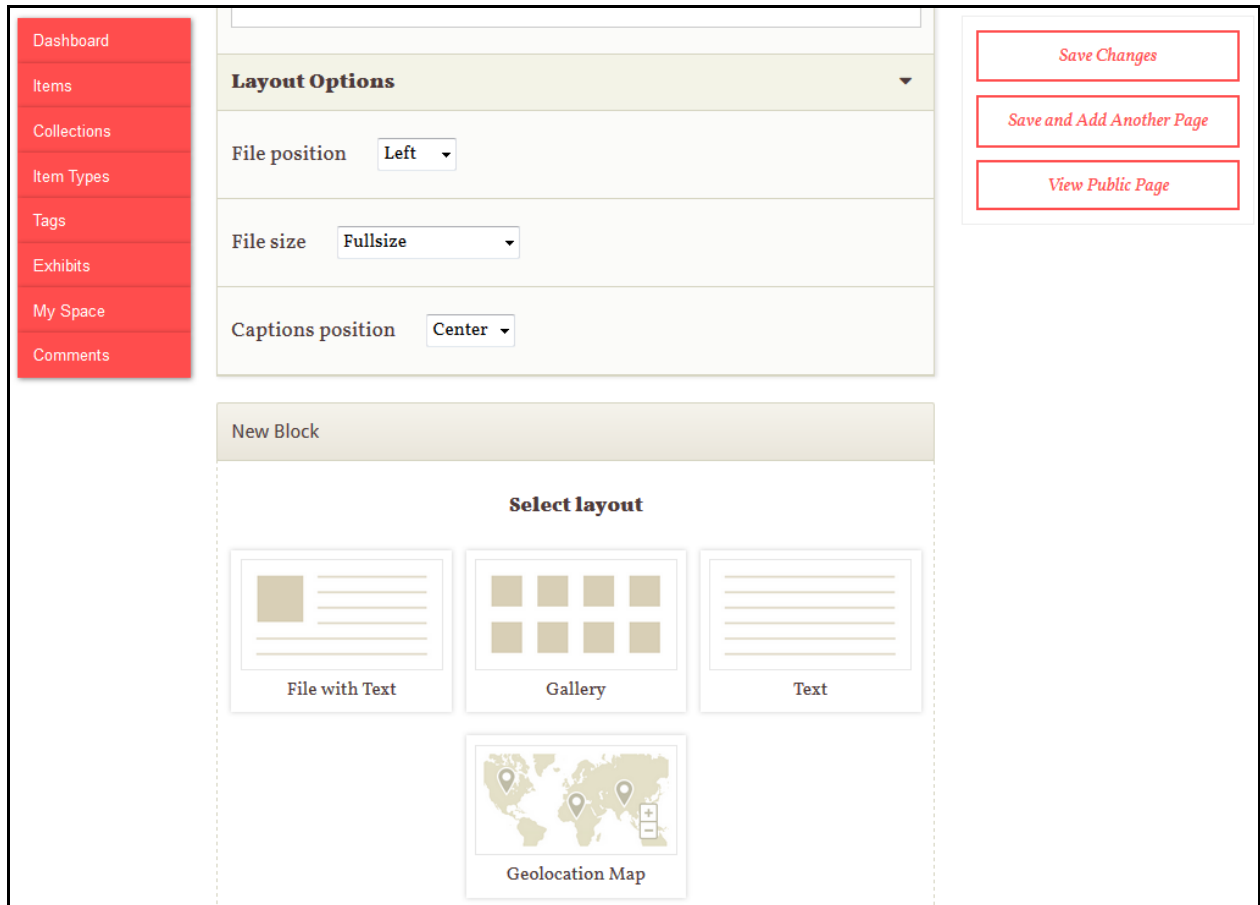
ALL OUR YESTERDAYS

(1839-1939) LIFE THROUGH THE LENS OF EUROPE'S FIRST PHOTOGRAPHERS

Museums, archives, universities, private enterprises and public administrations from all over Europe joined forces in the EuropeanaPhotography project to digitize the best of their photographic collections (1839-1939); now they are proud to present an edited selection of the finest, rarely seen images, documenting the past as captured by the pioneers of photography.

All Our Yesterdays is a great opportunity to discover how people lived in a Europe very different from the one we know today, undergoing great and rapid changes. In this period, a life of horses and agriculture briefly co-existed with a new, modern reality of machines and industry. Among this era's many innovations: photography, a new medium able to capture everyday life at the pace of its evolutions. The skills of these early photographers were not fully appreciated at the time, but they recorded life in a precise and hidden detail that we can only really appreciate now that we have lost the life we used to live.

Figure 24: Sharing stories



The screenshot displays the E SPACE user interface for configuring a page layout. On the left is a red sidebar menu with options: Dashboard, Items, Collections, Item Types, Tags, Exhibits, My Space, and Comments. The main content area is divided into three sections:

- Layout Options:** A section with three rows of settings:
 - File position: Left (dropdown)
 - File size: Fullsize (dropdown)
 - Captions position: Center (dropdown)
- New Block:** A section titled "Select layout" containing four layout options:
 - File with Text: A square icon followed by horizontal lines.
 - Gallery: A 2x3 grid of square icons.
 - Text: Horizontal lines.
 - Geolocation Map: A world map with location pins and a zoom-in icon.
- Actions:** Three red-bordered buttons on the right side:
 - Save Changes
 - Save and Add Another Page
 - View Public Page

Figure 25: Different layout options for building stories

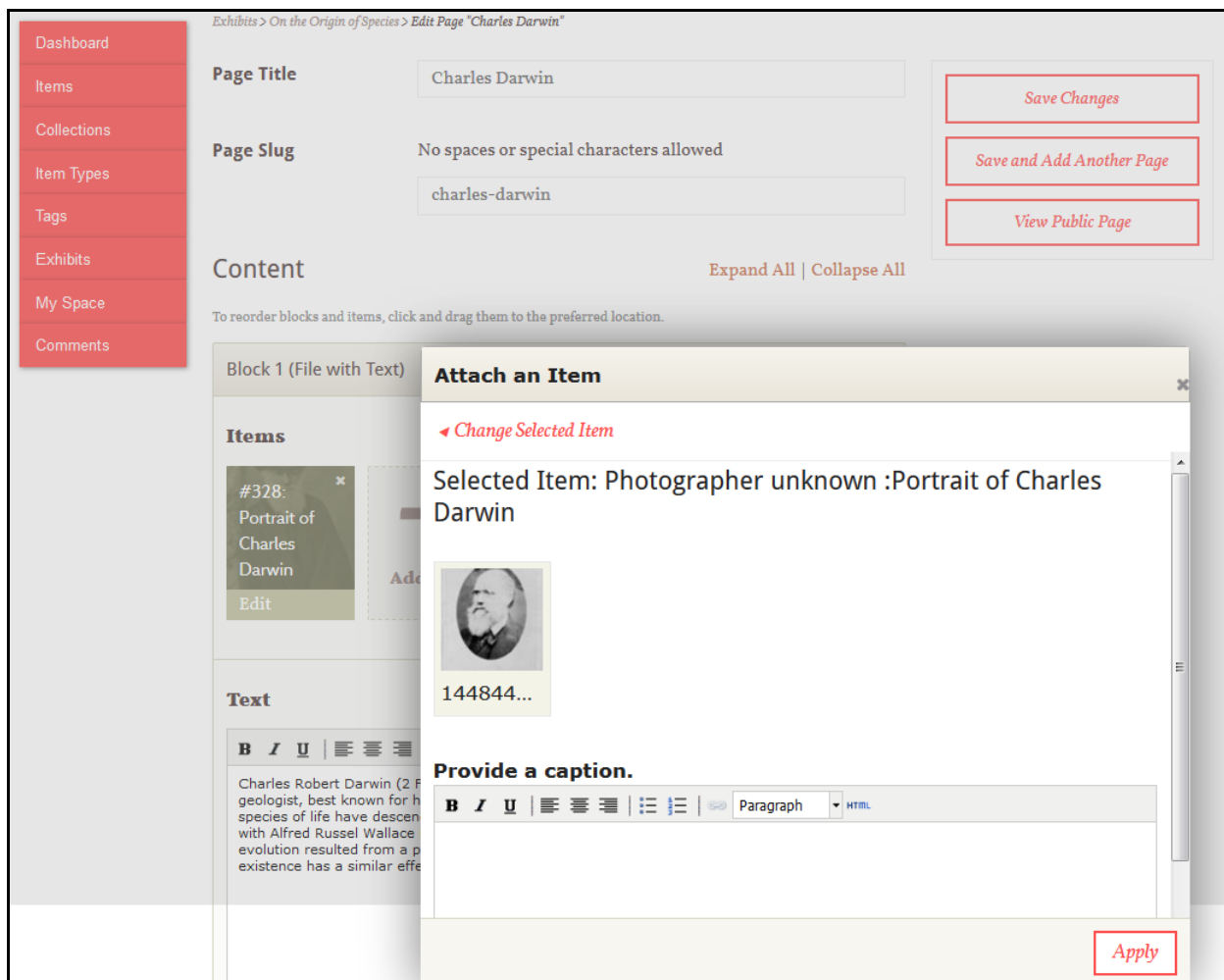


Figure 26: Adding items to a story

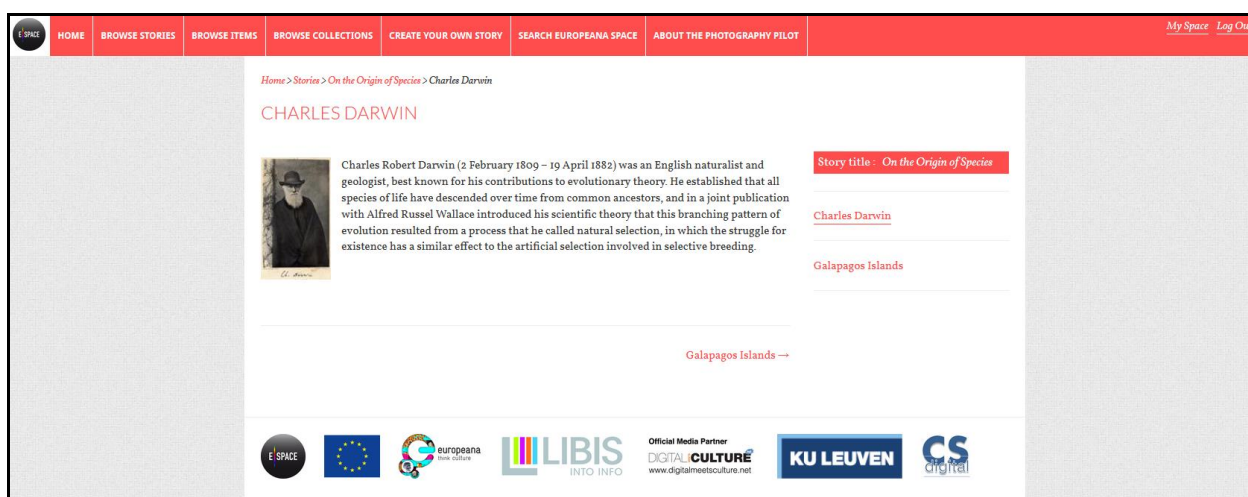


Figure 27: Published story

4.2.2 Design and development of the storytelling website

A new and attractive design was created with the stories as the central focus point. In several locations visitors are encouraged to start building their own stories. A step-by-step guide helps them on their way.

