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Manual of good practices for creative applications allowing reuse of cultural resources



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1. EXECUTIVE SUMMARY

This manual is a result of the AthenaPlus (Access to cultural heritage networks for Europeana) project funded under the European Commission ICT Policy Support Programme part of the Competitiveness and Innovation Framework Programme. Among a number of tasks conducted under the AthenaPlus project the following creative applications have been developed:

- MOVIO,
- City Quest,
- School Trip,
- GIS in eCultureMap and
- Urban Explore.

Each of these applications is described in the next paragraph devoted to the available creative applications.

All of the applications have been tested by the project partners, who also conducted a number of workshops involving vary communities in order to help the developers to find the bugs, improve functionality and to customize the applications according to the needs.

Each application has been translated to the partners languages to avoid problems with understanding English version of the software during the testing phase.

Communities involved into the testing are also presented in the manual, and communities to which the presented applications are particularly addressed are pointed out.

However the main goal of this manual is to present and promote creative applications and support the users with an instruction how to implement the software in the cultural domains. It is more precisely described in paragraph *4: Tools implementation*, which starts with an overview of software and hardware required for the particular applications, followed by step by step instruction of implementation.

To give the potential users better understanding of the applications, there have been pointed out some good examples to follow and to understand how the software works, and how it can be used in particular environments. In this paragraph also additional literature, and addresses of help-desks are listed.

Finally there is attached an instruction of fair use of the applications offered to the communities for free.

2. THE ATHENAPLUS CREATIVE APPLICATIONS

Five creative applications have been developed in the framework of the AthenaPlus project. Among them are: **MOVIO** – the software for virtual exhibitions creation; **City Quest** – the software that supports tourists in discovering city attractions but not only. **School Trip** has been created to support teachers and students in planning visits to a number of places. **GIS in eCultureMap** become the more and more used software which helps to locate quickly the places on a map. **Urban Explore** is a tool which gives opportunities to present stories related to a number of places users wish to discover.

Each of these applications has been shortly presented below by their founders.

MOVIO

Movio has been initiated in 2010 by the Central Institute of the Union Catalogue of the Italian Libraries (ICCU), in cooperation with the Technological Observatory for the Cultural Heritage and Activities, interested in creation a software for online digital exhibitions. In the framework of AthenaPlus project MOVIO has been developed by its partner META srl, Italy by adding multilingual interfaces, and features for education and tourism.

MOVIO is a multifunctional software including: MOVIO virtual exhibitions (the most popular till now), MOVIO education, MOVIO touristic routes, MOVIO GIS, MOVIO mobile applications, and tool for digital storytelling.

MOVIO is an innovative tool to support cultural institutions in the realization of online digital exhibitions and thematic routes using multimedia content suitable to provide different levels of knowledge to different categories of users and to increase the visibility of cultural masterpieces.

Tools and services in MOVIO:

- an open source software CMS MOVIO – used for online digital exhibitions;
- CMS MOVIO for mobile devices (microsite): iPhone and Android smartphones and tablets;
- MOVIO APP for the mobile platforms;
- MOVIO HUB, an online catalogue of digital and real exhibitions, available also on MOVIO APP;
- Online tutorials and interactive training on the use of the kit and on the implementation of the guidelines for the creation of online digital exhibitions.

Digital exhibitions & thematic routes
An **online digital exhibition** is a hypermedia collection made up of digital items which are:

- linked together by a common thread, an interdisciplinary topic, a concept, an idea, an anniversary, a special event, or a physical person;
- displayed in 2D and/or 3D;
- occasionally stored in distributed networks;
- made accessible through the potential provided by modern technologies, thanks to a system architecture designed to provide user-centered, absorbing experiences;
- dynamic products that can offer additional services and be updated periodically.

A **thematic route** is a particular aspect of an online virtual exhibition that can be:

- an autonomous and independent product;
- a way to enhance and enrich the knowledge disseminated through the digital online exhibitions.

City Quest



CityQuest is a software prepared by the AthenaPlus partner PACKED vzw, based in Belgium. It allows to create a quest online, and publish it in a mobile applications. City quests are more and more popular way of learning. It allows the players to discover monuments and attractions and learn history in smaller or bigger cities in an attractive way. It is based on hints and media and includes the QR code. City Quest can be an excellent support to school students by making their education more exciting when discovering places and facts they learnt at school. City Quest can be also used as an excellent tool supporting popular urban games.

School Trip



School trip is a tool prepared also by AthenaPlus partner PACKED vzw, Belgium. It allows teachers and students to create their own school journey. Through an online interface the teacher can set a couple of parameters defining the skeleton of the trip. Students fill the template with information on practicalities, cultural heritage sites to visit, historical information, and so on. They learn how to plan a travel in details. At the end, a journal-like document is generated which can be used as itinerary guidebook.

GIS in eCultureMap



The eCultureMap has been developed by AthenaPlus partner IPCHS from Slovenia – to demonstrate the use and re-use of Europeana, AthenaPlus and other digital cultural heritage content, when browsing the content geographically. Currently the map has three main uses: a) a user may find out what cultural content is present on a certain location, b) s/he can plan a cultural route or c) upload own content.

Urban Explore



Urban Explore has been prepared by AthenaPlus partner Dedale, France. It aims at exploring concrete opportunities of digital storytelling for the valorisation of digital cultural heritage content. Digital storytelling offers new approaches and mediation tools for the audience, favouring thus new forms of relationship with the audience, more interactive and participatory, before, during and after the visit. It includes ICT and highlights the Digital storytelling potential for the transmission of knowledge, experience and information sharing.

3. THE USE OF CREATIVE APPLICATIONS: A STEP BY STEP MANUAL

In this part of the Manual the user can find a condense instruction of how to proceed with the applications to get success. Those interested in using any of the creative applications should start with making decision about hardware and software selection. When this choice has been made one can follow with an implementation guidance. In this part each application is described in a special paragraph where detailed, step by step instructions are given

a. Software and hardware requirements

MOVIO

In order to be able to create your own digital exhibitions you need to set up a MOVIO server. It can be any Internet-connected computer capable of running:

- Apache 2.2 or newer
- MySQL 5.1 or newer
- PHP 5.3 with the following extensions:
    - PDO
    - PDO_MYSQL
    - DOM
    - LIBXML
    - JSON
    - GD Lib

After successful server installation and configuration, exhibitions can be created (using MOVIO's back-end module) and viewed on any device with network access and capable of display HTTP webpages. It is also possible to create a mobile version of digital exhibitions to be used directly as an app for Android and/or Apple devices.

CityQuest

In order to be able to create your own quest you have to either use the server provided by PACKED (http://cityquest.be) or set up your own server, which requires Internet-connected computer able to use the following software:

- PHP capable web server (ie. Apache, Ngix)
- PHP 5.3.3
- SYMFONY 2.5 framework or newer with the latest Composer
- MySQL database

After successful server deployment CityQest scenarios can be created on any device capable of displaying HTTP web pages. CityQuest scenarios can be played on Android or Apple mobile devices (tablets are recommended). The proper mobile application can be obtained directly from Google Play/Apple Store or can be compiled from provided source code.

School Trip

In order to be able to create your school trips you have to either use the server provided by PACKED (http://schooltrip.eu) or set up your own server, which requires Internet-connected computer able to use the following software:

- PHP capable web server (ie. Apache, Ngix)
- PHP 5.3.3
- SYMFONY 2.5 framework or newer with the latest Composer
- MySQL database

After successful server deployment trips can be created/followed on any device capable of displaying HTTP web pages.

Urban Explore

In order to create your own touristic/cultural guide you have to use a device capable of displaying HTTP web pages. Created guides can be currently used only on Apple mobile devices.

eCultureMap

This application can be used on any device capable of displaying HTTP web pages.

b. Creating your project step by step

In this paragraph we present instructions on implementation of the creative applications such as MOVIO, City Quest, SchoolTrip, GIS in eCultureMap, and Urban Explore.

Instruction for each application begins with information on how to start. Then the particular functions of each application are presented, and finally an advice where to find further information and support are given.

MOVIO

MOVIO application has been described in details with examples and links to instructions on Youtube at the address: http://wiki.athenaplus.eu/index.php/MOVIO_Getting_started

It is recommended to start with selection of the exhibition subject and determining the audience the exhibition is addressed to. The author of the exhibition should think:

- What story s/he wants to present?
- What is the subject of the exhibition?
- Who is it made for?

This might affect ideas on navigation & storyline breakdown, tone in the texts, use of media.

Learning about MOVIO possibilities

It is recommended to attend one of the national trainings, if available. It should be possible to agree the convenient date with the AthenaPlus Contact Point (listed at part 5). If such a training is not offered, it's possible to learn about MOVIO by examining the following:

MOVIO folder: www.athenaplus.eu/getFile.php?id=371
MOVIO brief info on youtube: https://www.youtube.com/watch?v=JDFXEgmTvB8.
MOVIO manual: http://wiki.athenaplus.eu/index.php/MOVIO#MOVIO_manual_pages

These publications will give a hint of

- what is possible with MOVIO
- what form an exhibition can take
- and what content can fit in there

Gathering the content

When the concept of an exhibition is more or less clear it's time for gathering the content that will be featured in it. Descriptive texts, images, videos and/or other materials need to be collected, edited or written, **and checked in terms of possible copyrights,** as some selected materials may be a subject to copyright restrictions. Where necessary the rights should be cleared and all digital objects should be described with the appropriate attribution or other credit information.

There are many digital libraries in the world, including Europeana digital library (www.europeana.eu) with its over 45 mln items or Wikipedia that offers free access to its resources. Also Media Archive allows for elaborate Copyright and Description info on any media asset possible to upload and use as exhibition asset. Exhibition curators can benefit from the decision of The Rijksmuseum that offers unlimited access to over 200.000 works of the renowned collection, including all the masterworks by Rembrandt, Vermeer, and Van Gogh, among others.

Website's navigation

Depending on the exhibition subject and idea, different layout and navigation can be used. In a case of **linear story without many internal relations**, creation of a number of flat web pages can be an option. Order of the pages can be altered through simple drag and drop procedure in the back-end of MOVIO.

It is important to think about the title of each page and its content. It is advised to draw up the structure and eventual subpages on a piece of paper before creating the exhibition.
It is recommended however to use **the Ontology Builder** to allow the user to discover the content not just through a list of pages, but also through the Graph navigation. Use of the Ontology Builder requires some thoughts and preparation. This tool allows to present different concepts, their relations to each other, and their underlying content. These three elements are best laid down first on a piece of paper before implementing in MOVIO.

Contact information

A visitor of the virtual exhibition may want to contact the curator for enquiries, disclaimer information, and so on. It is important to add the institution address and contact information (through the Page Type Exhibition or DigitalExhibition).

The MOVIO back-end

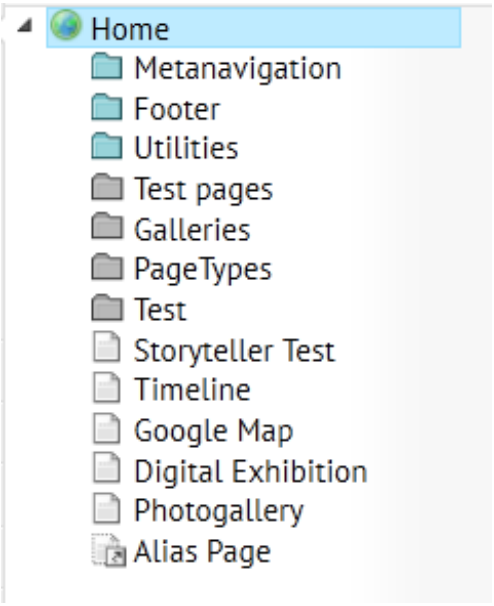
The back-end is the area dedicated to the Ontology and Content Management of MOVIO. It consists of three sections:

- (A) The section with the list of items on which it is possible to work in the back-end;
- (B) The section with the structured list of pages;
- (C) The section to create and edit the page contents and the ontology structure.

Access to the MOVIO back-end can be obtained by typing the dedicated URL (= normally adding **/admin** to the front-end URL), for example:

- http://movio.beniculturali.it/bua/societasindacatopolitica/admin/

All the pages available in MOVIO are listed on the structured list (section B); the main page, from which the others all originate, is **Home**. The Homepage, together with the folders Metanavigation, Footer and Utilities, are predefined items in MOVIO and therefore cannot be removed (see detail image below).



MOVIO structure

Each element of the structure is represented by these icons:

- represents a page;
- or represents a folder containing pages (the blue ones are system folders which are not possible to remove);
- represents alias pages that point to other pages.

The position of the page, like the position in the structure and order, represents the position of the page in the MOVIO front-end (how users will see them). Therefore all work done in that particular back-end page will directly affect the look of the pages in the front-end of MOVIO.

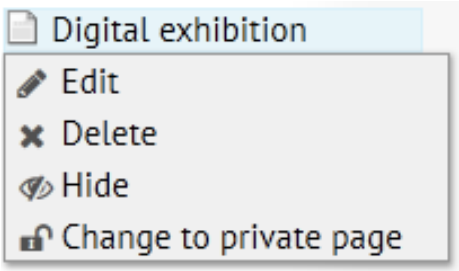
In the back-end it is possible to perform the following actions:

- Move the page into a different position in the navigation tree
- Edit the contents of the page
- Remove the page
- Hide the page
- Allow the page to be accessible only to authenticated and registered users in the front-end

Moving a page is done via drag & drop: simply take a page and drag it to the desired position. For all other operations described, click the right mouse button on the page on which you want to operate, and from the following window which opens, you can choose the item you wish to work on.

Four types of actions can be performed:

- Edit – edit the contents of the page
- Delete – delete the page
- Hide – hide the page
- Make the page private – render the page private so that only authenticated users in the front-end can access it



The addition of a new page in MOVIO, as a first step, requires the definition of three values:

- **Title** is the title that the new page will have within MOVIO
- **Parent page**, indicating the name of the page in the current structure of MOVIO, of which the new page will be a "child"
- **Page Type**, indicating type of the page that will be created (it's possible to choose between all currently available Page Types in the system)

Every page of MOVIO is based on a specific page type. This is a kind of a template, which affect the look and use of the page. The possible page types include the following:

- Alias – it creates an Alias to the same page so that it is possible to publish in the structure of the contents of MOVIO, in multiple nodes of the navigation tree.
- Cover – page that can be used as a cover for the exhibition hosted in MOVIO.
- Digital Exhibition – page which allows to present, inside MOVIO.
- Empty – kind of "folders" - pages that have no content, but which organise the structure of MOVIO.
- Exhibition – allows adding information on a physical exhibition totally or partially connected to the digital exhibition.
- Photo Gallery – allows a group of images with different display options to be displayed in the front-end of MOVIO.
- Google Map – allows the Point of Interests (POI) to be graphically displayed on a map.
- Homepage – creation of a new page structured like the Homepage of MOVIO, i.e. the page composed by a title, one or more sliders and one or more Boxes.
- Image Hotspot – allows to associate sections of an image with some additional information or some links to other pages.
- Login – login page for registered users in the front-end.
- Lost password – page to recover the password for the registered users in the front-end.
- Page – page for a website, a page that can be composed of a title, text, a sequence of images and a sequence of attachments. The Page Type Page is used every time and it is not necessary to create a page that falls within a particular type covered by the other Page Type.

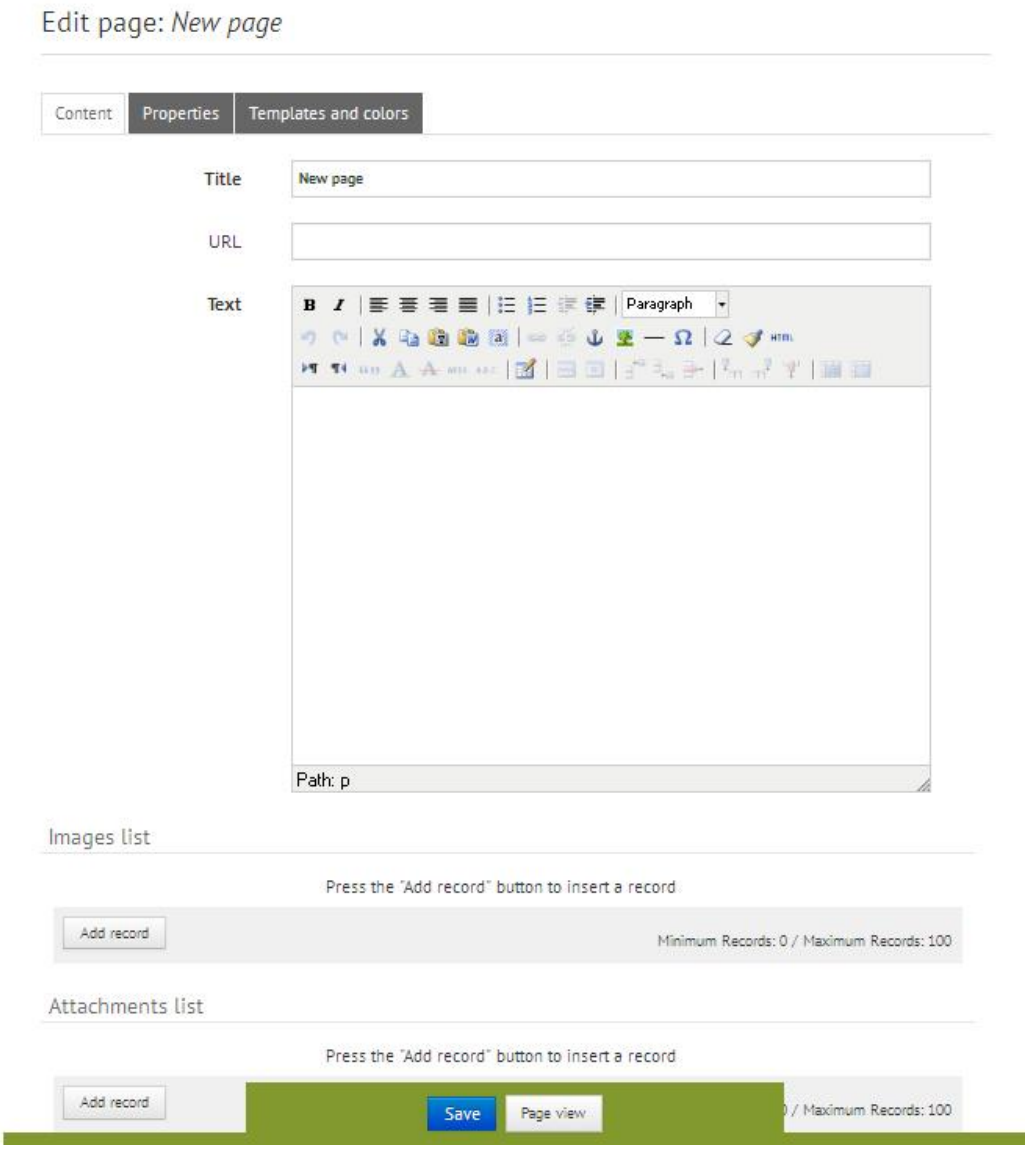
- Registration – registration page for users to access the front-end of MOVIO.
- Search – page with field allowing to search on the site. The search is done on all text fields of all the pages of MOVIO.
- Sitemap – automatically created page containing the content structure of MOVIO (the menu).
- Storyteller – creates a composed page, which allows to create some narrative on the subject; it can consists of several types of records: Text, Text with media, Video, External video, Image, Photogallery, Audio. At the back-end, they can be displayed all at once, or the user can decide which type of record to show.
- Timeline – single events, together with multimedia contents like: text, images, videos etc, graphically displayed over a time line.
- User Details – allows the registered and authenticated user in the front end of MOVIO, to fill in/edit their own personal details.
- Video – pages containing videos.

Detailed description of the page types including tutorial can be found on the AthenaPlus Wiki page devoted to AthenaPlus Creative Tools Training Materials, in the paragraph*: MOVIO: The different MOVIO pagetypes:*
http://wiki.athenaplus.eu/index.php/The_different_MOVIO_pagetypes

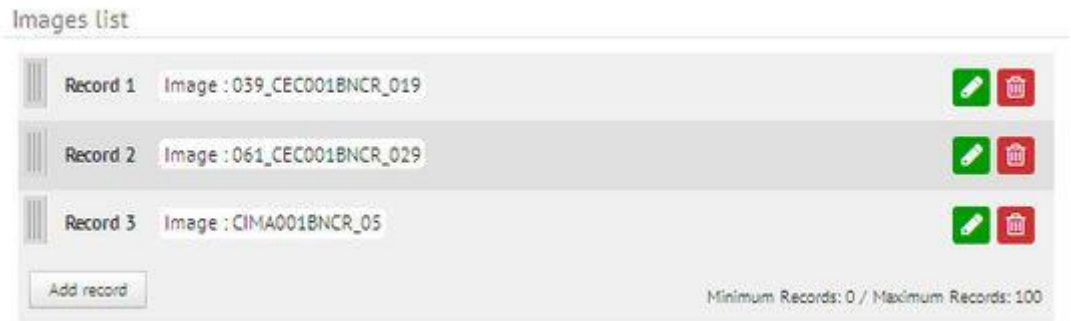
Inserting/editing content



After clicking **Add page**, choosing the title, the Parent page and the Page Type, according to the Page Type chosen, MOVIO presents the **Contents** in the form of fields provided by that specific Page Type template.

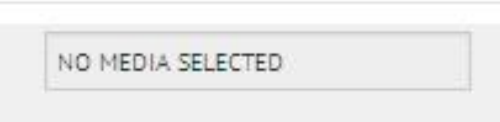


The fields in **bold** (in this example: **Title** and **Text**) are mandatory. The repeatable fields have the **Add Record** button located underneath them. In that way it is possible to add up to a maximum of 100 records.

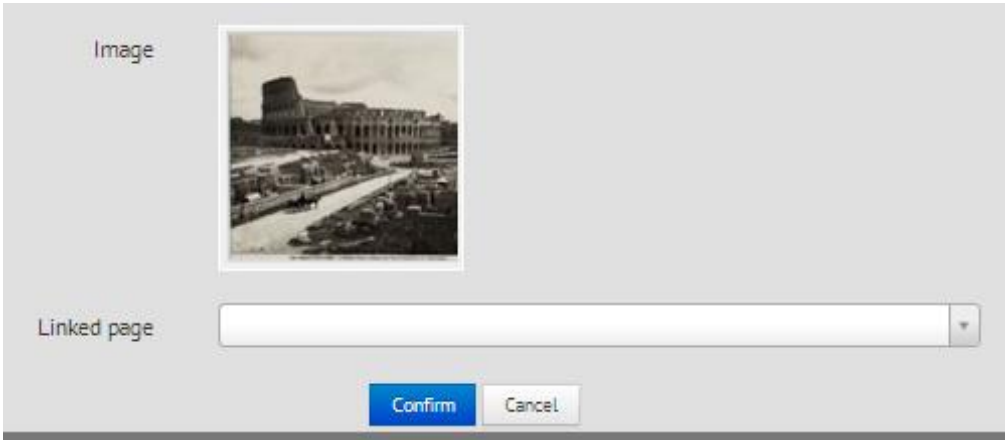


The fields that contain the box **(no image)** or **(no media selected)** are connected to the **Media Archive** with tutorial presented at the page:
http://wiki.athenaplus.eu/index.php/The_media_archive



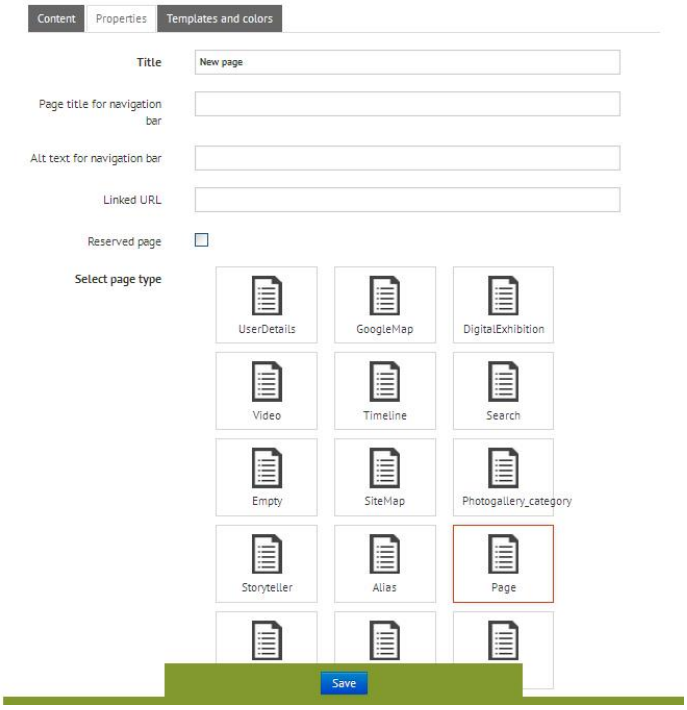


They will be completed directly with the selected content (media asset) from the Media Archive.



Features

The second table represents the Features of the page.

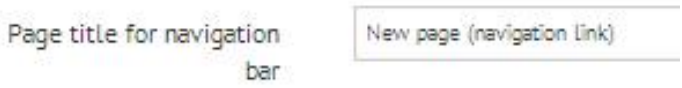


In this section it is possible to edit the following attributes of the page.

- **Title**: the title of the page, which appears:
  - in the bread crumbs.
  - as the title of the page.
  - as the title link in the content navigation tree.
  - as an alternative text link in the content navigation tree.



- **Title attribute for links in navigation**



This value defines the title of the link of the page in the navigation box.



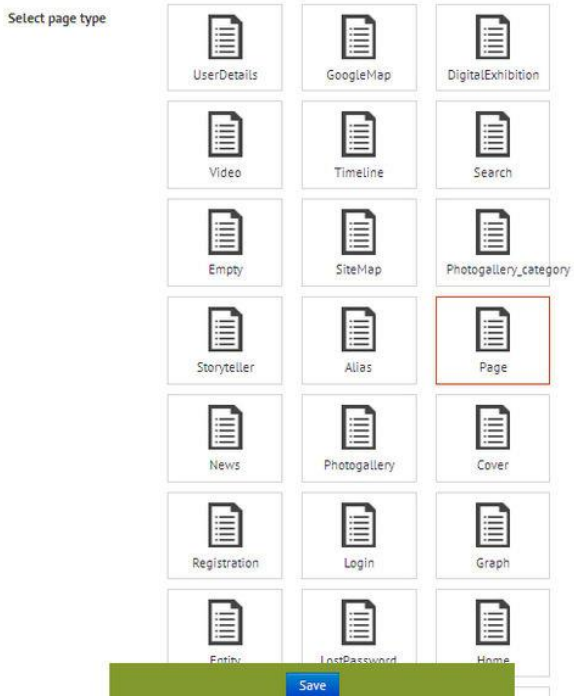
- **Alt link in navigation** defines an alternative text for the specific navigation link





- **URL linked**: if you want to link this web page, you complete this with the URL of the page. When you click on the link of the navigation tree instead of accessing the page, you will access the linked web page.
- **Reserved Page**: flag it if you wish for the page to be accessible only to registered and authenticated users at the front end of MOVIO.
- **Type of page** refers to the template of the page you are editing. In practice it is possible to change the PageType even after the creation of a page.

Warning: In a case of change the Page Type of a page, all content posted so far on that page will be lost.

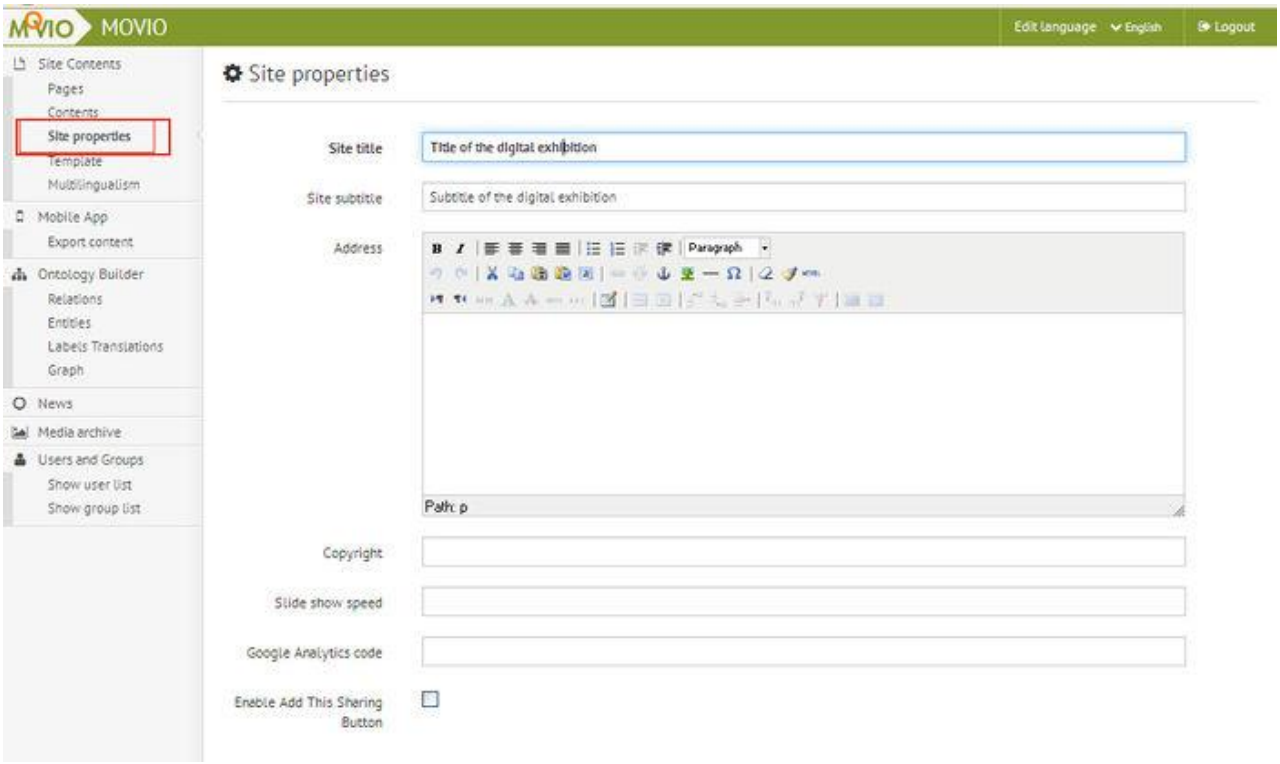


- In compliance with the W3C Recommendations, MOVIO also allows to define Dublin Core consistent meta tags for each page. The following Dublin Core elements are implemented in MOVIO:

  - **Keywords**. Topic of the resource, or the keywords, phrases, or descriptors that describe the topic or content of the resource.
  - **Description**. A textual description that describes the content of the resource, including abstracts in case of documents or a description of the contents in case of visual resources.
  - **Subject**. Name given to the resource by the author or by the editor.
  - **Author**. The person(s) or / the organisation(s) responsible for the intellectual content of the resource.
  - **Editor**. The entity in charge of having made the resource available in its current form, for example a publisher, a university department, a company, etc.
  - **Author of Subordinate Contributor**. This element marks the person(s) or / the organisation(s) in addition to those specified as the Author, who made a significant intellectual contribution in the production of the resource but whose contribution is secondary compared to those who were indicated as Author.
  - **Type**. The category of the resource, for example a home page, a story, a poem, a working document, a technical report, a dictionary. Typically the resource type must be chosen from a closed list of types of resources.
  - **Identifier**. A string or numbers used to uniquely identify the resource. Examples of networked resources include URLs and URNs (when implemented).
  - **Source**. The work or project within which this resource was generated.
  - **Report**. Links to other resources.
  - **Coverage**. The spatial location and the temporal duration characterising the resource.