The original Omeka contributor plugin only allowed for the submission of items. This meant that contributors were not unable to edit the items afterwards, nor could they create collections or build stories with them. Omeka was extended so that registered users can now add and edit items to their own account, and create collections and stories with them. A dashboard provides registered users easy access to their account, profile, and content (Figure 21), while a new management interface facilitates easy use. By default, registered users only see their own items, collections and stories when logged in. This makes it easier to navigate through the content. Since it is an open system encouraging re-use, users are also able to see and use the items contributed by other collection builders and storytellers if they wish. This can simply be done by selecting the filter “View all items.”

A new plugin was developed to connect the storytelling website to the WITH API. Thanks to this functionality, users can search for relevant content in four different cultural heritage repositories at once. Registered users also have the option to import selected items into their own repository. This gives them access to millions of photographic heritage content to be used creatively in new stories (Figure 20).

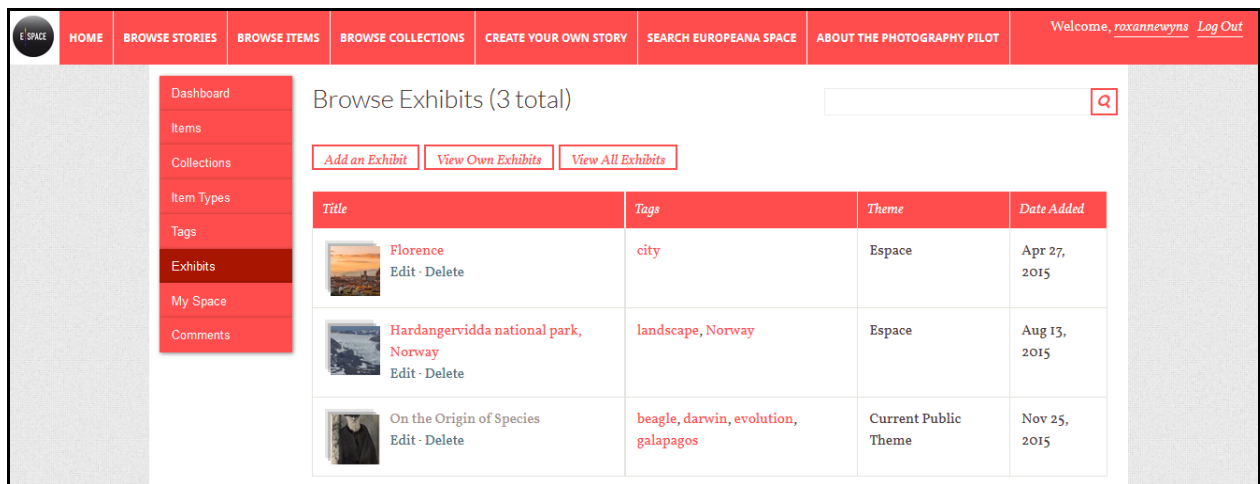


Figure 28: Management interface for registered users

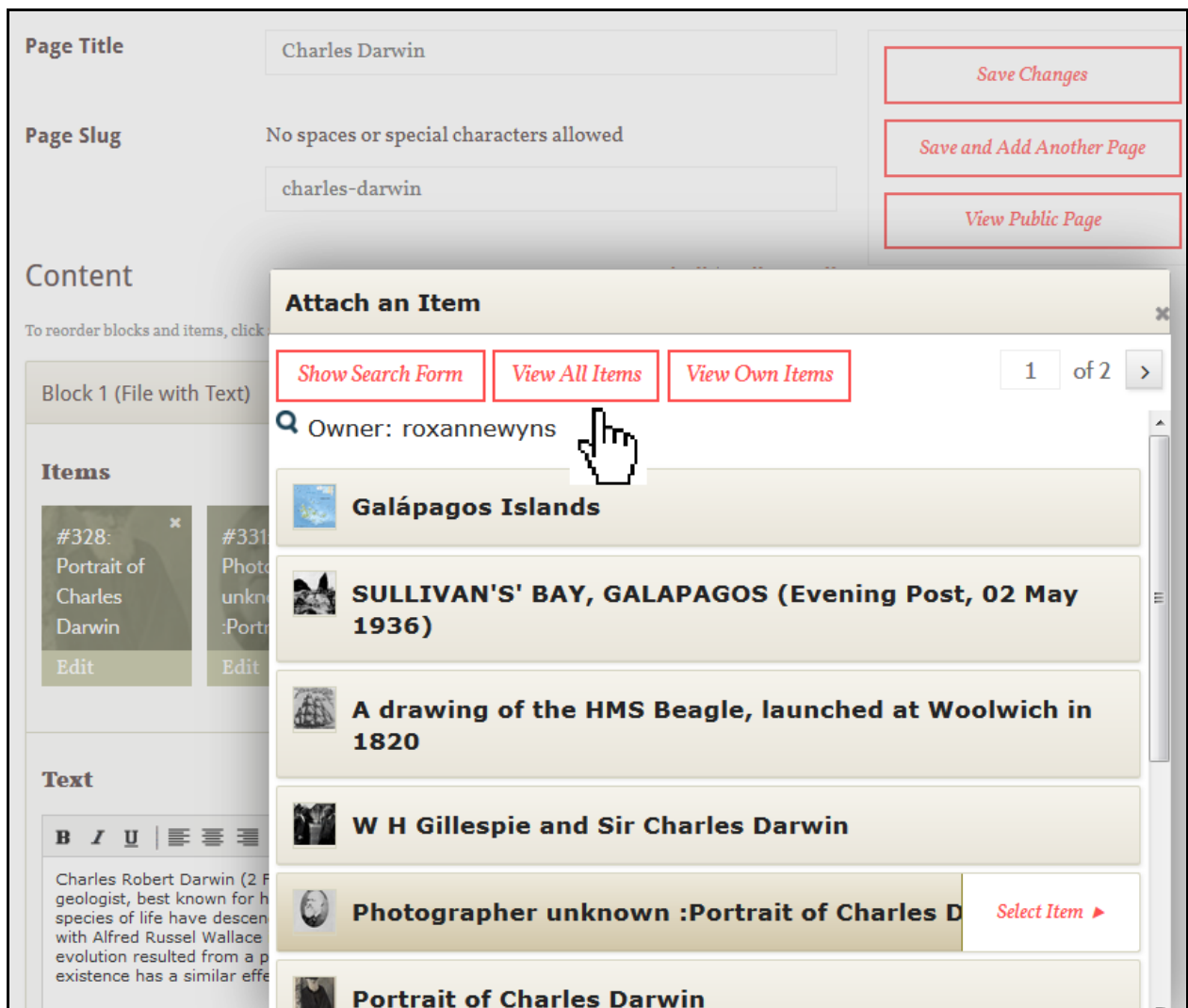


Figure 29: Filter options to see “all items” or “own items”

4.2.3 Detailed technical description of the application

The E-Space storytelling website is developed based on open-source content management system Omeka. Omeka allows users to publish their digital content online and comes with a wide range of plugins that can be used to increase its usage. Furthermore, Omeka’s extension mechanism allows software developers to develop new plugins to incorporate more features.

The following Omeka plugins have been used to implement the required features of the storytelling website. All of these plugins are open-source with their source code available on Github. These plugins have been tailored to make them suitable for the storytelling website.

- **ExhibitBuilder**

This plugin allows users to use Omeka items to create online exhibits. The use of this plugin was tailored to enable users create their stories by including Omeka items. It provides support for creating, deleting, publishing and unpublishing stories. Users can search and import items into their stories in a user-friendly way.

Source code: <https://github.com/omeka/plugin-ExhibitBuilder>

- **GuestUser**

The GuestUser plugin allows users to create user accounts on Omeka websites. The plugin only provides support for Guest user accounts, however the necessary modification have been made to extend its support for other roles. With these modifications, a storytelling user now has the necessary rights to make, publish, unpublish and delete his/her own stories.

Source code: <https://github.com/omeka/plugin-GuestUser>

- **UserProfiles**

This plugin provides support for adding user profile information. Used along with the GuestUser plugin, it provides a comprehensive support for user account management. Users can make their profile public to let other users see their information or private to restrict access to profile information.

Source code: <https://github.com/omeka/plugin-UserProfiles>

- **Commenting**

The commenting plugin provides support for posting comments to items in Omeka. Users can post new comments or reply to an existing comment. A user can moderate comments on his/her items. Furthermore, users can flag inappropriate comments.

Source code: <https://github.com/omeka/plugin-Commenting>

- **Geolocation**

This plugin helps showing location of geo-referenced Omeka items on a map. In the storytelling website this plugin shows location of items used in stories.

Source code: <https://github.com/omeka/plugin-Geolocation>

- **SimplePages**

This plugin provides support for adding web pages to Omeka based websites in an easy and simple way. In the storytelling website this plugin has been used to create web pages for licensing and help-related information.

Source code: <https://github.com/omeka/plugin-SimplePages>

LibCo

Along with the re-use of the abovementioned existing Omeka plugins, a new plugin was needed to let users search and import content from external repositories (Europeana, DigitalNZ, MINT and The Rijksmuseum). To meet this requirement, the LibCo (Libis Connector) plugin has been developed. Like other Omeka plugin, LibCo is also an open-source plugin. Source code of LibCo plugin is available on Github (<https://github.com/libis/plugin-Libisco>) to the open-source community to re-use it and possibly make extensions to it. A workflow diagram of the plugin is shown in Figure 30.



Figure 30: LibCo plugin workflow

a) Configure

The LibCo plugin enables communication to external repositories via REST API calls. Connection parameters (e.g. server IP address and API path) required for such communication are configurable (Figure 31).

Dashboard

Items

Collections

Item Types

Tags

Image Manager

Simple Pages

Stories

CSV Import

My Space

Guest Users

User Profiles

Comments

Map

Configure Plugin: Libis Connector

Server Name A name for the server.

espace

Server Url Server Url.

http://espace.with.imag e.ntua.gr

URL Path URL Path.

api/advancedsearch

Proxy Proxy server with port number (server_address:port).

Token Server login token.

OIoc5MVfNprhL3iiXR7 8aanGaxGS3a

Figure 31: LibCo plugin REST API configuration

b) Search

The LibCo plugin uses the E-Space WITH APIs rest interface to search external repositories. WITH API provides support for various kinds of operations on those repositories, such as basic search, advanced search, create stories, collections and exhibitions. Currently, LibCo uses basic search and advanced search operations. A sequence diagram of search operation with WITH API is shown in Figure 32.

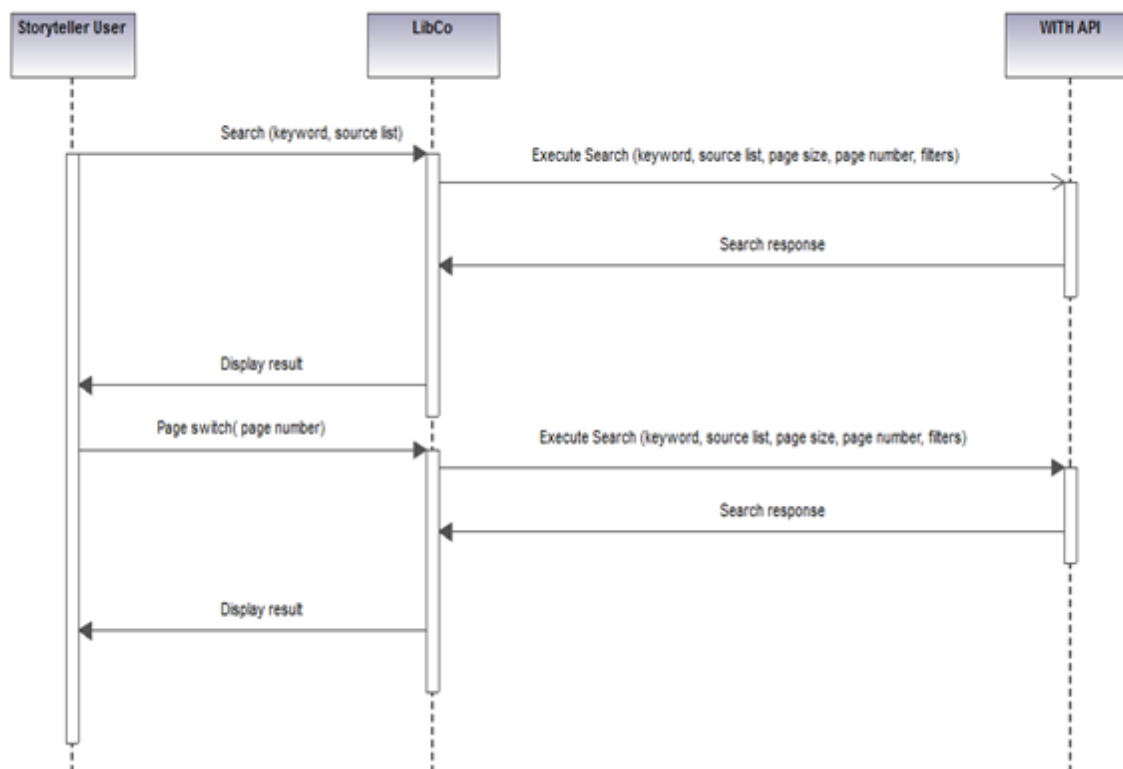


Figure 32: LibCo – WITH API interaction

The storyteller user makes a search by providing a keyword and selecting repositories (search sources) from a provided list. LibCo plugin executes the request on WITH API after adding additional information to the original request. This information includes page size, page number and filters.

After receiving the search response from the WITH API, LibCo processes it to extract the required information and displays it. Search results are listed separately for each selected source.

Afterwards, the storyteller user can navigate through the results by using “Next Page” and “Previous Page” links or by providing a desired page number. Based on the selected page number a new request is made to the WITH API and fresh results are displayed to the user.

c) Import Content

Once the storyteller user has searched results, he/she can select desired items and import them to Omeka Items. An activity diagram of the LibCo import functionality is shown in Figure 33.

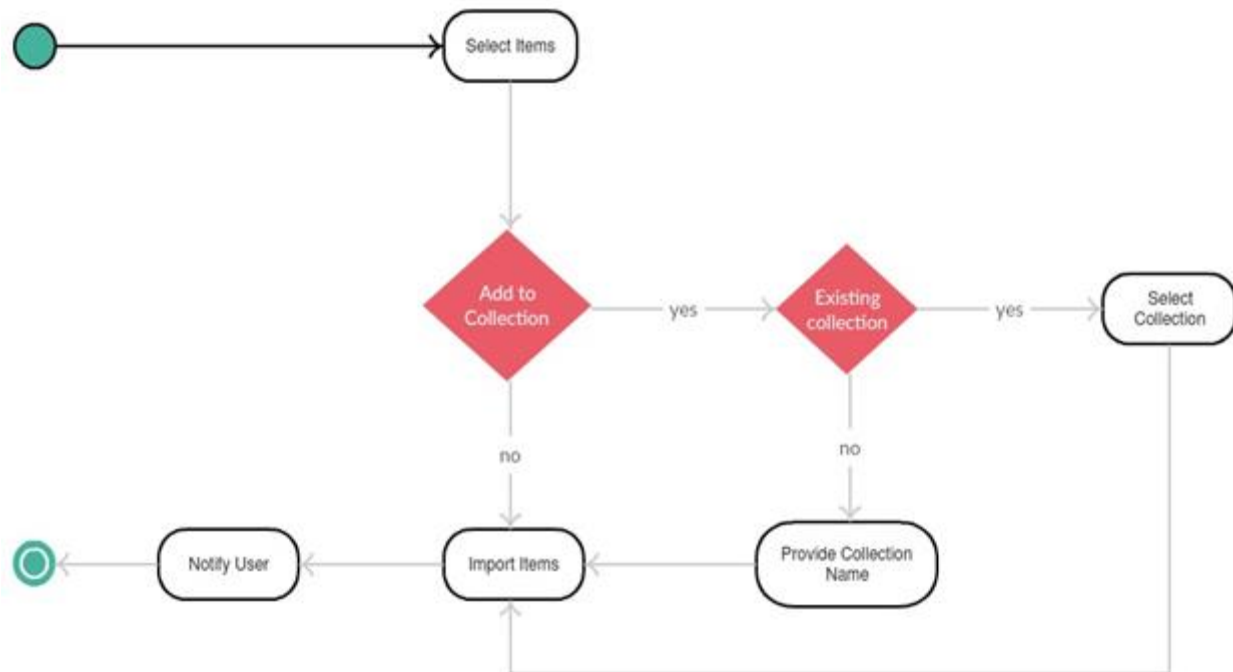


Figure 33: Importing items to E-Space

Users can import selected items to Omeka Items or into an Omeka Collection. Items can be imported to a new or existing collection. The latter allows users to select an existing collection from their own collections, provided in a dropdown list. Imported items are in published state by default and are therefore visible to all users. However, their status can be changed in Omeka Item and Collection editors.

A webpage containing guidelines is available to users. These guidelines will help them to make efficient searches and import items correctly to the storytelling website.

Further improvements in the storytelling website are expected. Those improvements will be mainly based on user feedback and anticipated refactoring of the WITH API.

4.3 SCENARIO 3: AUGMENTED REALITY WITH PHOTOGRAPHIC HERITAGE IMAGES

As mentioned in the previous section, a selection of 18 images from the City Archive of Leuven has been made, which functioned as the basis for the development of the algorithm. The algorithm uses SURF (Speeded Up Robust Features) to assign a similarity measure between the images and is trained to produce a ranking that matches the manually ranked images. The results will be made available for the participants of the Photography hackathon.

As outlined earlier, this scenario is still at the execution stage and therefore the final outcomes have still to be achieved. The plan for completion is provided in chapter 11 Future Work.

4.4 OTHER ACTIVITIES

- The Photography pilot organised its first event on November 27, 2015 including the Photographic Memories Workshop, which was open to the general public. 30 to 35 visitors participated in the workshop. 228 photographs were collected and digitised under the licenses CC-BY-NC, CC-BY or Public Domain and added to the Europeana repository. Support for licensing issues was provided by colleague Barbara Dierickx of PACKED, part of the WP3 Content Space team.

A network of contacts was established with senior citizens of Leuven, who gladly agreed to share their knowledge of the historical city. Their stories were collected by the students of Cultural Studies and will not only become a fundamental part of their Open Book, but will also be integrated in the storytelling application (Scenario 2).



Figure 34: A citizen of Leuven shares his stories and photographs during the Photographic Memories Workshop

- The images digitised during the EuropeanaPhotography project were used to create the exemplary story “Trading Spaces/Changing Places,” which has since been adapted for the demonstrator of the second scenario.

5 CONTENT SOURCES

The major content source for the Photography pilot has been Europeana, excluding a few test-images for the third scenario from the City Archive of Leuven. The total number of used and provided images is 302.

A great deal of content was sourced from the original selection for the “All Our Yesterdays” exhibition, comprising 121 pictures from 18 providers. Many of these images are copyright protected; part is Public Domain or is licensed with a CC-BY license.

All providers granted rights for use of this content in the Blinkster app.

The storytelling website gives access to the entire Europeana repository through its connection with the WITH API. This API also provides access to the digital content from DigitalNZ, the MINT aggregation platform, and The Rijksmuseum. Users can select items from the search result and add these to their personal repository to build collections and stories with them.

Most items, collections and stories were provided from a testing perspective. This will change after the production release, which is planned to coincide with the hackathon event at the end of February 2016. At this stage it is impossible to estimate the number of Europeana and non-Europeana contents that will be used.

A new set of additional images from the Leuven City Archive (74 images that are copyright protected, and have also been added to the Europeana repository - outside of the E-Space project) were also used. In the augmented reality test, 18 of these City Archive images were chosen and used on the basis of an agreement made with the City Archives.

Names of licenses and number of images for each:

- CC-BY: 190
- CC-BY-NC: 6
- Public Domain: 32
- Copyright protected: 74

6 PROJECT INTEGRATION

Although the pilot has undertaken work to achieve its own specific objectives, this has taken place within the supporting environment of the project as a whole. Beneficial examples of this liaison are provided here:

- Technical Space (WP2): The pilot contributed to the development of the WITH platform by indicating the specifications likely to be required for the pilot.
- The LibCo plugin integrates the use of WITH API on the storytelling website, to let users search and import content from the E-Space external repositories. WITH API provides rest interface to search content from repositories. The API provides support for basic and advanced searches. In advanced search extra information, such as content filters, can be provided to make more specific searches. The workflow of the LibCo plugin is presented in Figure 30, whereas Figure 32 shows the interaction of LibCo with the WITH API. The API developers are refactoring the design of the API, which may impact the design of the LibCo plugin. Therefore, based on the nature of that impact, some changes are expected in the plugin.
- IP (WP3): Collaboration with the Content Space team of Barbara Dierickx (PACKED), Anastasia Somerville-Wong and Charlotte Waelde (UNEXE) for the creation of the Photography IP Case Study (submitted within D3.2/4 - *Europeana Space: Final Report on the Content Space and Legal Aspects*).
- Monthly Skypes (WP4): Skypes have taken place each month to enable pilots to share ideas and learn from each other.
- Museums pilot (WP4): the Photography pilot communicated to the Museums pilot its results gathered from the first scenario (Blinkster mobile application), as after the completion of the “All Our Yesterdays” exhibition, the app would predominately be used to enhance information available for museum collections, once again for the benefit of visitors.
- Open and Hybrid Publishing pilot (WP4): strong collaboration with the Open and Hybrid Publishing pilot, especially concerning the Open Book project “Leuven Then and Now,” which will include early photographs of the city and images from today accompanied by stories and memories. Joanna Zylinska (Goldsmiths) came to Leuven to give a lecture for the Online Publishing class.
- Hackathon (WP5): the results produced by the Photography pilot will be available for re-use during the Photography hackathon “Hack Your Photo Heritage,” which will take place at the FabLab Leuven from 25-27 February 2016. Networks of students, developers and GLAM professionals have been contacted and arrangements for the organisation of the hackathon have being made in collaboration with iMinds, PACKED and Waag.
- MOOC (WP6): a proposal for the E-Space MOOC has been created and a specific module on Photography has been set up.

7 EVALUATION

Evaluation of the scenarios is discussed below. Some parts of the evaluation have already taken place; others are still to be carried out.

7.1 SCENARIO 1: EUREVA BLINKSTER APP

This evaluation took place during the exhibition “All Our Yesterdays” (February-March 2015). The Blinkster app was tested to see whether it could be positively deployed for photography exhibitions. These are often set up in a short timeframe and the reference images for the app can only be taken once all the photographs are hanging in the gallery. Nevertheless, the reference images were taken quickly and the database set up with ease.