Website properties

In this section of the back-end it is possible to configure some parameters/properties which are useful for all the instance of MOVIO.

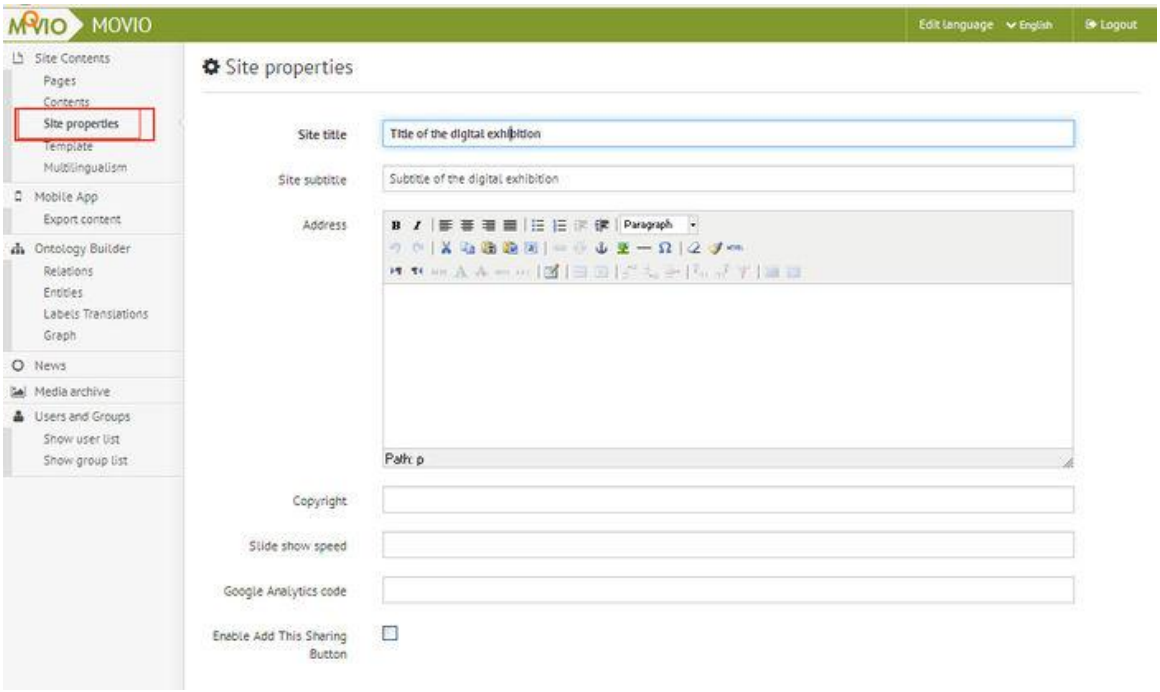


The following fields can be defined:

- The **Title of the digital exhibition**, that appears in the Home Page of the MOVIO instance, it will also be the title broadcasted to the applications connected to the MOVIO instance and to the MOVIO-HUB, the catalogue of the other digital exhibitions available (see dedicated tutorial).
- The **sub-Title of the digital exhibition**, similar to the previous.
- The **Address** that will be shown at the footer of the web site (typically the address of the exhibition creator).
- The **Copyright**, it is the copyright message about the content made available on the site and about the usage of the web site in general.
- The **Slide show speed**, it is possible to change the default speed of the slideshows you will create (see dedicated tutorial).
- **Google Analytics Key**, this is the key requested by Google to generate statistics about the navigation of the website by the end users.
- **Add This**, allows activating the possibility to share the page contents on the most important social networks.

Mobile Application

MOVIO can be connected to a mobile APP (available for Android and iOS), which allows also off-line navigation of the content published on the MOVIO instance. A dedicated tutorial will illustrate how to configure, publish and use this tool. It is possible to update the mobile applications also after their release to the users by publishing and delivering new content items and pages to the applications.



The back-end is composed of two frames:

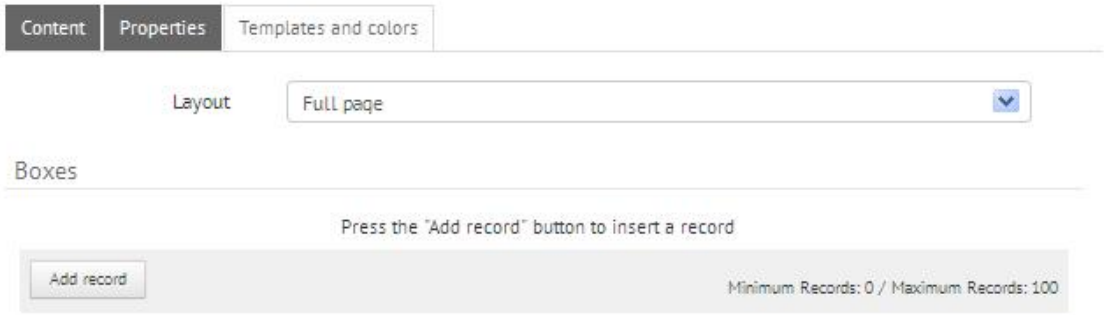
1. Entire structure of the contents of the MOVIO instance of the digital exhibition. Next to each node of the tree you can find a flag: if you check this flag all the node and its sub-nodes will be exported into the app.

   NOTE: this is useful when you decide that some pages need not to be delivered to the APP.

2. Export parameters:
   - Date of the last export.
   - The languages you need to be exported among those available in the MOVIO instance.
   - The Title of the digital exhibition, witch will appear in the mobile APP. The field will be automatically filled with the title written in the site properties but now it is still possible to change it.
   - The subtitle of the digital exhibition, which will be shown and you can modify as same as the title.
   - App Credits page: the related credits page can be selected and chosen among the pages of the web site.

Templates and colours

The third tab represents the template used to display the page



Layout

In this section it is possible to select the layout of the page; the choice is between default, full page, and two or three columns



Read more about the management of the MOVIO template and colour options on the tutorial site: http://wiki.athenaplus.eu/index.php?title=Customisation_of_MOVIO_template

More information on digital exhibitions

Some publications about virtual exhibition that can be helpful include among others:
MOVIO training materials: http://wiki.athenaplus.eu/index.php/MOVIO and
Indicate Handbook on Virtual Exhibitions and Virtual Performances (August 2012) - www.indicate-project.eu/getFile.php?id=412
There is also an international Working Group on Digital Exhibitions with its homepage http://museumsdokumentation.de/joomla/ where are published results of discussion of proper metadata that should be used for digital exhibitions description, and the catalogue of the virtual exhibitions to which it would be worth to add the new created exhibitions to reach wider audience. It is possible to contact the group via info@digitalexhibitions.org.

City Quest

A quest is a journey towards a goal, serves as a plot device and as a symbol. As one of the early known examples of a quest can be seen Homer's Odysseus, whom the gods have condemned to wander and suffer for many years until Athena persuades the Olympians to allow him to return home. In the AthenaPlus project the city quests offer players to discover wonders of the selected cities. Sometimes they relate to famous historical episodes, sometimes they help to learn about famous people presence in particular places, sometimes they allow us to discover the monuments. There are many options to use the City Quest which can be treated as a type of urban, or more general location-based game that become

more an more popular, especially when supported by the ICT. City Quest application has been prepared in the framework of AthenaPlus project by Packed vzw.

Getting started

Detail instruction to the City Quest application is available on the website at the address:http://wiki.athenaplus.eu/index.php/CityQuest#CityQuest_manual_pages
Before creating a CityQuest, especially the first one, there are a few things to consider and decide about.

The subject, the audience and the place

The fundamental issue is the story to be presented the subject of the quest. It's important to decide at the beginning for whom it is created. This might affect the ideas on which values to give, the items to look for, tone in the texts, length of the walk. A good CityQuest is also highly linked with the possibilities of the place (city, village, ...) in which it will take place. It's advised to check the paths in the territory to learn if it is included nice pedestrian paths, and place worth to point out. It is important to design appropriate walking distance for the audience or to design the distance longer distance letting the audience to use their own cars or public transport. These decisions should be taken at the very beginning.

Familiarisation with the possibilities of City Quest

The best way to learn about the City Quest is participation in one of the national trainings. These should be possible to find out by checking the Contact Points pages. If it is not possible the solution can be learning directly from the CityQuest manual: http://wiki.athenaplus.eu/index.php/CityQuest#CityQuest_manual_pages
CityQuest is a very straightforward tool. The online interface gathers all steps required to create the quest, in one single webpage.

Gathering the content

When the decision about the Quest is taken it's time for gathering the content that will be featured in it. Descriptive texts, cryptic hints, images etc. need to be collected, edited or written, and checked in terms of possible copyrights. It is important to remember that the content necessary for publication in the mobile app may be subject to copyright restrictions. If so the rights have to be cleared and/or the appropriate attribution mentioned or other credit information.

Testing in the field

A crucial element of the Quest success is the testing phase. It is important to go out and play the Quest by its creators. It is advised to take on another person who is not familiar with the subject of the Quest, in order to see whether he/she understands the cryptic descriptions used to target the object to be found. Perhaps some items turn out to be too difficult, others too straightforward. Other media clues might be better suited; the walking distance between two items might be too short or too long. These are aspects of the Quest that can only be tested by experiencing it.

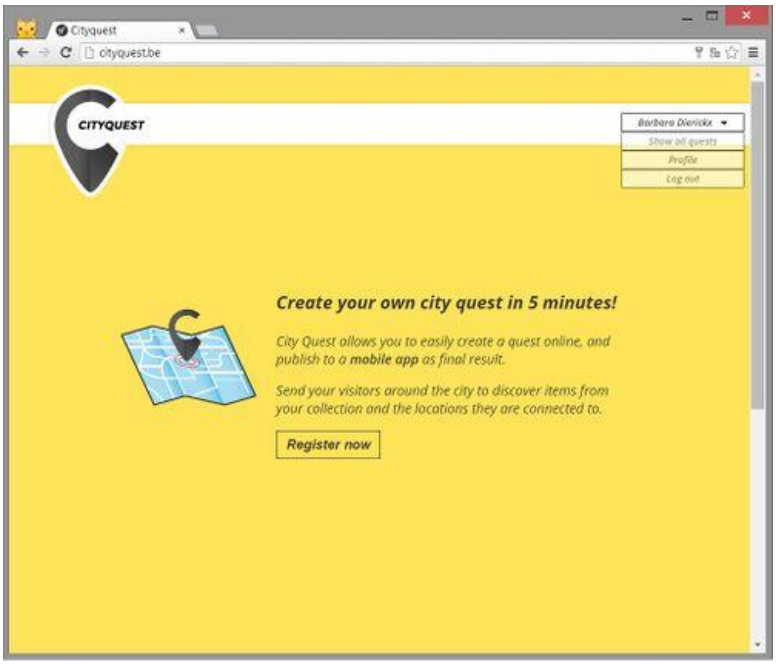
Regular checks and information for the community

One of the key elements in the CityQuest are the QR codes that provide more information on the place, subject, object that is discovered by the player, and allow to proof that searched point has been really discovered. But it is not possible to simply start gluing codes on every

building encountered. It must be checked with the owner(s) of the locations that it's allowed, and to make sure that adhering a QR code to an object or location will not damage anything. When all is organized it's important to make regular checks of the codes' condition: are they still in place? Are they still readable? Do they need some touch-up? In order to engage the town inhabitants a bit of context information may be added to the codes that are posted. To the dotted square the institution's logo, and name, a brief description of what the codes are for can be added.

Online interface

Access to the CityQuest online interface can be obtained via http://cityquest.be



First time it is possible to register as a new user, the next login takes place as a returning user. There are a number of reasons why CityQuest is account-based:

- (A) The section with the list of items on which it is possible to work in the back-end;
- (B) The section with the index of the structure of the pages;
- (C) The section to create and edit the page contents and the ontology structure.

Registering as a new user

The new CityQuest users are required to create an account and register by clicking the white button 'Register now' on the homepage. After clicking it, the page will automatically scroll down until the part is shown where the user is asked to fill in the registration details: Full name, E-mail address, Password and Password confirmation.

After entering requested details, a user should click the 'Sign up' button.



The registration procedure is now finalised and the registered user is redirected to the homepage of the online interface, where s/he can Create a new Quest. The user account details will appear in the top right corner (see next section in this manual).

Login as registered user

If a user already has a CityQuest account, s/he can sign in to access the City Quests by clicking the 'Sign In' button in the top right corner. From there the user is redirected to the screen where s/he has to submit the username and password, then click the 'Login' button. In case of the forgotten password, it is possible to retrieve a new one by clicking the button.
If login was successful, the user is redirected to the CityQuest homescreen where s/he can Create a new Quest or - depending on the progress - Manage existing Quests.

Managing the account

After clicking on the username in the top right corner, a menu unfolds.

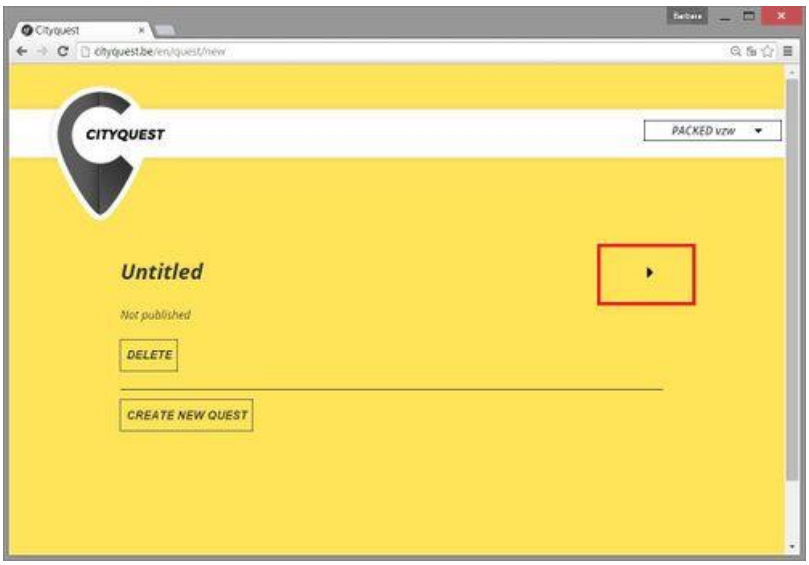


The entries are following:

- **show all quests**: this directs the user to the overview of all quests created under this account;
- **profile**: a page where it is possible to change the current password by entering and confirming a new one (click 'Update') - depicted in the screen below;
- **log out.**

Creating a new Quest

To create a new Quest, user has to click on 'Create new Quest' on a login or registration screen, and then s/he is directed to the following screen:

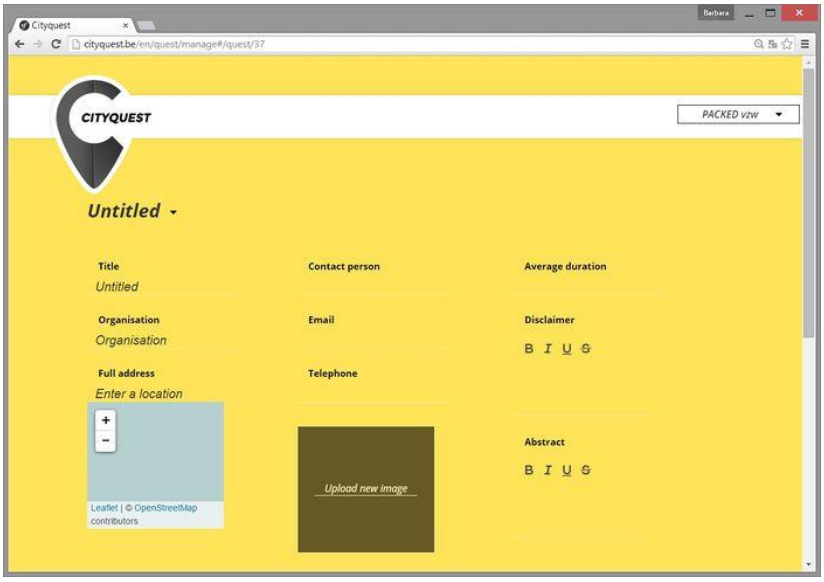


To start editing this new Quest s/he has to click the arrow to the right. The next window is the full Quest editing screen. Basically all actions to create the Quest are happening on the same webpage. The page can be divided into four sections:

- General information on the Quest
- Publication status of the Quest
- The items that are to be found in this Quest
- A map that indicates to the player the route from the final item to the organising institution (or point of departure/end)

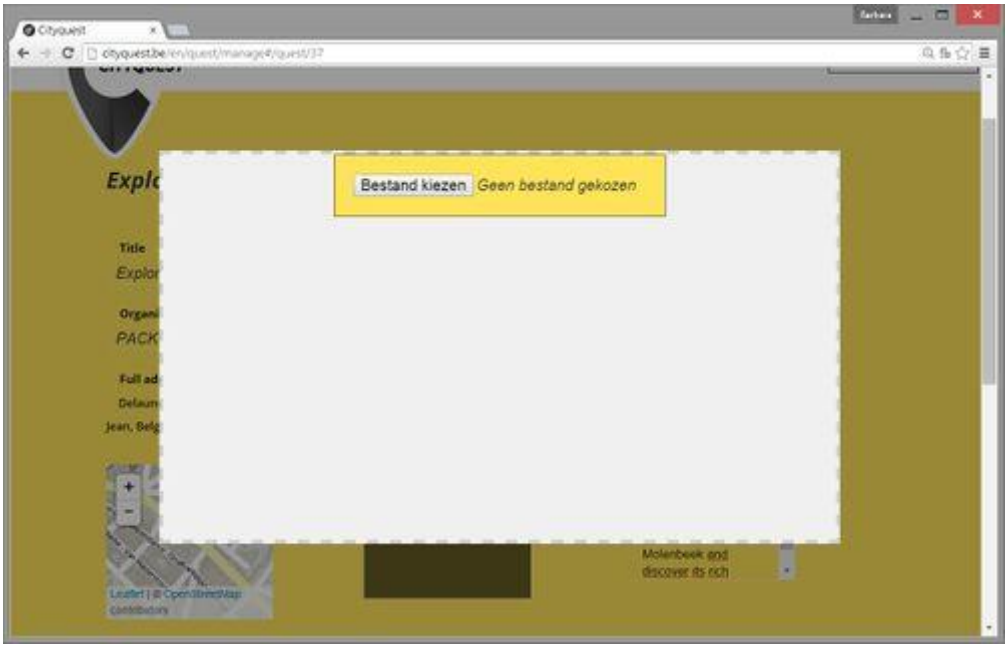
General information on the Quest

The top section of the screen allows the user to fill the meta-information on his Quest.



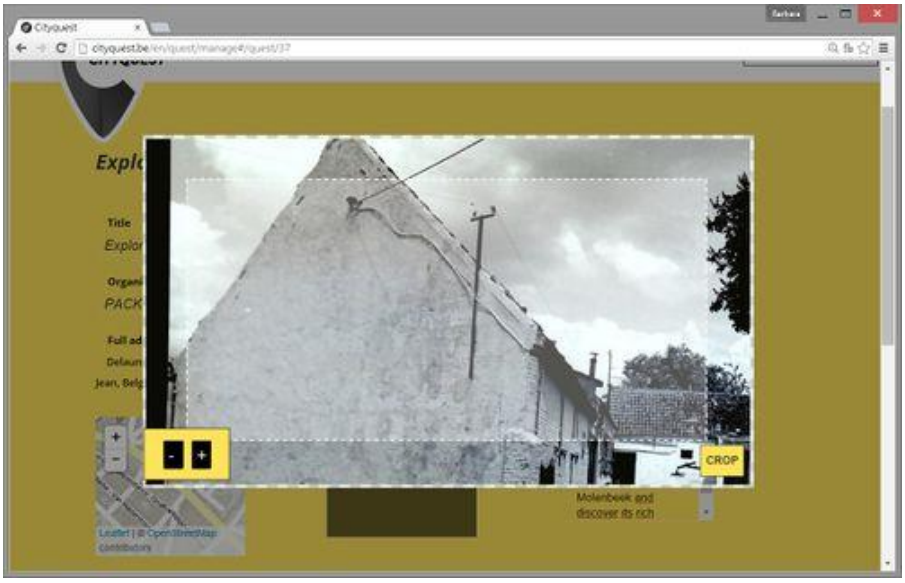
It is possible to type underneath the fields that are marked in **bold**. It is necessary to insert the following information:

- **Title**: a title of the Quest. Examples: Explore Tallinn, Hidden treasures of Rijeka.
- **Abstract**: short description of what the Quest is about. It appears below the title in the app (in the example above, the abstract is the grey line under the title 'Explore Malderen'.
- **Organisation**: the name of the institution that has created or is organising this CityQuest.
- **Full address**: it is expected that the address of the abovementioned organisation will also be the start and end point of the Quest, in case e.g. tablets are sent out for loan by Quest players. The address entered here will be automatically copied to the 'Map' section to act as end point of the Quest. Should one want to have another location as end point, than this can be easily changed in the 'Map' section. Upon entering the address, a location search will be performed in the OpenStreetMap below the text. If the address is correct just confirmation is needed, if it is not, one can click the 'Reset' button that will have appeared and insert a new address.
- **Contact person**: the name of the person who may be responsible for this Quest. If a player would encounter some kind of problem, this would be the person to ask for when e.g. calling the institution. It could be someone from the ticket desk,
- **e-mail**: appropriate e-mailaddress
- **Telephone**: the telephone number of the person who may be responsible for this Quest. If a player would encounter some kind of problem, this would be the number to call for problem solving. cf. Name of Contact Person above.
- **Upload new image**: after clicking the dark square space, the following pop up window will appear:



The language of the text to be displayed may vary according to the language settings of the browser

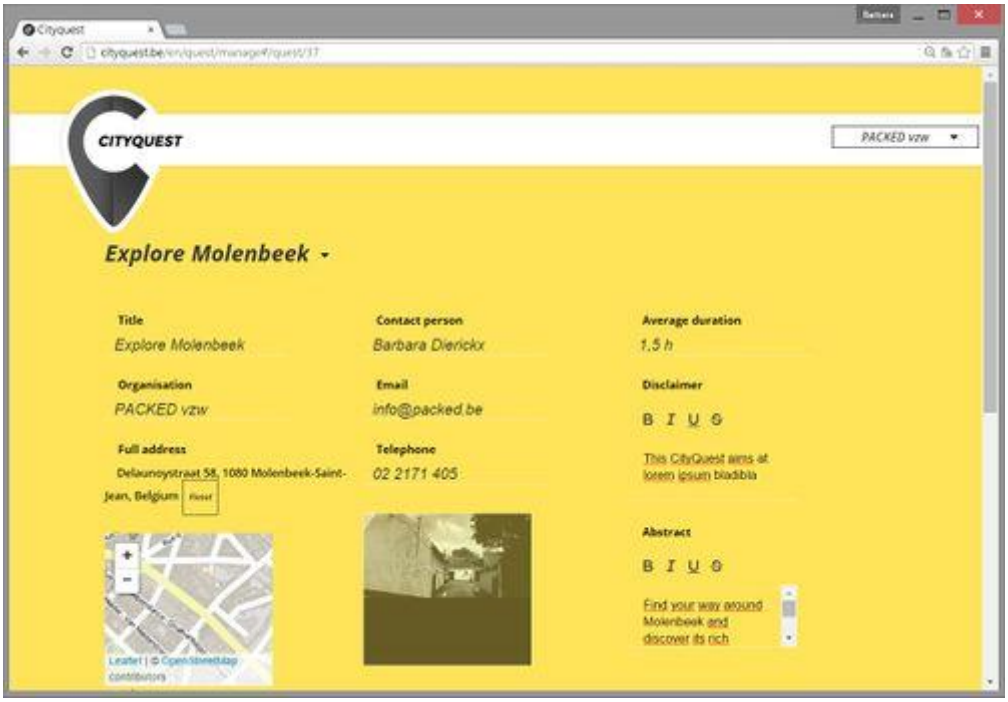
The pop-up will display 'Choose file' and 'No file chosen'. Click 'Choose File' to upload an image from a directory (computer, shared folder, ...). The minimum size of the image should be 600x300 for optimal rendering (!). When the image is selected, it is displayed in the image container as shown on the next screen.



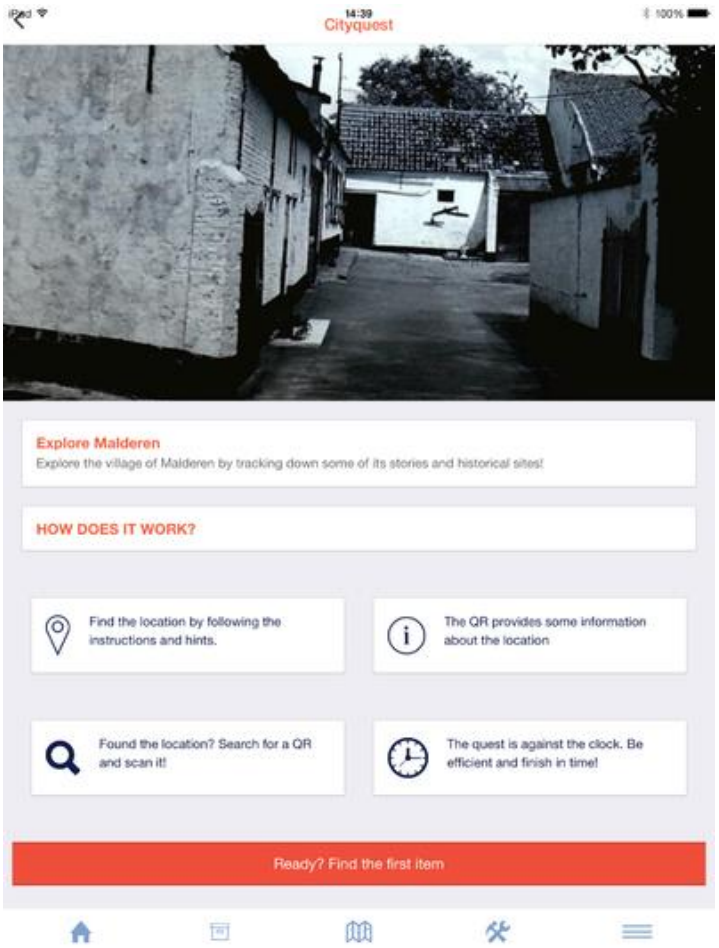
In the bottom left corner a plus and minus sign are displayed. Clicking these will (un)zoom the image. It is also possible to grab the image by clicking and holding with a mouse, and moving it around in the image container. The space within the inner white dotted line will be the eventual cut out of the image, and only that part will be displayed in the app.



After zooming and positioning click the 'Crop' button in the lower right corner. This will cut the image. Eventually, the newly cut image is than displayed in the image container that is part of the general description of the Quest (see below).



This will be the image that also appears on the start screen of the CityQuest app. In this example:



- **Average duration**: indicated an average duration of this Quest. There is no format guide, so any kind of time notation system is allowed. The time indication is useful for the players selecting the quest according to the available time.
- **Disclaimer**: the disclaimer field can be used to add any kind of information on the Quest useful for the visitors that does not fit anywhere else.

Managing the existing Quest

One or more Quests require constant management. The user experiences collected through feedback from the Quest players will allow to update the Quest according to the players needs. It may require replacement or adaption of some perhaps hard to find items, changing the order to allow for a nicer walking tour, etc. In order to know whether a certain Quest is still up to date, is in the process of evaluation it's possible to alter its Publication status so that others may know if it's ok to hand these Quest keys out to visitors.