Due to the short timeframe of the exhibition, there was not the possibility to get the app running on other than Android devices; hence the possibility of running the app on iOS remains untested.

Students from the Masters in Cultural Studies at KU Leuven were asked to run the app while visiting the exhibition “All Our Yesterdays,” and provide information on its functionality and usability. The test was meant to verify whether the algorithm to retrieve the images was working properly and matching the correct image of a black and white photograph in the light condition of the exhibition. The results of the evaluation have been positive, showing that the app was user-friendly, could recognise all the images, worked without any specific issue and in general could be easily used for photo exhibitions (taking into account time constraints).

One remark was made concerning the retrieval of information on the photographs: once a user takes an image of the photograph that he/she wants to learn more about, the app shows a list of three potential pictures from the exhibition with thumbnail images. Usually, the first image is the photograph that the user took; when clicking on the thumbnail, the related information appears. It isn't clear why three images appear in response to the photograph, rather than just the intended picture. Students felt that this process should be reversed: first the information on the photograph of interest should be shown, and only then the option to access the list of photographs of the exhibition should be given. Once the test was completed, this feedback was shared with the Eureva team.

An evaluation was also planned through a questionnaire for pupils; unfortunately this could not take place because:

- a) only using the Android version would lead to inequalities in the group; and
- b) the pupils visiting the exhibitions had a substantial educational task to perform, that did not match with the Blinkster test. So the teachers decided against deploying the test.

7.2 SCENARIO 2: USER-GENERATED STORYBOARDS WITH PHOTOGRAPHICAL EUROPEANA CONTENT

The evaluation of the second scenario aims at testing all the functionalities of the website: the “Search E-Space” and “Add an item” functions, the possibility to browse through items, stories and collections, and the process of creating stories. Clarity and ease of use are also taken into account. In the post hackathon period, 8-19 March, students of the Master in Cultural Studies and/or of the Master in Digital Humanities at KU Leuven will be recruited and mobilized for another testing action of the Omeka website and the Technical Space.

They also will be invited to try the tools and create their own stories, exploring the repository and the available functionalities. The evaluation questionnaire – possibly improved after the hackathon - will be submitted to these evaluators as well. As this is a different test group from hackathon participants, the students may not necessarily have specific technical skills and therefore, the evaluation and testing of the tools will happen from the point of view of “normal” users, i.e. non-specialized people with no technical knowledge, which is the main target user-group of the prototypes, since the story-telling applications mainly target tourism and education.

7.3 SCENARIO 3: AUGMENTED REALITY WITH PHOTOGRAPHIC HERITAGE IMAGES

The evaluation of the third scenario will happen in two phases: firstly, the algorithm will be tested in order to check its functionality; secondly, the app that makes use of the algorithm will be tested by students, who will report on its usability. The Photo Quest event, a test in its own right will take place during the spring of 2016.

7.4 PHOTOGRAPHIC MEMORIES WORKSHOP

The Photographic Memories Workshop, which took place on 27 November 2015, evaluated the response of people to licensing. During the day, citizens of Leuven had the chance to bring their own photographs and get them digitised professionally. In return, it was asked of them to licence their images as CC-BY, CC-BY-NC or Public Domain. Due to the clear explanations by Pilot Coordinator Fred Truyen and Barbara Dierickx of WP3, most of the photographs were licensed CC-BY or Public Domain (respectively, 190 and 32 out of 228), showing that good information can lead to a better understanding of open license and its importance.

For such events privacy and ethical considerations are important. Individuals’ private pictures can, in some cases, be great testimonies of social history. They may show a glimpse of societal changes, historic events at which depicted persons were present, conventions and trends in the contemporary world. In this way, they may be(come) perfect material for e.g., textbook illustration. However, the representation may be very strongly linked to a vital piece of contextual information. Once context and image get separated, there is room for a different reading or wrong interpretation. For instance, a person may have been photographed during an act of resistance against an occupier or standing regime, but whereby the determination of ‘side’ cannot be derived just from a picture without its context.

For the Photography pilot in particular, a delicate issue is that of ethics. It is a subsector in which the attention for moral rights, or ‘responsible use’ of material is very prominent. Fred Truyen has been quoted on the subject:

The “doom” scenario of archives is that their valuable historical family photos will be “reused” as backgrounds in shooting games for players to blow it all up. Or even worse in the eyes of many: for “commercial” reuse. While “mercantile” and “trade” have positive connotations, for some reason “commercial” doesn’t sit well with the public, and is associated with malpractice and malware.

An evaluative finding of this pilot is that when GLAM sector institutions develop long term IP strategies, these sensitivities should be borne in mind and stress placed upon moral and cultural dealing with integrity, authenticity and respect, rather than solely being focused on the reproduction rights.

7.5 EVALUATION RECOMMENDATIONS

Building upon the EuropeanaPhotography project, the pilot began with an understanding of the changing sector, where the proliferation of mobile phones with cameras and accessible software had changed the nature of photography. GLAM sector organisations had to innovate to stay afloat, initially using their IPR to charge fees for the re-use of their content, often realising that this was not the best solution. As technology moved forward cultural heritage institutions had to digitise their content and provide metadata and rights labels to enable attribution, while at the same time, re-users wanted easy access to content. One of the objectives of the Photography pilot was to explore situations affecting the potential for mutually beneficial commercial exploitation for both groups.

As part of the evaluation process, the pilot has considered the pitfalls of current practice, the elements in the chain that could make or break the possible emergence of radically new practices. Two main themes have emerged that can better enable the creation of more genuine interaction (and that are currently lacking in the Europeana environment), they are:

- the possibility for user login
- a protected space for copyrighted content.

7.5.1 User login

The current Europeana portal is a first generation web application that doesn't allow user login. This severely limits the possibilities for users to become engaged, but more importantly, it prohibits content providers from gleaning valuable knowledge about who is using their content and when. Europeana Space provides the opportunity for users to login and to save their own data on the E-Space Technical Space/WITH server, combined with both open content and copyrighted content made available in the Content Space. The E-Space API will provide functionalities to exploit this user login data, with full protection of privacy and rights in place.

7.5.2 Protected space

Part of the content available through Europeana is Public Domain labeled, or dedicated for re-use through Creative Commons licenses. However, one of the biggest issues and impediments of re-use is that much of the content remains copyrighted. This is not only for commercial reason, as many archives do not want commercial re-use of their content for moral integrity reasons; they feel that their cultural heritage deserves respect and should not become belittled.

To make it possible for innovators to experiment with new applications before having to negotiate for the rights on content, E-Space has developed a protected space. It aims to complement the necessary work that has already been undertaken by Europeana in the context of the Rights Labeling Campaign; by adding more refined reuse metadata. The whole point is that in creative industries new IP is created by adding a layer on top of existing IP held by content owners. Due to the lack of clarity of this relationship, many content owners are reluctant to share their materials online, fearing that other businesses will make profit with their content, without the content owner sharing in the revenue.

To try and find a solution to these concerns, the E-Space IPR Team offered the idea of the E-Space protected space. This is a space that considers both legal and technical dimensions and allows content owners to place high resolution images within the space and allow innovators to experiment with new applications. Negotiation over rights and the discussion of a business model then takes place prior to content or tools leaving the protected space.

The E-Space IP Team has provided Rights Clearance Guidelines to assist in this process that are available on the E-Space website.

The Photography pilot intended to use the E-Space protected space for a limited amount of proprietary and un-cleared content, and were keen that the legal aspects of this space be translated into a technical framework, believing the concept of the protected space to be as much a technical one as a legal one. While Europeana rights labelling attached rights to objects rather than people/rights holders, the E-Space protected space allows users to find specific materials that they can experiment with under certain semantic conditions. The Photography pilot developed API calls and metadata structures to allow this technology to be demonstrated, but it proved impossible to finish this technical side of the IP protected space within the E-Space project. This kind of structure, however, is not likely to be available elsewhere in the near future.

The evaluation findings of the Photography pilot are therefore that these two elements combined, the user login functionality and the protected space, aim to create a context where creativity can flourish, and new business models can be explored jointly by proactive citizens, creative industries and content owners as well as and caretakers such as museums and archives.

7.6 FURTHER EVALUATION

In addition to the evaluation of the three different scenarios described above, the following evaluations will be carried out:

- An evaluation form will be distributed to the participants of the Photography hackathon in February 2016, including questions regarding participants':
 - expectations for the Photography hackathon, the clarity of the link between development and business models;
 - opinions about the actual possibility of finding creative solutions to enhance the IP-based business model of photography.
- An evaluation of the E-Space MOOC:
 - The Photography module of the MOOC will be presented to participants of the Photography hackathon and feedback will be asked. This will include questions concerning the parts for professionals in the GLAM sector and developers in order to assess their actual usefulness and improve them where (and if) necessary.
 - During the spring of 2016, a test run of the MOOC will take place, to test technical aspects as well as relevance, usefulness, and completeness of the content.

A detailed report of the evaluation activities, describing the user experience, their suggestions, possible improvements and detected deficiencies will be produced by the pilot and will constitute an important element in the lessons learnt of the Photography pilot.

8 LESSONS LEARNED

One of the biggest challenges of the Photography pilot was to understand the kind of innovation required for the sector. As mentioned in the introduction, the Photography pilot aims at long-term innovation, contributing to a basic layer that brings creative cultural activity to a new, sustainable level. This is considered to be “tidal” innovation: making sure that when a new massive availability wave occurs, as is currently the case with abundant photographic content flowing from Europeana, it is picked up so that wave after wave there is more impact on the coastline. More than hoping that the hackathon will inspire that single bright idea that could become a new micro business model, the pilot’s core concern is the general strengthening of the intermediate layers required for many of these new bright ideas to emerge.

Finding the links between the photographic heritage content, the wide variety of general public, amateurs, pro-ams and professional developers through an intermediate software architecture that provides real role identification and task burden sharing while at the same time improving transparency on rights is the real challenge. The big issue with the “Long Tail” is not so much the small group of pioneers or the massive amount of passive followers, but rather the in-between groups that link ideas of innovative leaders to the consumer market. This is the place for sustainable, professionally maintained infrastructures.

Concerning the first scenario, the main lesson learnt was that, due to the working mechanism of the Blinkster app, the pictures to be uploaded to the database for the photo recognition could only be taken once the exhibition was in place: this showed that time constraints should be taken into account when using the Blinkster app. If an exhibition only runs for few days, Blinkster might not be the most feasible tool to implement. In this case, the exhibition ran for six weeks, which were enough to have the app perfectly running on Android devices, even if the iOS version was not available. It is also important that the Blinkster app offers additional content and doesn’t just repeat the text that is displayed on the wall next to the picture.

For the second scenario, where users will be invited to write their own stories on the portal, development took place in an Omeka environment concurrent with the development of the WITH repository. Further assessment will take place as to whether the Omeka environment, which is very well suited for professional users, is user-friendly enough for the general public. The lesson learned is that metadata need to be carried along from end-users to professionals in a seamless way so that the quality of the metadata is good enough for the GLAM professionals and developers while on the same time not burdensome for the casual end-user. This process will need careful monitoring in the evaluation.