Publication status

There are fields to determine the publication status of the Quest and manage the QR codes. In details it is described in the manual on How to manage your Quests
There are 3 different options of the Quest status:

- Editing Quest: shows that it is still in the process of editing (i.e. adding new items, changing order, etc.)
- Quest in review: waiting for the confirmation of a team member before Quest' publication

- Quest ready: shows that this Quest and its key are ready to be given to interested players.

When you click the 'Publish' button, a letter code key is generated. This code is what you enter into the app so that your Quest and its content can be loaded onto the mobile device.

Adding the items to be found

Among the items possible to be added to the Quest are the following:

- Title
- Full description
- Cryptic description
- Add new hint
- Delete item
- Media

Building an item

The Quest will work or fail largely depending on the quality of description of the items to be found. The cryptic description, hint texts and selected media are therefore very important.

- **Title**: A very short clue about what the player needs to find. In the case where a castle in a park needs to be found, the title of the item could be 'something green', or 'green garden'. When typing the title in the back end, it will automatically appear and replace the 'New item' dummy text.
- **Full description**: the full description is what the players see when they have found the item and scanned its accompanying QR-code. Then the full informative text about an item - its history, why it is part of the Quest, its importance to the city and/or institution collection, its stories, etc. A simple text editor is also included in this field.
- **Cryptic description**: the cryptic description is what the player will see when he first looks at the Item to be found-page in the app. The description gives a clue on what it is the player should find, but is not telling it too straightforward. For example, in the given screen the players should find a statue that was erected in remembrance of the end of a fight between two village clans. The cryptic description of what to find, could be 'The marble closing point of a never ending quarrel'.
- **Add media**: adding a piece of media to the item to be found is another way of giving a clue on what to find. Adding media here works in the same way as adding a picture to the general part of the Quest (see here). When you click on arrow right next to 'Media', the upload/select media screen opens again.

Adding hints

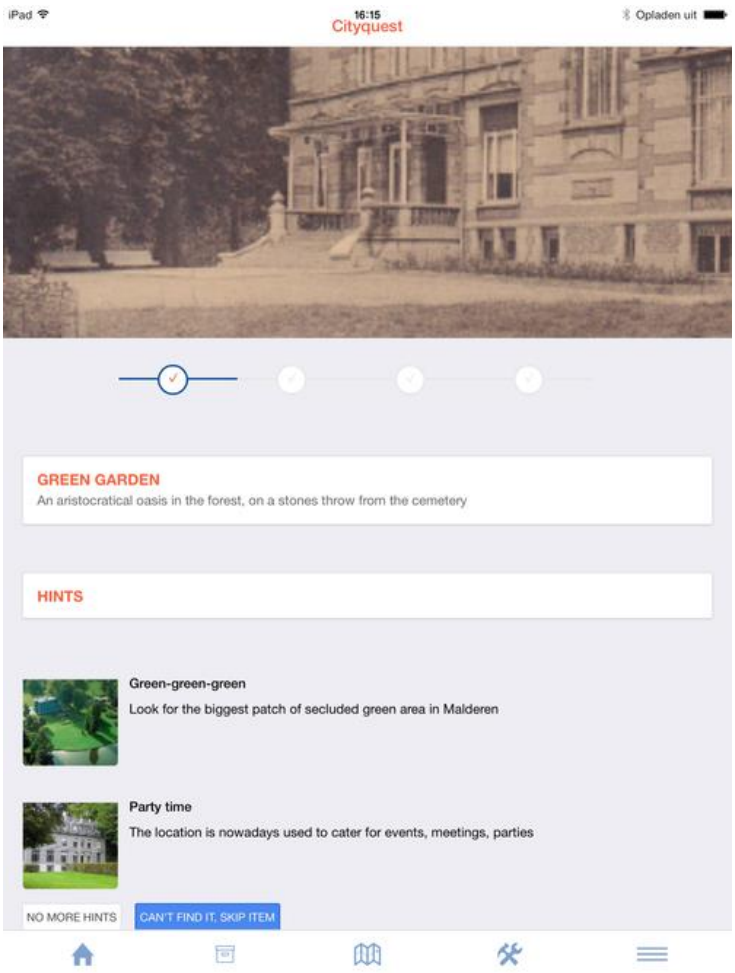
It is very likely that the players will not be able to guess or find the item that they need to track down by simply having one clue of information. This is why there is also the possibility to add more hints to an item. These are little bits of information + a picture, slowly revealing more info on the item to be found. Hints can be added by clicking the 'Add new hint' button.

- Hint title: similar to the title of the item, a brief keyword-like title.
- Hint description: an informative clue that helps the players to find the item.
- New image: upload a new image that will help the players find the item.

After creation of a new hint, a button 'Add new hint' will appear under it. Up to three hints per item can be created that allows step by step to release more information

Example in app

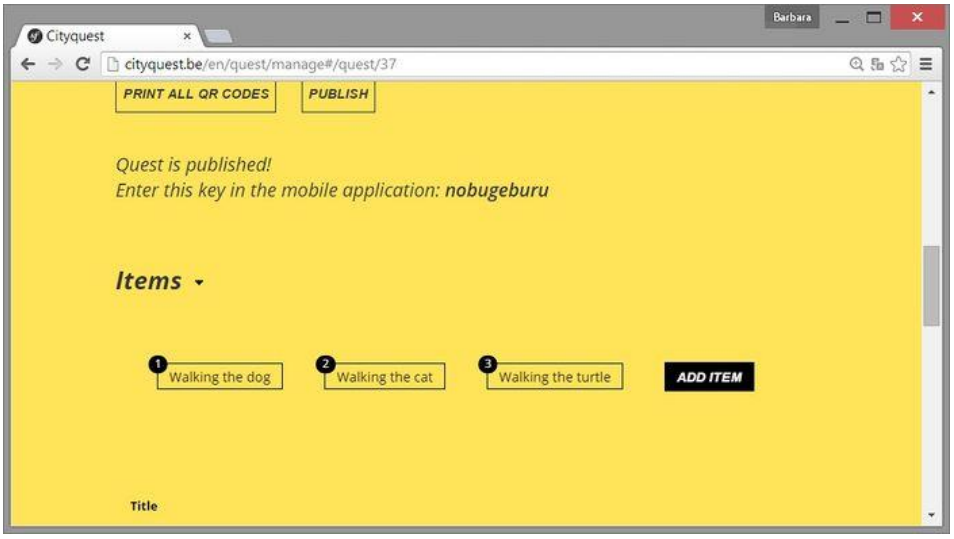
In the example below, we see an item with a title (Green garden) and a cryptic description (An aristocratic oasis in the forest, on a stones thrown from the cemetery). The players have not found it immediately and have thus pushed the 'I need a hint' button - twice even: two hints have been displayed. Each hint has a media asset, a title and a hint description sentence.



Creating the map

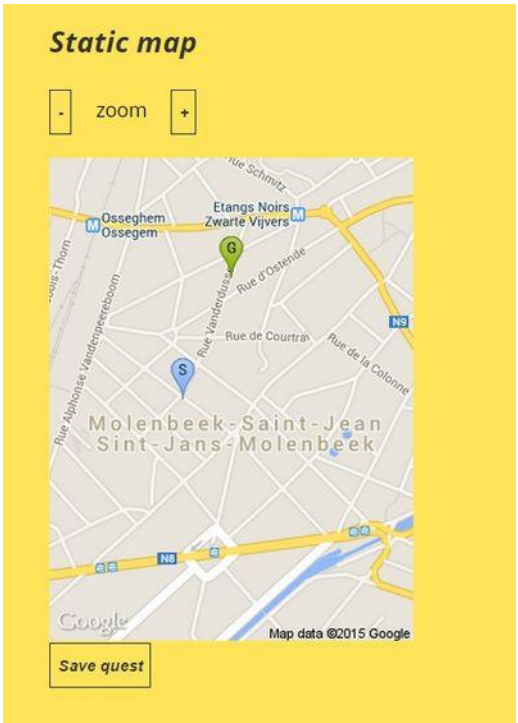
The order in which the items will be presented, is a key aspect of the Quest. The first item to be found will lead to the following one, and so on until the last item is reached. When this final item is found, the time that players have to invest in getting back to the Quest's point of departure/end should be kept to a minimum. This is where the Map feature comes in. The Map in the application will show the way from the last item to be found, back to the institution (or another point of choice).
If the end point of the Quest doesn't feet to the needs it's possible to change the order of the items by simply moving them via click-and-hold as below:

- Order 1: dog - cat - turtle
- Order 2: turtle - dog - cat



The map automatically takes the location of the institution also as end point of the Quest. If it is necessary to change this, click the Reset button underneath the address string. The field will be empty again, and it is possible to enter a new address as end point of the Quest. The 'Location last item' is still empty. Type the address of the location, and an autocomplete modus will map the point in OpenStreetMap. Once these two addresses are present - of last item and of final end location, a map is generated under the heading 'Static map'.

Currently, the map is useless for display in the app as the level of detail in zoom is too little. The + and - buttons above the map should be used to bring the map to a sufficient level of detail, so that the itinerary from the last item to be found to the final location can be followed. See example below (more zoom used):

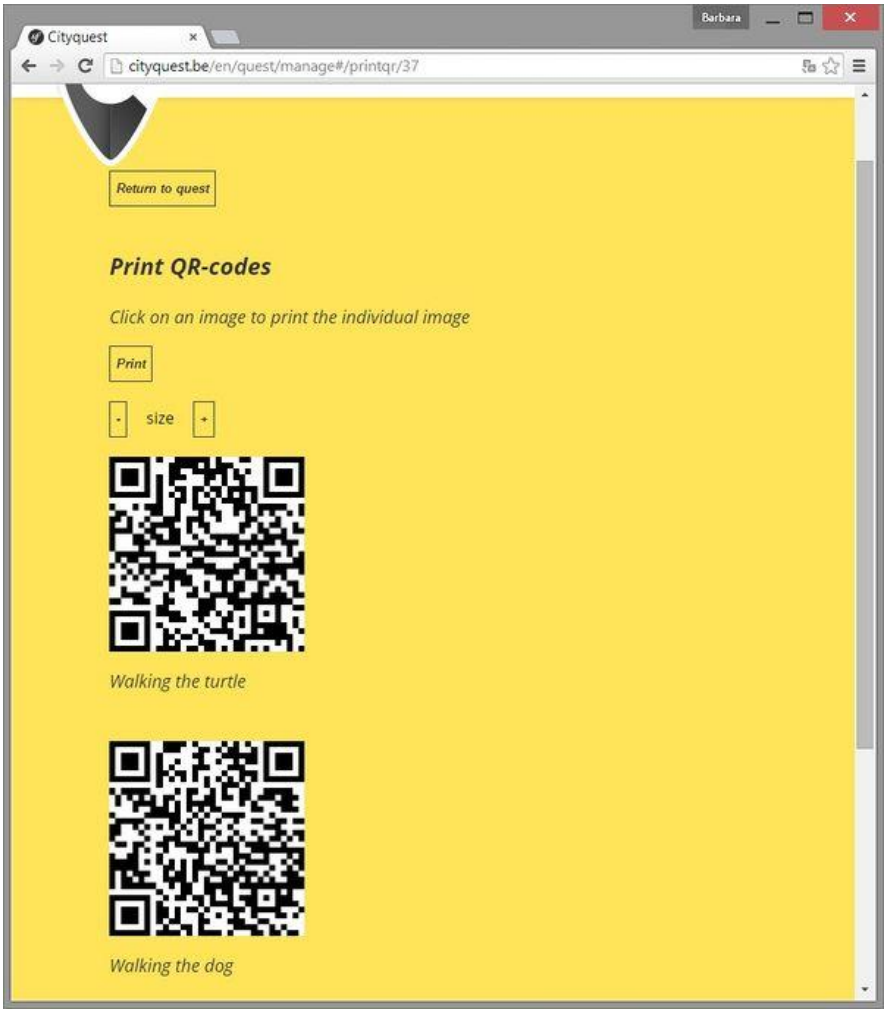


Click 'Save Quest' to save your work.

Obtaining the QR codes

The QR codes are important part of the CityQuest app.The cryptic information about the items guides the player to a location, where a QR code can be found. After scanning the code with the QR code reader that is built into the app, the player will see the detailed item description - the background story giving more info about this item. This means that for each item created in the Quest, a QR code is generated. This process happens automatically. On the general back-end screen, there is a button that says 'Print all QR codes' for this particular Quest.

Click on leads to a screen that allows to print all pertaining QR codes (the title of the item is always listed below the code to avoid confusion), or print them individually so that they may be fitted to the best size. By clicking the + and - buttons it's possible to either make the codes larger or smaller.



QR codes in the open space

One of the key elements in the CityQuest are the QR codes that provide more information on the place, subject, object that is discovered by the player. These codes will be visible throughout the town. It's necessary to make regular checks of their condition: are they still in place? Are they still readable? Do they need some touch-up? In order to engage the town inhabitants you could add a bit of context information to the codes that are posted. Don't just paste the dotted square, but add your institution's logo, your name, a brief description of what

the codes are for. Interested in playing this CityQuest yourself? Make sure you add contact information of your institution.



Make sure when applying the code that you are not creating a fundamental change to the object or the location. You might not be entitled to screw a metal plaque to the facade of a building. Some different ways to apply the codes:







School Trip

School Trip Getting started

Detailed instruction to the School Trip application is available on the website at the address http://wiki.athenaplus.eu/index.php/SchoolTrip_Getting_started.

Installation instructions

School Trip prepared in the framework of the AthenaPlus project by Packed vzw is released under the MIT License and is available for free download on GitHub at https://github.com/PACKED-vzw/schooltrip. For support or information, contact it@packed.be.

About School Trip

School Trip is a tool that allows students to create their own school journey. Through the interface, the teacher can set a couple of parameters defining the skeleton of the trip. Students fill the template with information on practicalities, cultural heritage sites to visit, historical information, and so on. They **learn to plan a travel from a to z**, while incorporating our cultural heritage. At the end, a journal-like document is generated which can be used as itinerary guidebook.

The travel journal, which is the end product of the School Trip trajectory, requires:

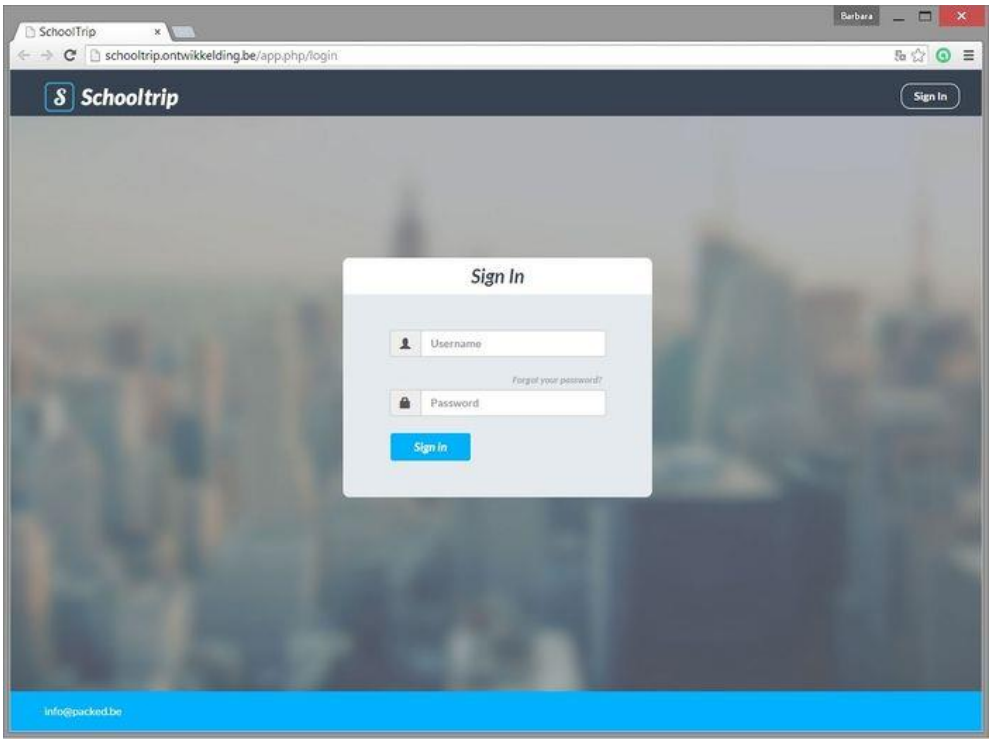
- preparatory work by the teacher/administrator
- searching content (texts, images, links, etc.) by the students

School Trip also features a function to search for additional materials on Europeana.
The teacher does not only create the general framework for the trip - where to go, when to leave, what the must-sees are, but also explains to the students how to **work with the application**. By working with an application like School Trip, the students also become more media and technology aware. There is no one-way process of knowledge transfer, but they're looking up their own information and work with a tool that is new to their experience.

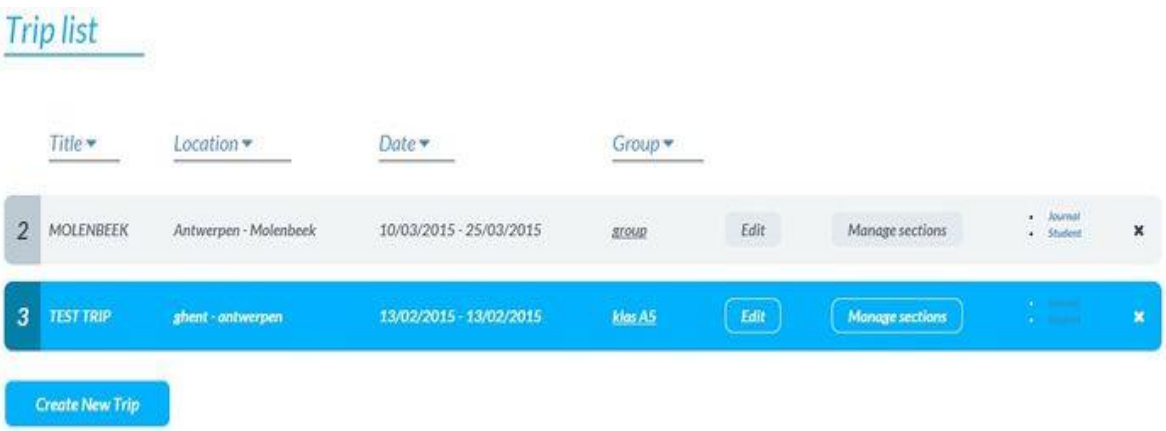
School Trip can be used in a one-to-one relation (one teacher, one student completing the full trip), or one-to-many (one teacher, multiple students working in a group to complete the full trip).

School Trip registration and login

Access to the School Trip login interface can be obtained via the link of your own installation. For showcase in the AthenaPlus project, an instance has for example been installed on http://schooltrip.eu/login



Trip List

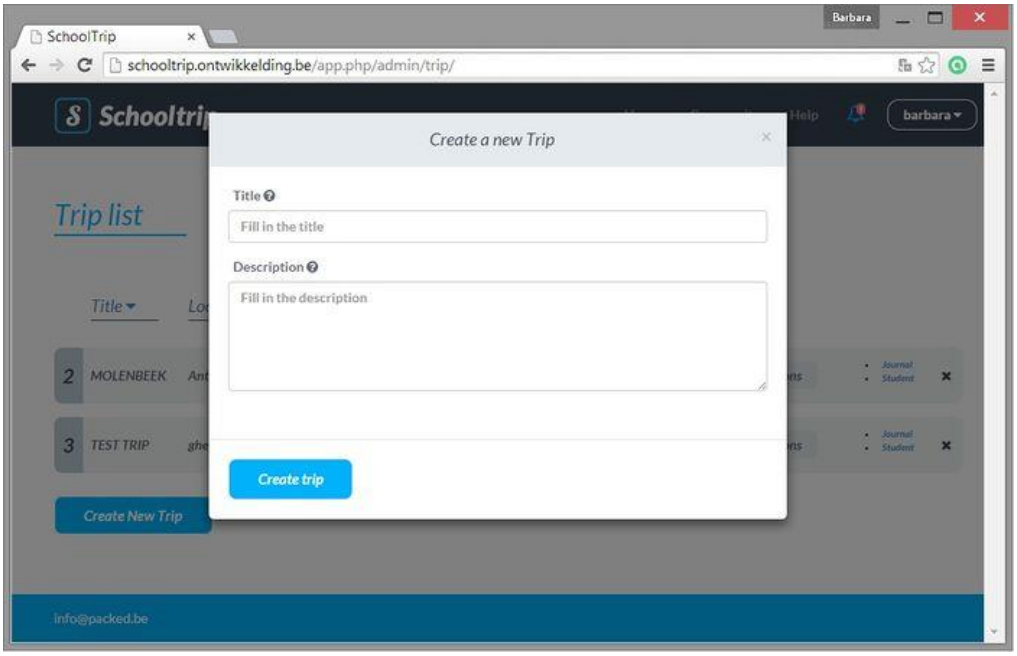


On the Trip List there are the following information per trip:

- Title: a descriptive title of the trip.
- Location: the location of the planned trip.
- Date: the dates of travel (from - until)
- Group: the group of students who will participate in the trip and its creation
- Edit: the button to add more general information to this particular trip
- Manage sections: the button to add the different subjects on which students need to find information
- Choice between Journal and student: a teacher can also enter the student mode of this trip, or directly view the Journal they've created (if already available).
- x-button: click to delete this trip from the Trip list (and the account).

New Trip Creation

After clicking the button 'Create new trip', the following popup window will appear:



The following information has to be added:

- Title: as an example can serve a trip to Brussels - also known as the capital of Europe. The title thus becomes 'The capital of Europe'.
- Description: a brief description of the outline of the trip. Example: *Brussels is the capital of Belgium. Centrally located in Europe, it is often referred to as 'the capital of Europe'. This name is enforced by the European presence in the city. The European Parliament, European Commission and several other policy bodies have their office in Brussels. During this trip we will discover the city, its history and cultural sites, and the European presence.*

Edit new Trip

You will be redirected to the Trip overview screen, where now also the newly created School Trip will appear. After clicking the 'Edit' button to the right it's possible to add more information about this trip.

A new popup window will open with the following information:

- Title (already completed, filled in the previous screen)
- Description ((already completed, filled in the previous screen)
- Message about Groups
- Age group: please visit the section on the management of groups and users for instructions on how to create a new Group.
- Date from: the date of departure of the trip. A calendar will open:
- Date to: the final day of the trip
- Departure: the city of departure
- Destination: destination city

After filling these fields, click the blue 'Update' button below to save the information about the trip.

Assigning group

After creation of a new group, it is possible to enter the Edit Trip screen again and choose the newly created group, to be assigned to this trip.

Creating a section

The general information about the Trip has now been established, so it's possible to start creating Sections. Check the Schooltrip Getting started pages to read about the role of these Sections in the construction of the Trip. After the click on the 'Manage sections' button in the overview of the Trip list, a popup will appear
After click on 'Create new section' to get started a message displaying that section is being created:
A new popup appears, containing the first section. It does not display much information yet. In order to add more to this section, click the grey 'Edit' button.
The window expands and shows the following fields.

- Title: provide a title for your Section
- Genre: choose a genre for your Section, from a preset drop down menu
- Description: describe your Section

In order to save these changes click 'Save' (above the Description field).

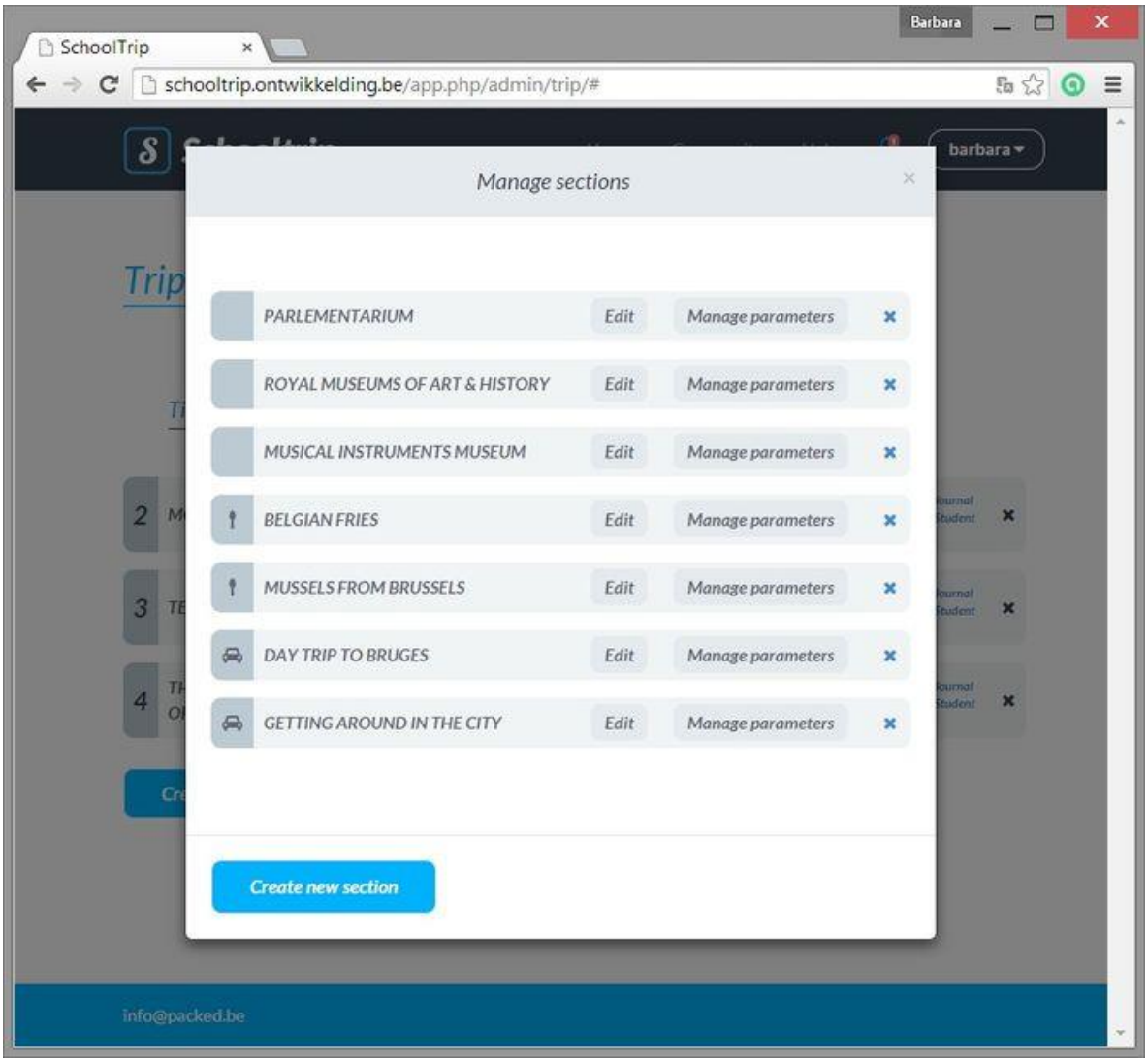
Manage parameters

The next step in completing the section, is to add new parameters to it. These parameters set some additional challenges for the assignment. Click the button 'Manage parameters' to start. Among them are:

- Challenge: the task the students need to do, or the specific information they need to collect here
- Media: possibility to add illustrative media
- Link: place to put a URL, linked to the Section or directly to the specific challenge

After clicking the Edit button to the right, the window expands and you can insert more information.

When more sections and their parameters have been established, the Section overview might look like this:



Manage groups and users

The creation of Groups is important in two ways:

- Granting students access to the School Trip interface
- Determining the groups who 'belong' to the Trip.

In order to manage the groups, go to the button containing the Username in the top black bar of the screen. After the click on it, a drop down menu appears. The second title in the menu reads 'Groups'. Click the button to be directed to the management section.
A popup screen will appear, displaying the current groups (if already created), and the possibility to 'Add group' on the top of the popup. After clicking 'Add group', a new group will be created, and an additional group icon is displayed. The new group is called simply 'group' (it's possible to change the group name later on). After the click on this newly added group, a new window opens in which it is possible t compose and manage the members of the group and also the group name.

Once all users have been added to the group, click 'Save group' to be directed to the updated overview screen of existing groups. See chapter on Assigning a Group to learn how to link a particular Group of Students to your Trip.

School Trip for students

Schooltrip is a tool that allows students to create their own school journey. Through an online interface the teacher can set a couple of parameters defining the skeleton of the trip. Students fill the template with information on practicalities, cultural heritage sites to visit, historical information, and so on. They learn to plan a travel from a to z, while incorporating our cultural heritage. At the end, a journal-like document is generated which can be used as itinerary guidebook. Tutorial for students available at
http://wiki.athenaplus.eu/index.php/SchoolTrip#You_are_a_student

How to create a Journal

One of the interesting features, the actual end product is a travel journal. To get it as a result of School Trip it requires the following steps:

By a teacher

1. Login to the School Trip programme
2. Creation of new trip
3. Defining basic info on trip (e.g. destination, dates, short description)
4. Assigning a group of students (class group) as participants to the trip
5. Defining the topics to be researched by the students. These are called 'Sections' in the School Trip programme.
6. Setting Challenges for these Sections. These are small tasks or requisites that relate to the topic of the Section. It is possible to add more than one challenge per Section.
7. Communication about the student's tasks to the group assigned to this trip

Examples of Sections:

- 'The Musical Instruments Museum', in genre 'Cultural heritage'
- 'Getting around in the city', in genre 'Transport'
- 'Film screening at Cinematek' in genre 'Entertainment

Examples of Challenges:

- Enquire what possibilities (tours, interaction) are offered for (school) groups (Musical Instruments Museum)
- Can we rent bikes for one day? What are prices? (Getting around in the city)
- Find appropriate screenings of silent movies after 6 p.m. on weekdays (Cinematek)

By student.