During the Photographic Memories Workshop, the pilot learned that people are more likely to use CC-BY and PD licenses upon hearing a clear explanation about how licenses work. People actually like to share their memories, their family histories. It is an element of pride, and attracts much attention. The high emotions and nostalgia associated with old photos is something that creative markets can tap from: building photography markets is all about emotions.

A further lesson learned in this pilot came from a brainstorming session involving people from the photography sector. The remit was to explore innovative the business models, but it became clear that it is hard for novel ideas to emerge from people who are already involved in the sector and familiar with existing practices.

Photographic archives, agencies all use their established business models and it is difficult to imagine new innovations. In this sense, setting up pilots to develop tools that inspire hackathon participants might have to work the other way around: there is the potential for more ideas to come from the hackathons than could be generated by the pilot and its associates.

It was also a learning experience to work with different development teams and platforms: LIBIS at KU Leuven working on Omeka, while NTUA working on the final WITH platform. This lead to some issues of timing: often the Omeka team had to wait for WITH functionalities to be developed first. This means in contexts where different development teams work together, a very strict planning should be put in place and the development of the core platform functionalities should have priority in the project planning.

9 EDUCATIONAL USE

The Photography pilot engaged students of KU Leuven during its execution, giving them the chance to acquire useful skills and experiences by working next to professionals. Students from the Masters in Cultural Studies 2014-2015 and 2015-2016 were involved (and some of them will still be involved during the first half of 2016) for the execution and testing of scenarios, while students from the Masters in Digital Humanities are working closely with iMinds on the development of the mobile application for the third scenario.

Moreover, the educational aspect is present in each of the three scenarios. The Blinkster app was designed as a tool to facilitate the visit of the exhibition “All Our Yesterdays,” and deepen understanding of the exhibition by providing information about each photograph and relating them to other images of the exhibition. As reflected in the deliverable of the Museums pilot, this could be set up specifically as a trail for students to follow around an exhibition, as part of their learning.

The storytelling website has the potential to become an important tool for teachers to prepare narratives on different topics and share this with their students. The tool can also be used by the students themselves, for example in preparing a task assignment to present to fellow students. As with the findings of the Open & Hybrid Publishing Pilot, photographs can be integrated into the curriculum to create more vivid images that can bring new dimension to learning.

The mobile app that will be developed for the third scenario aims at reviving the history of the city of Leuven and presenting it to its citizens in a visually attractive and entertaining way. History is everywhere, but often people are too busy to realise it. This app has the potential to make participants look at their town or city in a new way, to stop and notice the places that they walk through every day and take an interest in the cultural heritage that is all around them.

The Photography pilot is also setting up a MOOC, an online course that presents tools, descriptions, documents and other relevant materials to its students to learn how the pilots of the E-Space project worked in the direction of re-using digital cultural content. Specifically, the Photography pilot has created a module dedicated to Photography, for which students, teachers, professionals in the GLAM sector, and developers are targeted. The module aims at showing how to creatively re-use photographic heritage, drawing from the pilot’s experiences during the execution of its demonstrators.

Finally, in organising the Photographic Memories Workshop in collaboration with the City Archive of Leuven, the Photography pilot aimed to draw attention to the archive’s photographic collections in order to make the citizens of Leuven aware of their own cultural heritage and of the possibility to access and re-use it in creative ways.

10 IMPACT AND SUSTAINABILITY

The whole point of the Photography pilot is that the photographic heritage industry is IPR-based. On the other hand, the right to access cultural heritage means that the pilot encourages owners to open up content for the public as much as possible, which is a goal also of the EC. For those images that come into the public domain, either through expiration of copyrights or by dedication through CC licensing, viable business models need to be found that generate revenue streams allowing those cultural heritage institutions that own the collections to continue their work. Creative re-use of this content in applications is one such approach that the pilot is actively exploring.

Once it can be demonstrated that such applications increase visitor numbers and interest for publications and merchandising of the GLAM institutions, this can lead to a sustainable new revenue stream. This is particularly important now that public funding for these institutions is under pressure.

Collaborating with the City Archive also had the aim of getting citizens of Leuven to know about their own photographic heritage, which is freely accessible and partly reusable. Not only is this aim shared by the City Archive and the Erfgoedcel of Leuven, who will continue promoting the city's cultural heritage, but it has also already raised a lot of attention, especially from senior citizens of Leuven, who are eager to learn more about the photographic heritage and to share their own personal stories and photographs.

Concerning the second scenario, it was mentioned earlier that the Omeka open-source web-publishing software was used as the basis for the developments. Omeka has a large international user and development community, meaning the software is both sustainable and continues to be improved with new functionalities that are shared with the entire community. The required features of the storytelling website were mainly implemented by making use of the existing Omeka plugins. In the case of changes to the existing plugins, special care was taken to make those changes generic and improvements were sent back to the owners of the plugins. Moreover, a new Omeka plugin was developed, with the core purpose of interacting with the WITH API. The new Omeka plugin (LibCo) is an open-source plugin, with its source code available on Github to the open-source community working around Omeka. Although LibCo's core purpose is to let storytelling users search and import external content with the help of WITH API, special attention was paid to make this plugin generic so that it can be used in other similar settings. Our contributions towards Omeka and its plugins will increase their usability and will help in growing Omeka's user and development community.

As the Blinkster app, Photography pilot's first scenario, was completed by January 2015, its subsequent work took place within the Museums pilot. As a result, the details of impact and sustainability of this scenario are addressed in D4.9 – *Outcome of the Museums Pilot*.

11 FUTURE WORK

The execution of the Photography pilot will continue during the first months of 2016. In particular, the following activities and demonstrators will be implemented and completed.

Concerning the second scenario, improvements to the storytelling website will be undertaken based on the feedback received during the testing and evaluation phase (January/February 2016). The web address will be changed to a more appropriate URL on its release, while the current link (http://www.heron-net.be/espace_test/) will remain accessible and redirect visitors to the actual site. The storytelling website will be officially launched at the Photography hackathon event, after which it will continue to be promoted through social media and be presented during further events. Additional work will be undertaken to complete the technical documentation, which will be shared, together with the code, on the GitHub repository (<https://github.com/libis/Espace>) as open-source. A detailed user guide for the storytelling website will be developed. The guide will assist users to make efficient use of the storytelling website. Furthermore, a document containing detailed technical specification of the storytelling website will be written.

The algorithm that matches old and new photographs developed for the third scenario will be finalised and presented to the participants of the Photography hackathon. It will then be integrated in a mobile application, the development of which started in October 2015. The aim is to create a Photo Quest app that offers users a photographic treasure hunt through the city. The app will provide an old photograph of the city. Users will have to try to recognise it and find the same place today. A few hints will be provided in order to make it possible both for citizens of Leuven and tourists. Once on the right spot, users will have to take an image of the place as close to the old photograph as possible in order to unlock information about the history of that place and related stories and anecdotes. Upon discovering one place and the connected information, the app will provide another old photograph of the city to be found and so the game can continue. During the spring of 2016, a Photo Quest event will be organised (once again in collaboration with the City Archive and the Erfgoedcel) in order to stimulate citizens and tourists to use the app and discover hidden corners and stories of Leuven as well as to share their own stories and knowledge of the city.

The Open Book “Leuven Then and Now” will be created. The photographs and stories collected during the Photographic Memories Workshop will find a proper location and narrative and will be linked with today’s stories, images and personal areas of expertise in the form of an online open book.

From February 25-27, 2016 the Photography hackathon “Hack Your Photo Heritage” will take place at the FabLab Leuven. While the programme and jury for the event, invitations and promotional texts and messages have already been decided upon and communicated, the event will be actively promoted in January and February 2016 in order to attract participants. The 3-day event targets developers, cultural heritage professionals, designers, creative entrepreneurs, photographers, photo-amateurs and students, and aims at hacking the massive photographic heritage content on Europeana, E-Space and other public repositories to mash them up with user-generated smartphone photos and stories, tapping into emotions and exploring new business models involving photography and creating a new environment to experience our cultural past, using apps, websites and virtual environments. During the hackathon, the results, coding and technical information of its demonstrators along with the Europeana API, the toolkit from Noterik, instructions on how to use the WITH API and the tools available on Europeana Labs, will be presented to participants.

The Photography pilot will also continue to work closely with the other pilots and the team working for WP3 Content Space for the creation and delivering of the E-Space MOOC, as well as presenting educational outcomes of the pilot at the project's May 2016 workshop in Brussels.

12 CONCLUSIONS

The Photography pilot has a layered approach comprising three scenarios of increasing complexity, spanning a wide range of entry points for users who want to creatively re-use photographic cultural heritage. While the first scenario shows GLAM professionals how they can use the Blinkster app for interactive exhibitions, the second scenario invites users to create their own stories using a more in-depth interactive approach. The third scenario, involving augmented reality applications, targets an audience of developers.

The pilot has built upon the work of the EuropeanaPhotography project, that had the remit of ingesting many historic images into Europeana, by considering plausible ways of generating interest in the creative re-use of these pictures. It has also acknowledged that photography has become an even larger field. Nowadays, besides being a comprehensive professional discipline, millions of people have become amateur photographers through the smartphone and use of simple software.

There are certainly opportunities to develop new applications; however, finding solid business models might prove to be a delicate exercise, since most of the industry remains IPR-based. The pilot has therefore welcomed the concept of the protected space within the project for experimentation to show what can be achieved, potentially leading to greater numbers of exhibition visitors and therefore encouraging content holders to make their photographs more openly available.

There is a further dimension that also has to be clearly acknowledged; the ethical dimension to the re-use of photographs. The pilot has highlighted this situation and the fact that people are wary that their family pictures could be used for purposes that they may not meet their approval. It has also demonstrated that through properly run events, where experts are on hand to provide rights and licensing advice, this situation can be managed.

The Photography pilot has worked closely with other areas of the project; in addition to the Content Space team providing IPR guidance, there has been a close link with the Open and Hybrid Publishing Pilot, where the idea of the Open Book: Leuven Now and Then has been developed. In addition, the Technical Space team has provided the WITH API that has access to a number of repositories that can enhance access to photographic images from around the world, which can enhance the story telling possibilities through the user friendly Omeka application. The project's MOOC will ultimately help to share the lessons learned within the pilot with interested users, including concepts for educational re-use of cultural heritage content, as well as potential business models.

Within the introductory section, several questions were considered, asking how users can become more proactive with the re-use of Europeana's content; how content can be re-appropriated to represent current and future practices and how this can lead to new business models. Over the past two years, the Photography pilot has considered and addressed these question and through the development of three scenarios has provided examples, methodology and encouragement for others that may wish to take up the challenge and successfully re-use cultural heritage content for themselves.

13 ADDENDA

13.1 SCREENSHOTS, VISUALS

13.1.1 Scenario 2: User-generated storyboards with photographic Europeana content

The stories are the central focus point of the website and are therefore shown on the homepage.

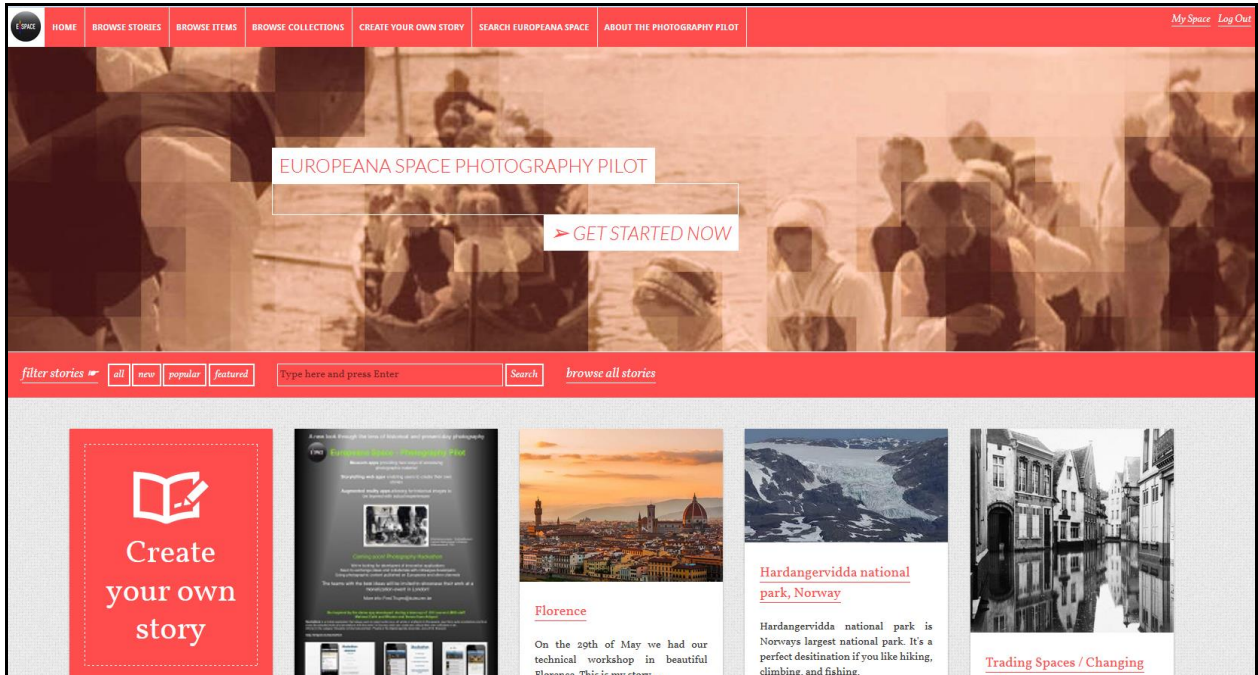


Figure 35: Storytelling application Home page

Visitors can do a quick search or browse through all stories, or filter on new, popular and featured (in the spotlight) stories.

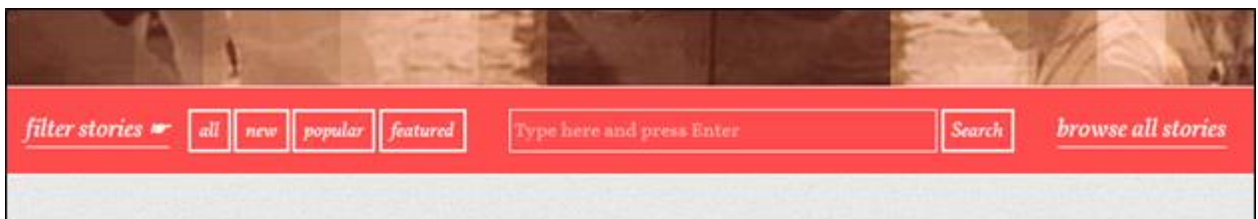


Figure 36: Search options for published stories

The home page provides further access to the other sections of the website such as the published items and collections of items, information about the Photography pilot and access to other online repositories such as Europeana and DPLA (connection with the WITH API).

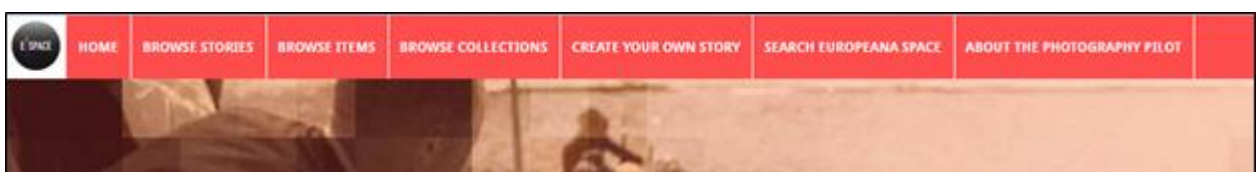


Figure 37: Main navigation section

Visitors are also encouraged to create their own stories. In three different locations, access is provided to the page where first time users can learn more on how to build their own stories.

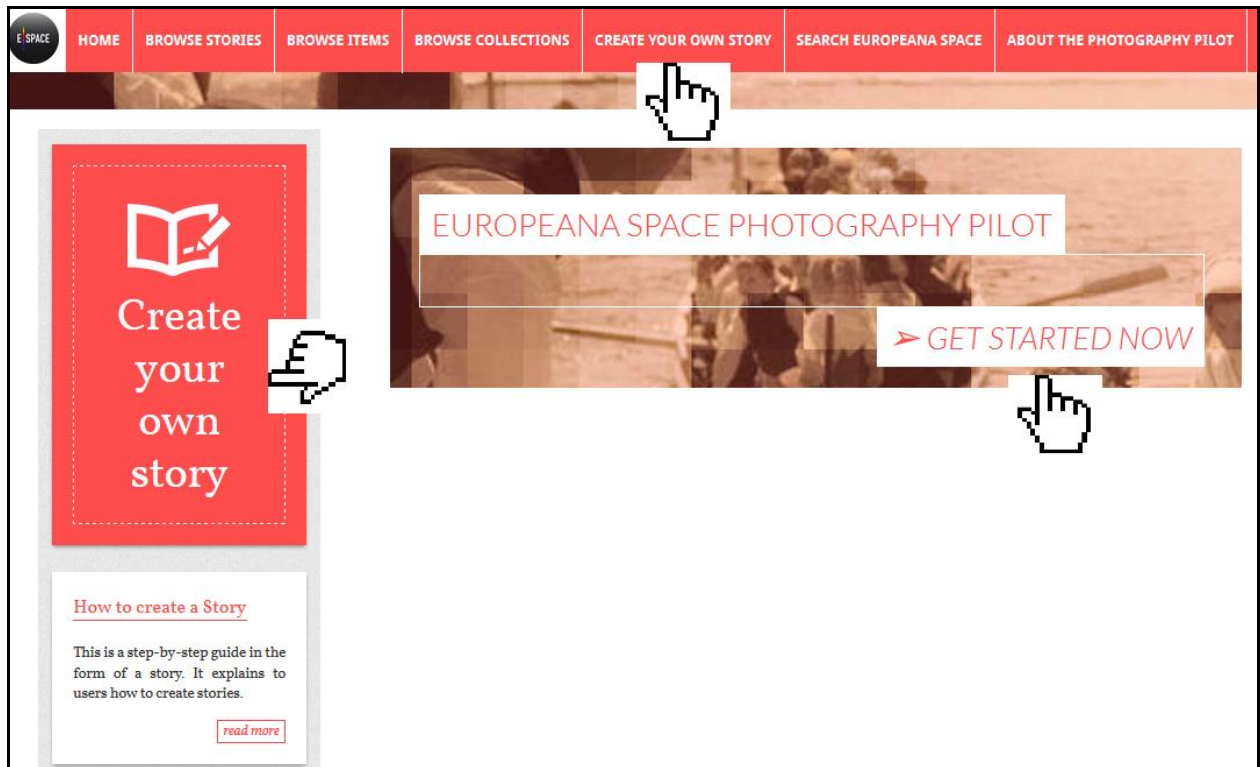


Figure 38: Links to introduction pages on how to create an own story

The website also provides access to thematic collections composed by professionals and end-users.

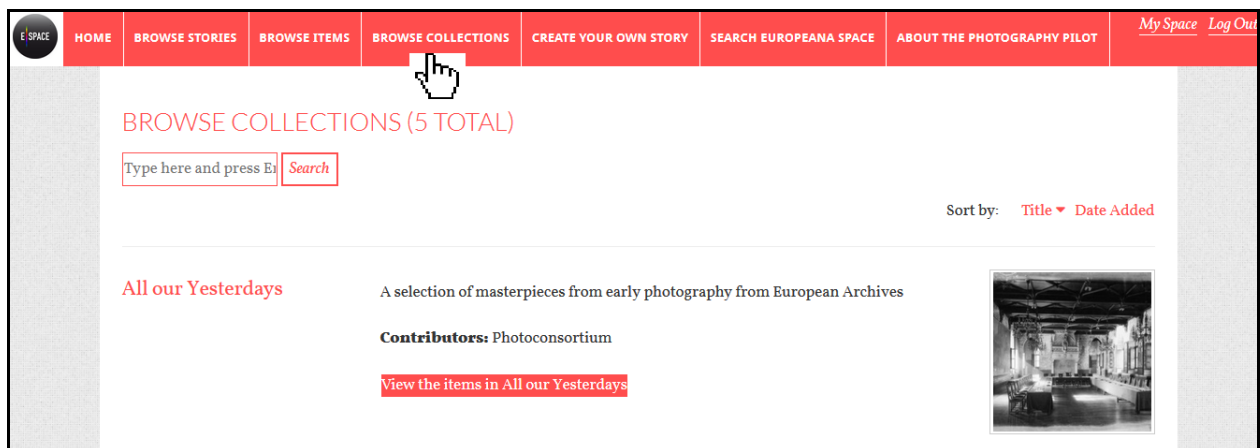


Figure 39: Browse Collections

The website furthermore provides access to items retrieved from other online repositories or uploaded by registered users. There are different ways of searching items: “Simple search,” “Advanced search,” “Browse by tag” and “Browse Map.”