1. Login to the School Trip programme
2. Process the skeleton of the trip: the different Sections that need to be filled with information ('Records') based on the Challenges that the teacher has set out.
3. Add snippets of information ('Records') to the various Sections, until you feel all needed information is present. A Record may contain text, URL and media*.
4. Order your Records chronologically and assign hours/times to them. You are constructing the itinerary of your travel.
5. Present the ordered information to the teacher for approval (check for completeness) before editing the Journal.
6. Start editing the Journal: you may alter and add texts in chronologically ordered information. Upon 'finalising', the Journal is created.
7. Print the Journal and take it with you on the school trip.

Teacher - student interaction

School Trip allows for cooperation and interaction. Students can use the message board to discuss their progress or obstacles in finding information (adding the records). The message board is also accessible to the teacher, who can keep an eye on what's going on or may even be asked for advice through the board. When the students have finished the chronological ordering of the selected information, the teacher is notified that a structure has been created. He/she should approve the contents of the ordered Journal before the students start the final editing. This way, students can return to add more records to their journal if certain parts are felt to be incomplete, before spending effort on editing.

Detailed instructions of interaction is presented at:
For teacher - http://wiki.athenaplus.eu/index.php?title=SchoolTrip_interaction_teacher
For students - http://wiki.athenaplus.eu/index.php?title=SchoolTrip_interaction_student

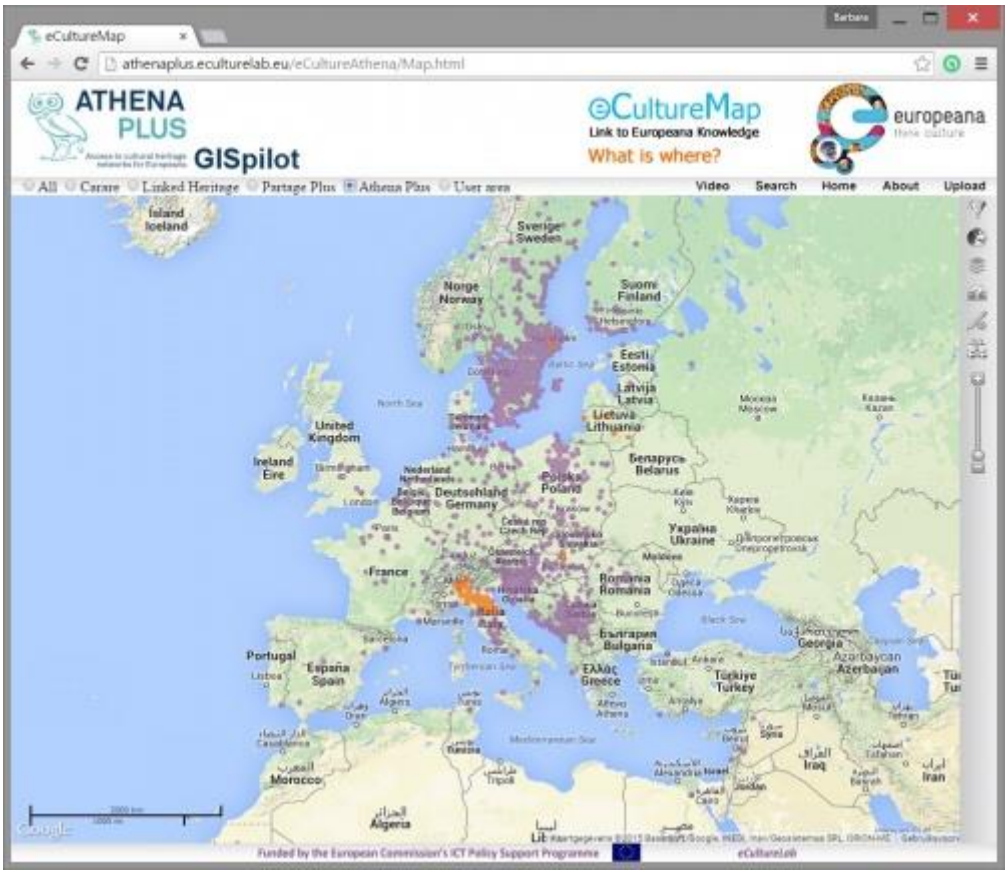
GIS in eCultureMap

The eCultureMap has been developed to demonstrate the use and re-use of Europeana, AthenaPlus and other digital cultural heritage content, when browsing the content geographically. Currently the map has three main uses: a user may find out what cultural content is present on a certain location, s/he can plan a cultural route or upload own content. A GIS Pilot action resulting in use cases and an application has also been realised.

GIS in eCultureMap application has been described in details with examples and links to instructions at the site http://wiki.athenaplus.eu/index.php/ECultureMap. It is also available on YouTube. Here you can find the Link to a short video explaining some of the features of the eCultureMap.

eCultureMap getting started

Basic information on the eCultureMap can be found at Getting started page.
The map is available at http://athenaplus.eculturelab.eu/



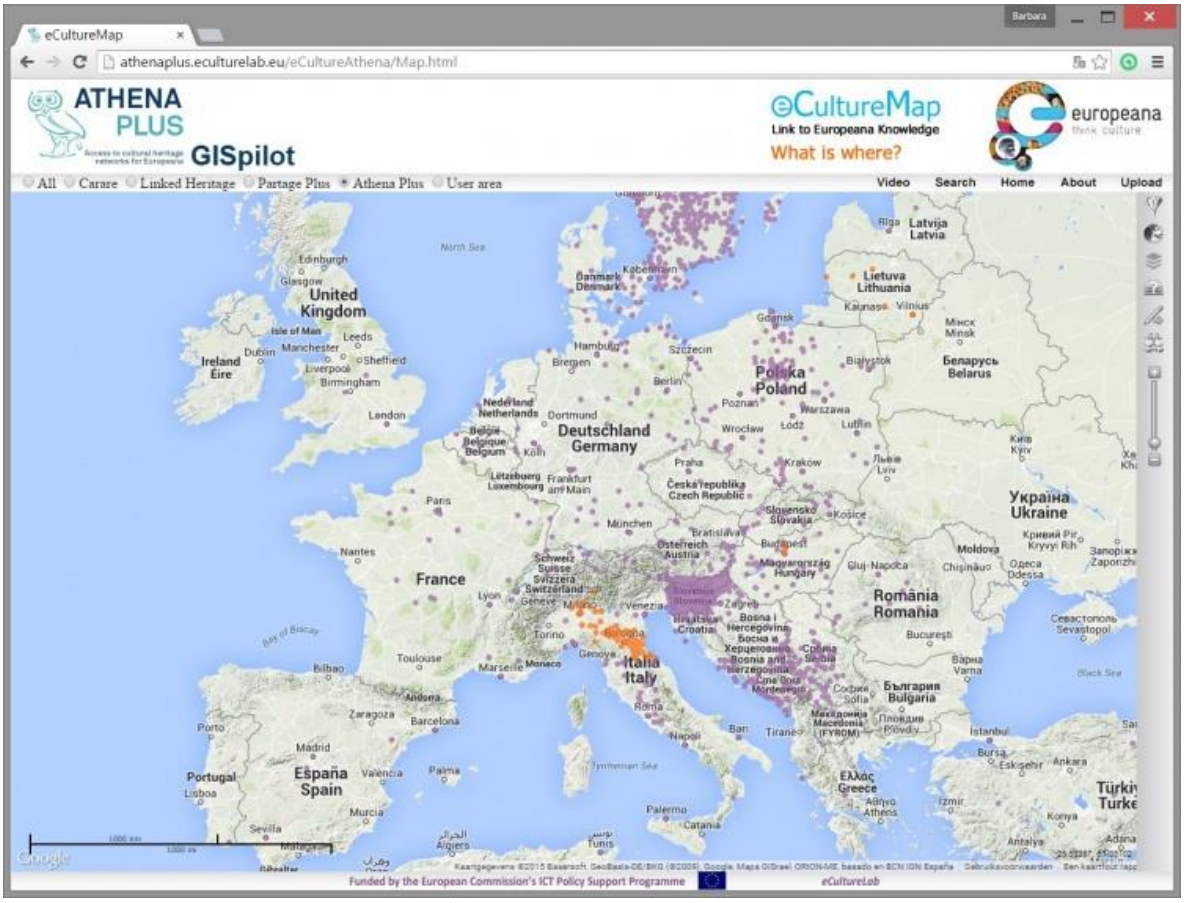
eCultureMap manual

The manual pages describe three main use cases of the eCultureMap, plus some specific functionalities:

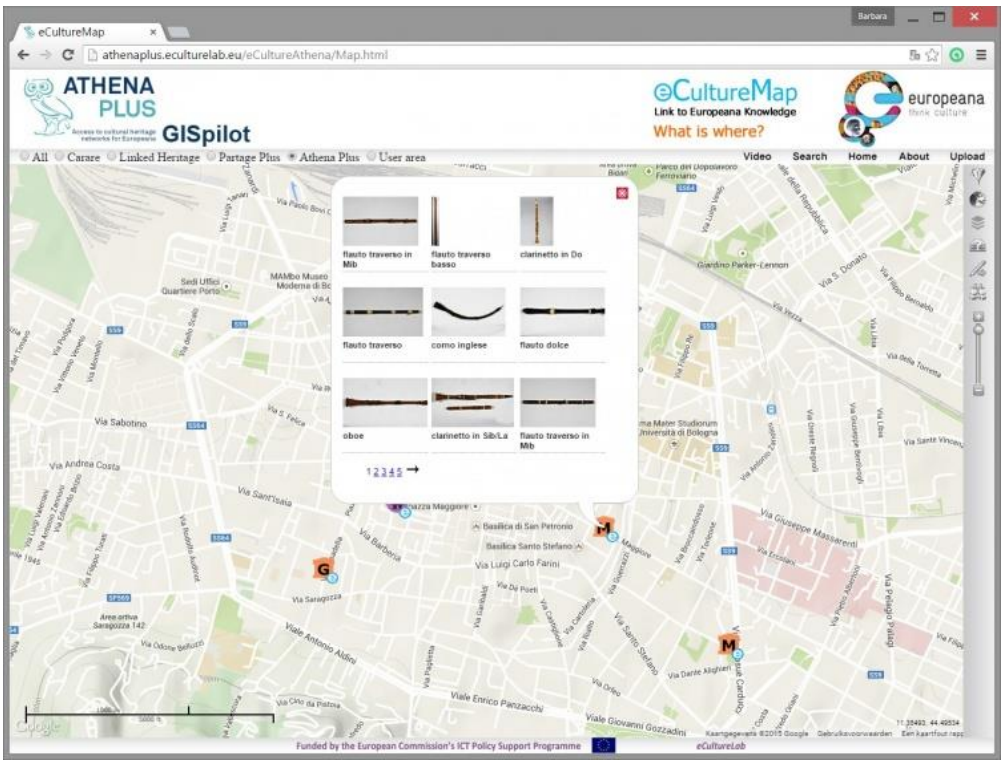
1. Locating the content
2. Planning a cultural route
3. Uploading user's own content
4. Map functionalities

Locating the content

The cultural content linked to a certain location is represented by the dots on the eCultureMap. These dots are either orange or purple. An orange dot presents content with a spatial accuracy below 5-10 meters in the real world. Such accuracy is appropriate for spatial navigation. Purple dots present content with spatial accuracy above 10 meters.



In the example below, we see cultural content in the city of Bologna. When you click on one of the icons, a popup window will appear. It displays the cultural contents that can be found on the specific location, with a thumbnail and the title of the object underneath it. In the example below, we clicked on the orange M-icon:

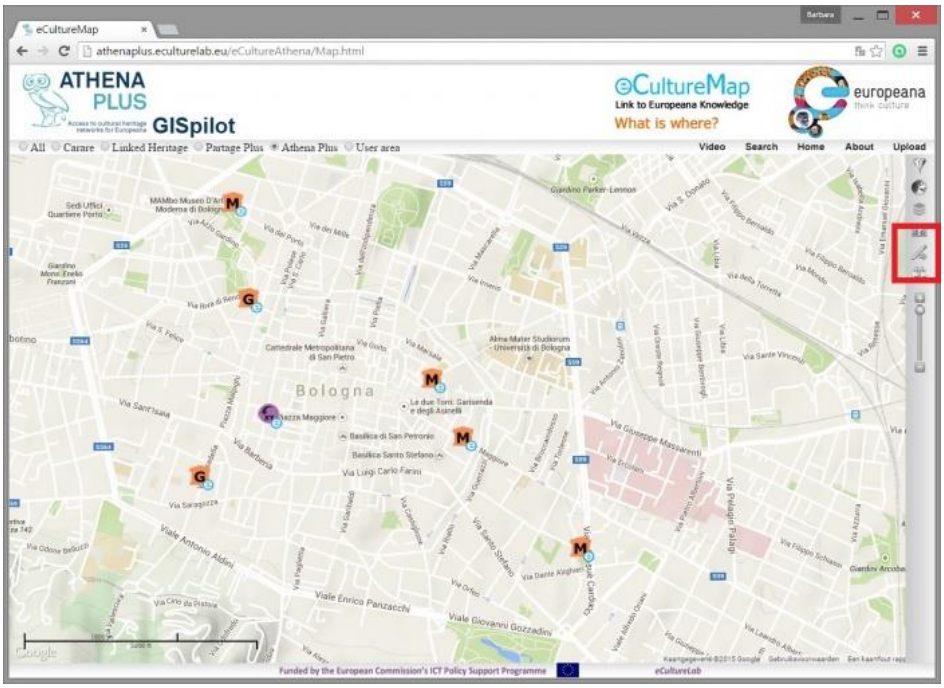


Clicking on one of the displayed thumbnails will open up a new browser tab and guide you to the item's detailed page on Europeana.