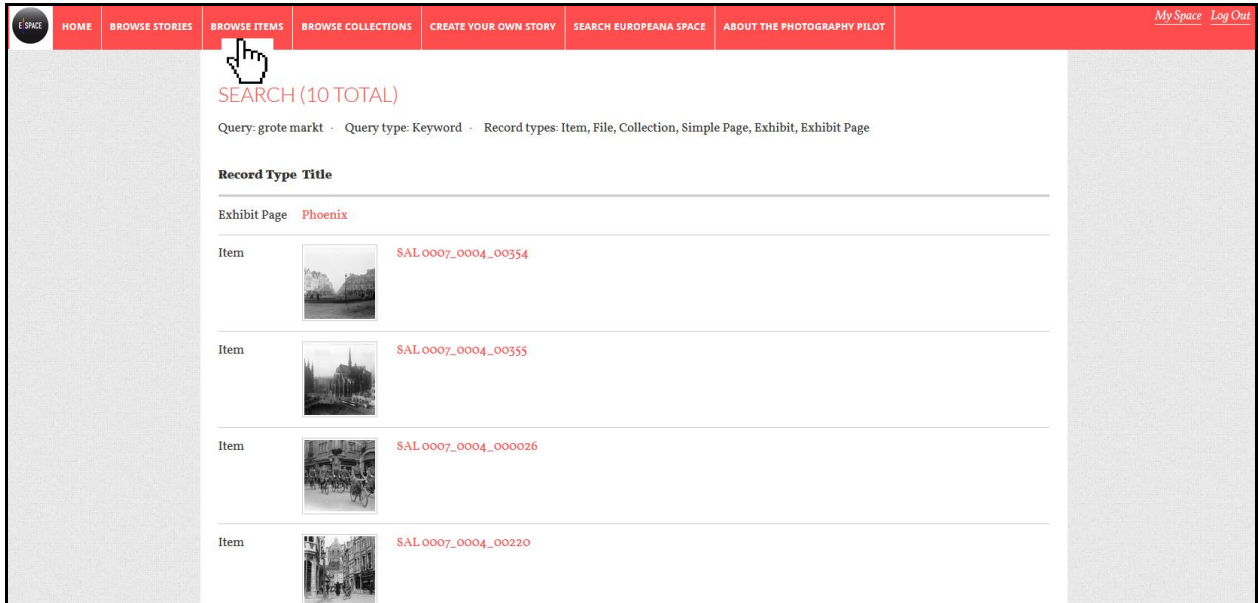


Figure 40: Browse items - Simple search

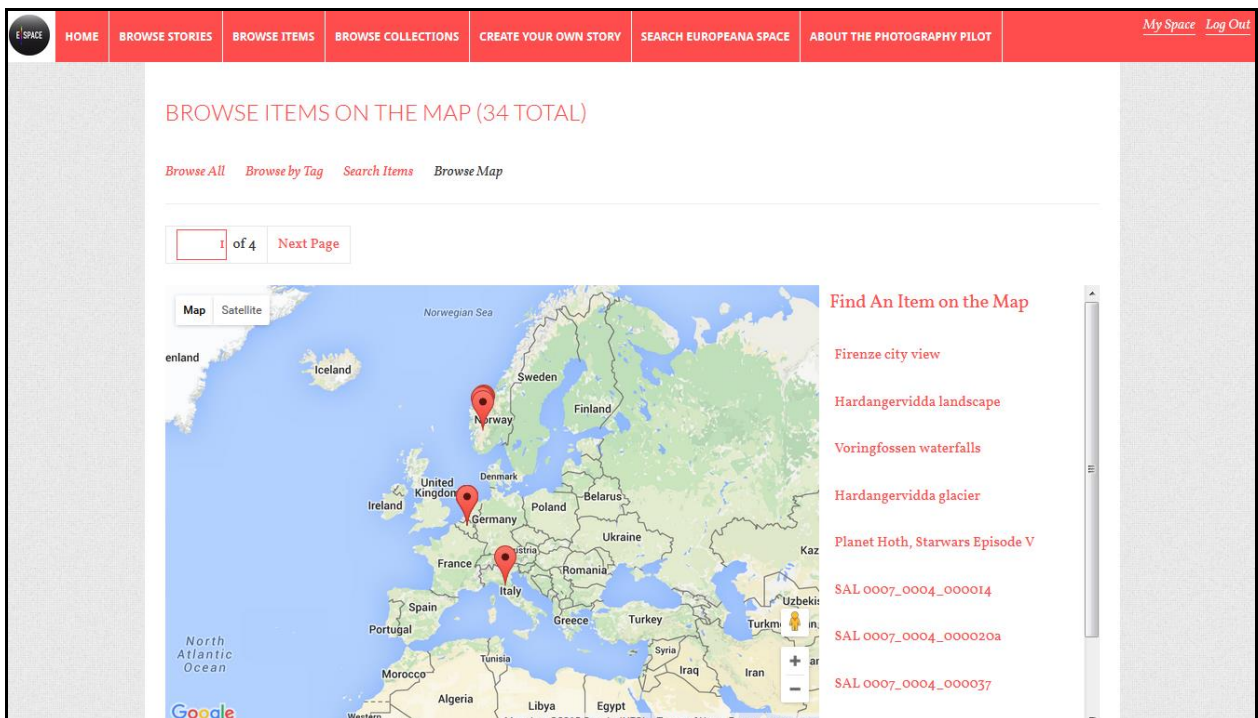


Figure 41: Browse items - On Map

Visitors can create an account after which they can start adding items to their personal repositories and use them to create collections and stories.

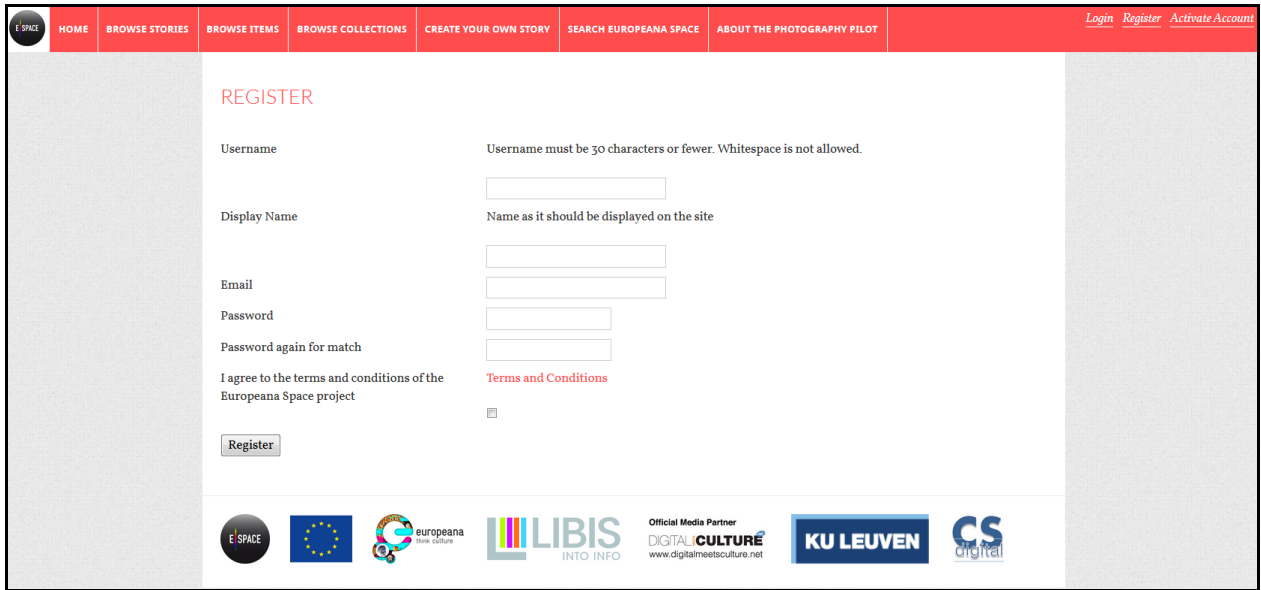


Figure 42: Registration page

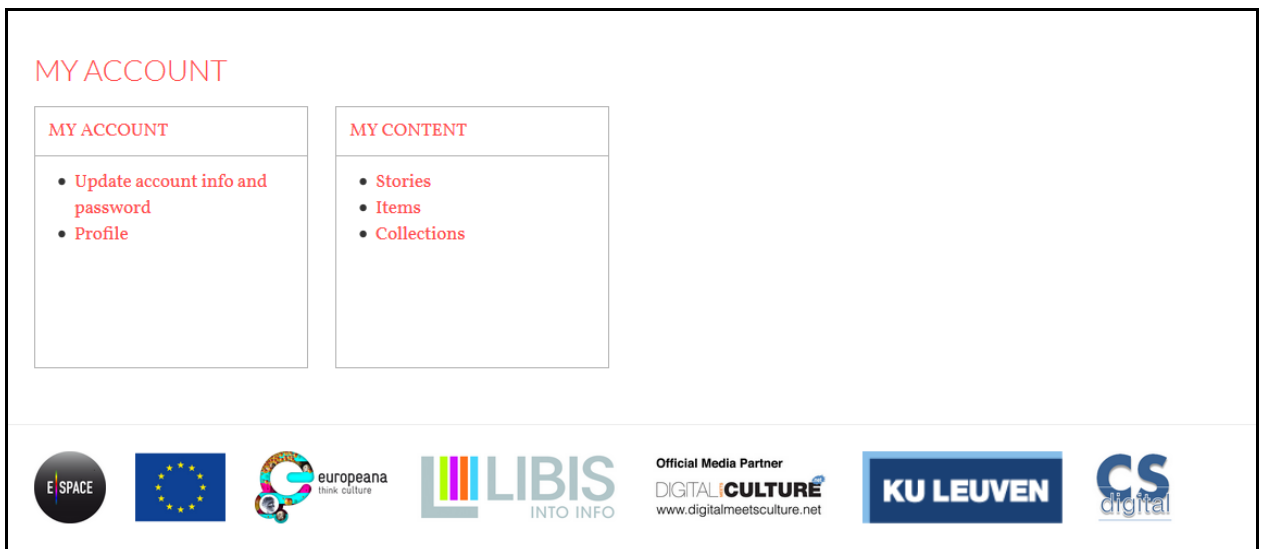


Figure 43: Account page

Users can search for items in Europeana, DPLA, DigitalNZ, MINT and The Rijksmuseum. Registered users can select items from the search result to add them to their personal repository.

The screenshot shows the 'SEARCH EUROPEANA SPACE' interface. At the top, there is a navigation bar with options: BROWSE ITEMS, BROWSE COLLECTIONS, CREATE YOUR OWN STORY, SEARCH EUROPEANA SPACE (highlighted), and ABOUT THE PHOTOGRAPHY PILOT. Below the navigation bar, the search results are displayed for 'SEARCH EUROPEANA SPACE (100 TOTAL)'. The search criteria include 'Search By' (set to '*'), 'Select Search Source' (with checkboxes for Europeana, DigitalNZ, Mint, and Rijksmuseum), and a search term 'tintype'. There is a 'Search' button. Below the search bar, there is an 'Add to Items' button and a 'Create A New Collection' checkbox. The 'New Collection Name' field contains 'Women in early photo'. The search results are listed in a table with columns 'Selection' and 'Title'. The results include two items from Europeana (100) and one item from HAMARMARTN 1936.

Selection	Title
<input checked="" type="checkbox"/>	Woman, early metal print, tintype , VERY OLD
<input checked="" type="checkbox"/>	Woman, early metal print, tintype . VERY OLD
<input type="checkbox"/>	HAMARMARTN 1936, PORTRETT AV EN KANONFOTOGRAF, FREMKALTE BILDENE PÅ STEDET. Tintype.

Figure 44: Search E-Space and add items to your repository

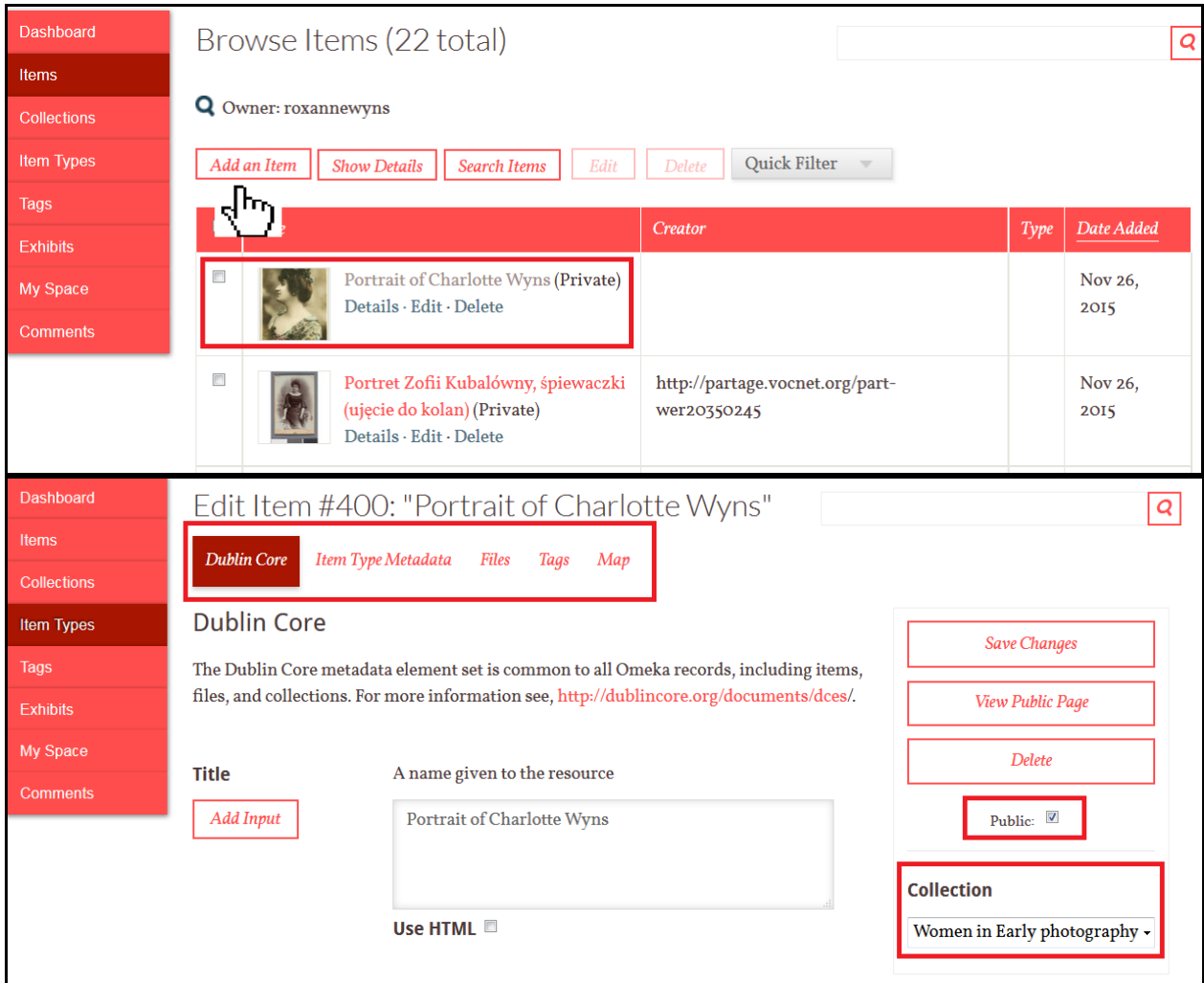


Figure 45: Users can add own items, upload files and assign a collection

[Home](#) > [Stories](#) > [Famous Women in Early Photography](#) > [Charlotte Wyns](#)

CHARLOTTE WYNS



Charlotte Wyns studied singing at the Conservatoire de Paris with Crosti, Achard and Giraudat. In the 1893-1898 seasons she appeared at the Opéra-Comique in Paris, where she made her debut as Mignon of A. Thomas (this role she also sang there in the 1000-th performance of this opera). In the 1898-99 season she joined to the Théâtre de la Monnaie in Brussels, however, came back and again sang from 1900 to 1905 at the Opéra-Comique. On 27. II. 1897 she performed at the Opéra-Comique in the premiere of the opera "Sapho" by J. Massenet. She created the role of Divonne, while Emma Calvé appeared as Fanny Legrand. In 1897 she made guest appearance at the Opéra de Monte-Carlo as Charlotte in "Werther" of J. Massenet. This part counted as her star role. In 1901 she was to be found as a guest at the Theater in Graz. In 1903 she appeared at the Covent Garden in London as Santuzza in "Cavalleria Rusticana". In 1905 she sang at the Nationaltheater in Berlin the role of Leonora in "La Favorita" by G. Donizetti. In 1905 she made guest appearance at the Opera in Cairo and also sang in Alexandria as Carmen and in "Proserpine" of C. Saint-Saëns together with Giuseppe Borgatti and Titta Ruffo. In 1906 she performed at the Opéra de Nice in the premiere of the opera "Sanga" of I. de Lara in the title role. In 1915 she sang again at the Opéra de Monte-Carlo in concert performance of G. Bizet's "Carmen".

Story title : *Famous Women in Early Photography*

[Charlotte Wyns](#)

Figure 46: Users can build stories using items from online repositories and own uploads

13.1.2 Hackathon Poster and Flyers



Figure 47: "Hack Your Photo Heritage" poster

E|SPACE

HACK YOUR PHOTO HERITAGE

Hack the massive photographic heritage content on Europeana, E-Space and other public repositories to mash them up with user-generated smartphone photos and stories.
 Win a trip to London for an intensive Business Model Workshop!

25, 26 and 27 February 2016
FabLab, Celestijnenlaan 30,
3001 Heverlee

www.europeana-space.eu/hackathons/photography

A 3-day event targeting developers, cultural heritage professionals, designers, creative entrepreneurs, photographers and photo-amateurs. Learn how to tap the power of huge resources such as Europeana and Europeana Space, Flickr Commons and MediaWiki to build innovative apps re-using photographic heritage. Mix images from the past with smartphone selfies. Connect old and new generations by making apps bridging centuries. Develop web environments for teachers, educators and museum curators to bring true public access to photographic cultural heritage. Learn how to convert photo imagery to 3D-prints and new materials.

It's all about telling stories, tapping into emotions and exploring new business models involving photography

New opportunities for the creative industries

During the Hackathon developers will have access to the vast public photographic heritage now available on resources such as Europeana (see the APIs at Europeana Labs), Wikipedia and Flickr, while at the same time having access through the Europeana Space APIs to copyright protected content to experiment with. Through the WITH environment API, users can login and user data can be stored together with the data from other sources. Also, The Blinkster app will be available and the JSSearch API. At the FABLAB KU Leuven, 3D-printers, laser cutters and a small joinery will be available for use.

The value of open access and open source

The hackathon is made possible by the Open Access policies of sources such as Europeana, which are so important to develop new business models in GLAM. We will of course tap on the availability of Open source software: foreground code developed for the Hackathon is also to be licensed as Open source. Of course proprietary background code could be used and the IP of the developers will be protected.

Judging

Any app or website that uses photographic heritage in a technologically innovative way can qualify, as long as it integrates a clear concept of a business model. The jury looks at several aspects of each concept: relevance and value to the cultural heritage sector, business potential & job creation objective, likelihood of success, innovation & quality & uniqueness.

#photohackLeuven
www.europeana-space.eu/hackathons/photography

One of photos courtesy of ODD, Public Domain.

Project Coordinator: Coventry University

Technical Coordinator: PROMOVER

Photography Pilot Leader: KU LEUVEN

In Association With: europeana

Official Media Partner: DIGITAL CULTURE www.digitaleculture.nl

Figure 48: Hack Your Photo Heritage flyer

13.1.3 Photographic Memories Poster and Flyer

Fotografische Herinneringen



WORKSHOP – 27.11.15

E|SPACE



Stadsarchief Leuven
Rijschoolstraat 4, 3000
Leuven

Vrije toegang

10:00 tot 19:00

Kennismaking met de fotocollecties van het stadsarchief
Digitaliseringsproces door de expert Bruno Vandermeulen

14:00 tot 17:00

Wet collodion-demonstratie door Frederik Van den Broeck

17:00 tot 17:30

Digitalisering van een tintype of ambrotype door middel van de Wet Collodion-techniek

www.europeana-space.eu
www.espacephotography.com



Figure 49: Photographic Memories Workshop poster

Photographic Memories



Bring your own old photos, negatives, glass plates about life in the streets, squares and marketplaces of Leuven*
 *and a USB stick, minimum 8GB

Get to know the City Archive of Leuven and its photographic collections

WITNESS HOW THEY GET DIGITIZED PROFESSIONALLY

Free Entrance

10:00 to 19:00
 Discovery of the City Archive collections
 Digitization Process by expert Bruno Vandermeulen

14:00 to 17:00
 Wet Collodion Demonstration By Frederik Van den Broeck

17:00 to 17:30
 Digitization of a tintype or ambrotype produced with the Wet Collodion Technique

www.espacephotography.com
www.europeana-space.eu



WORKSHOP – 27.11.15

Leuven City Archive
 Rijschoolstraat 4, 3000 Leuven



Figure 50: Photographic Memories Workshop flyer

13.1.4 Photographic Memories Workshop



Figure 51: Collection of citizens' old photographs. On the far left, exhibited images of the City Archive



Figure 52: Exhibited images from the City Archive

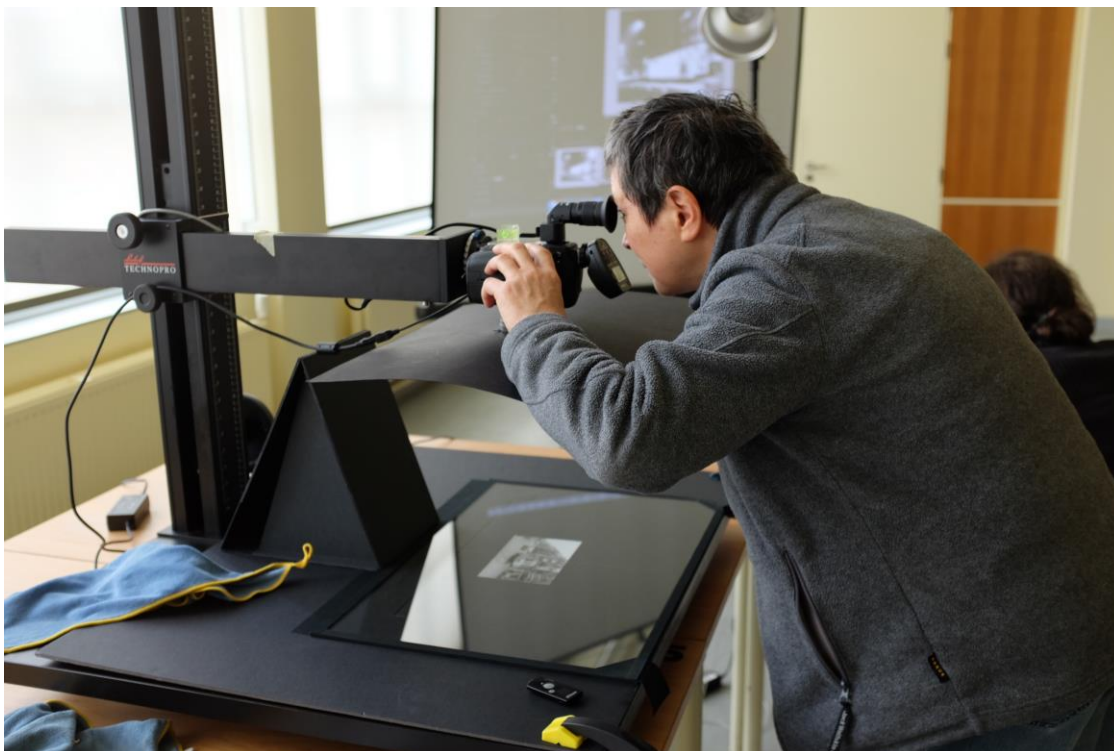


Figure 53: Digitisation station



Figure 54: Photographer Frederik Van den Broeck gives a Wet Collodion demonstration



Figure 55: a photograph taken with the wet collodion technique



Figure 56: The resulting tintype