Plan a cultural route

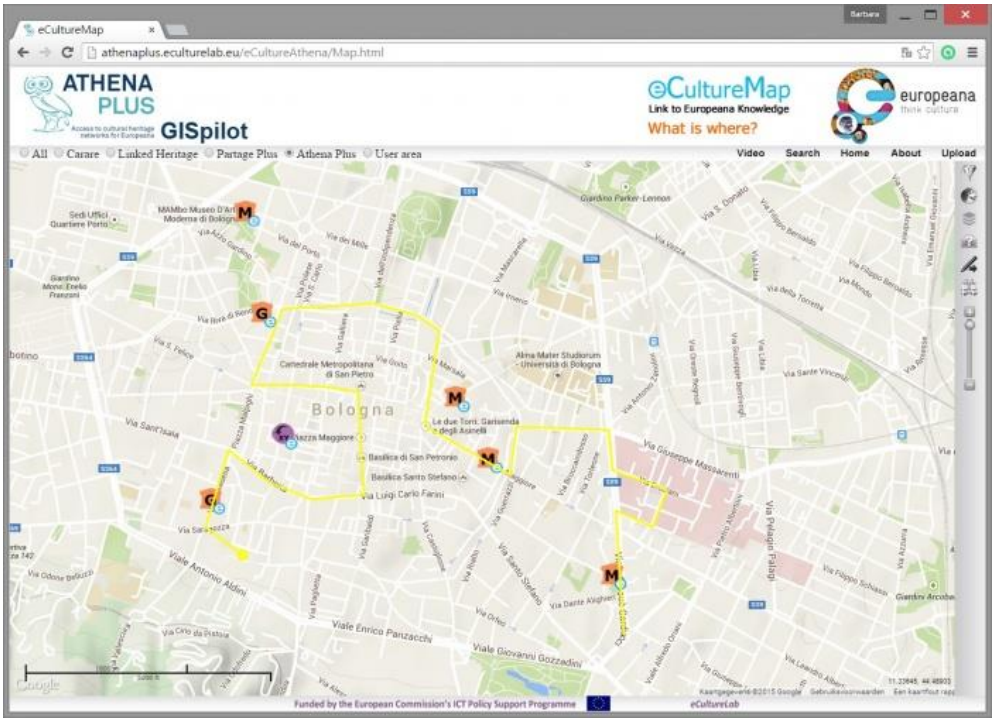
The route planning tool allows the user of the map to display the cultural content he/she may find along a particular route of interest. The identified content is eventually displayed based upon the drawing of your itinerary onto the map.

Drawing your route



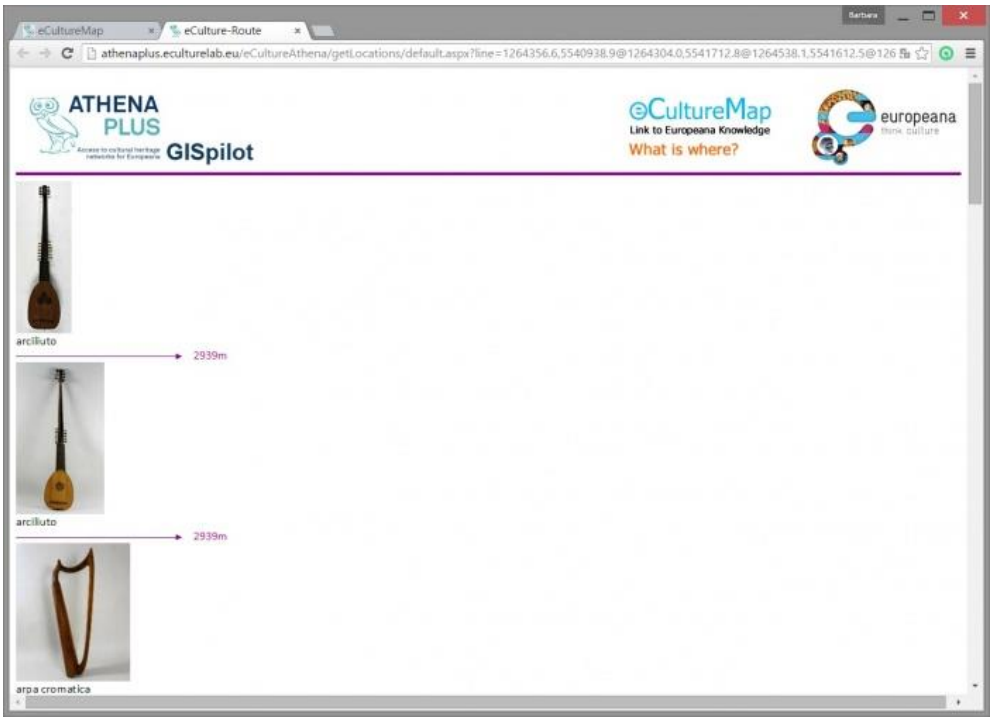
When you've zoomed onto the place you want to start your itinerary from, you have to activate the pen through the drawing icon (see red framed icon to the right of the illustration above). After clicking, the icon will turn a darker colour and the pointer of your mouse will look like a yellow dot.

Start drawing your itinerary by pointing the yellow dot to your starting place, and left-click once to start drawing. Click, hold and release to make one line and connect different turns in your walk. In the end, you will end up with e.g. a route that may look like the picture below:



To stop drawing, double click with the left mouse button. Your line will now be saved onto the map, and a new browser tab will open automatically (see next paragraph).

Rendering the items on the route



In the example above, we see a browser window with two open tabs. The first one is the eCultureMap, the second one is the overview of items we would pass in proximity when we would follow the route that we have just marked/designed on the map. In this example, we get to see some musical instruments in an indicated proximity of 2.939 meter. This distance refers to the distance how far you should travel on your pathway from the starting point to the object you discovered.

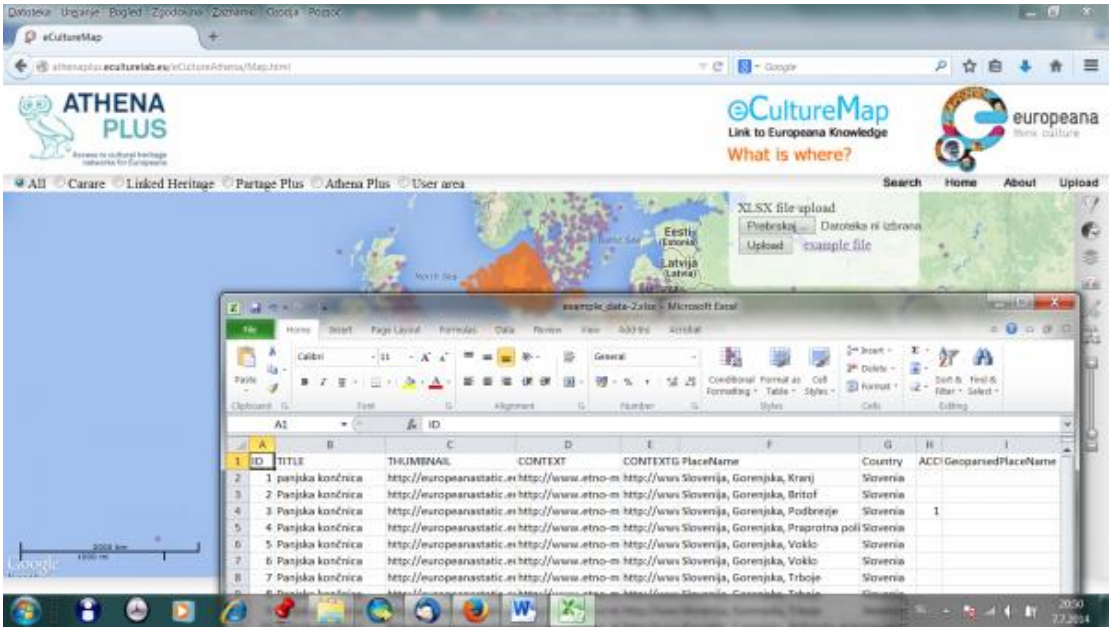
The actual route link of the pathway in this example can be traced by clicking here.

The route planning tool offer users to gather and save the information (texts, images, 3D models) on cultural content in a 20 meters radius around the selected location. The use is especially recommended for mobile tablet and use in real time when travelling by bus, car or on foot.

The route planning functionality enables displaying cultural content along the route digitized by a user. The application generates a list of all cultural content along the clicked path with distances, title and image. Each item is linked to a detail information on a content provider site or/and downloadable actual content (3D model, article, etc.)

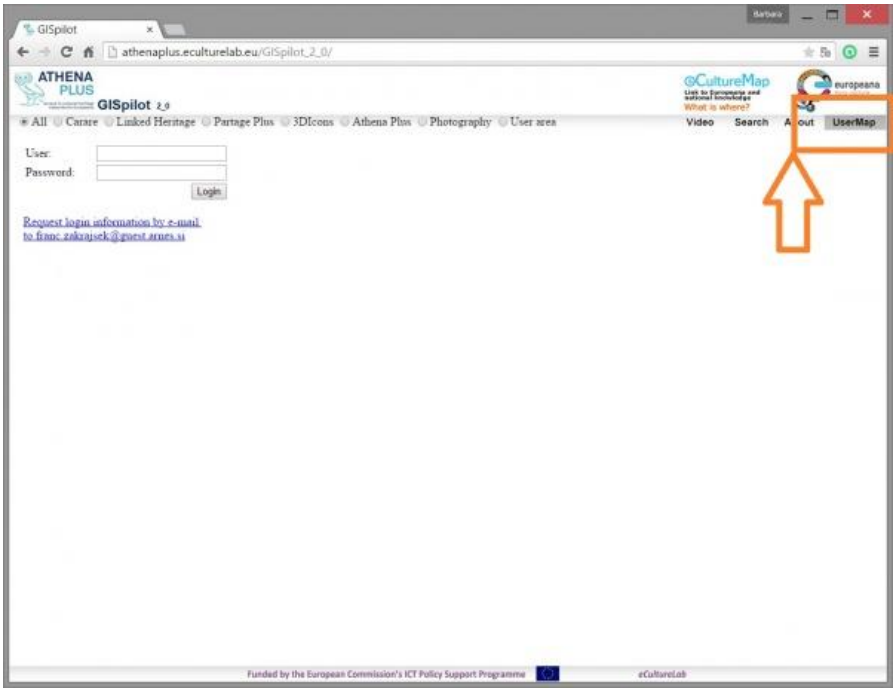
Upload the user's own content

The AthenaPlus GIS tool enables uploading the file with data in Excell format. Uploaded data are processed and displayed on the map underneath. In order to start the upload of your own content, use the following link to access the map:
http://athenaplus.eculturelab.eu/GISpilot_2_0/



Editing data in the user area

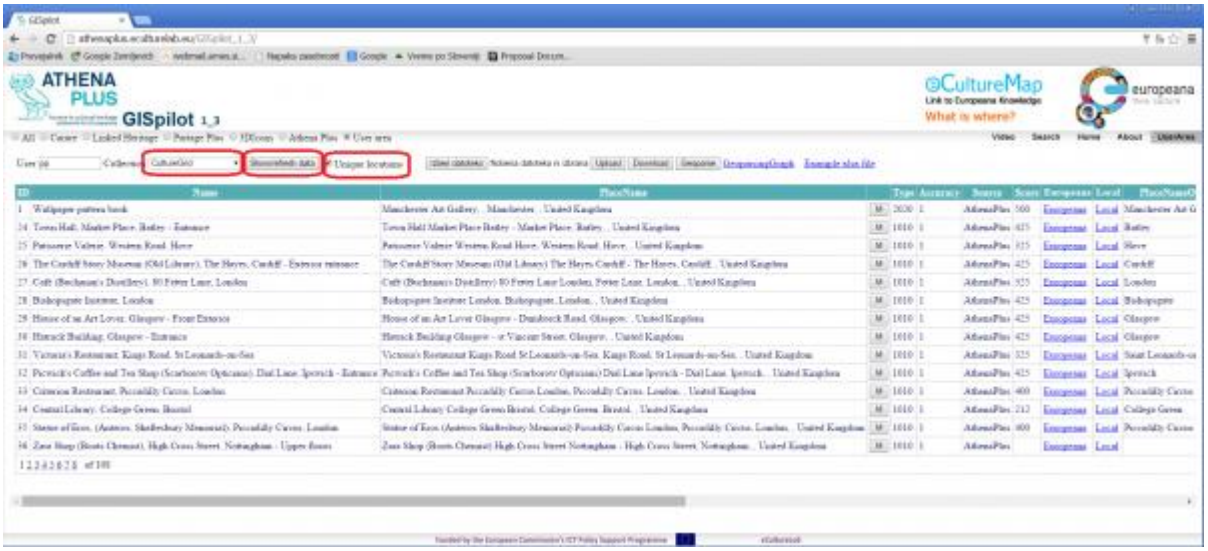
By clicking on the button 'User area' (top right corner), you are redirected to a login page.



Select from the 'Collection' drop down menu the collection you wish edit. The 'Show/refresh data' button next to the menu will refresh the data in the table below after you have done

- editing of the existing data;
- an upload of new data.

The 'Unique locations' check box will - if you have marked it - only show records that contain a unique 'PlaceName' (= third column in overview table below).



Upload file/data

Click on a the 'Browse/Choose file' button and select a new .xlsx file to upload. Your file will be uploaded when you click the 'Upload' button.

Automatically the 'Collection name' will be taken from the file name (make sure before uploading that you give your file a meaningful title in order to keep good overview in the

eCultureMap back end). If a collection with the same name already exists in the back end, it will be overwritten. To display a collection in the drop down menu, click the 'Show/refresh data' button again.

The button 'Download' (to the right of the uploaded file) allows to download any selected collection of data as an .xlsx file.

Geoparsing actions

With this tool, you can geoparse placenames that are listed in the selected collection. The geoparsing process may take up to several minutes depending on the number of unique place names listed in your collection.

Next to the 'Geoparse' button, there is a URL pointing to 'GeoparsingGraph'. Clicking it will render a graph visualisation of your geoparsing result, which may look like the screen below:



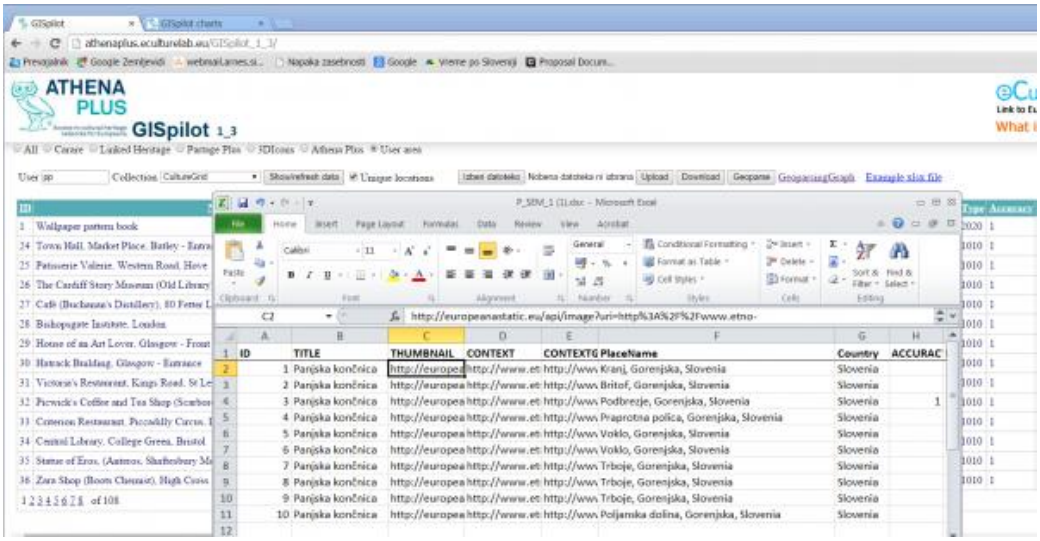
At the far right, you will see a link to 'Example xlsx file'. Clicking this downloads an example .xlsx file to help you prepare your own .xlsx for uploading and editing in the tool.

Anyone can register for an account on the eCultureMap tool - content provider, curator,... Anyone can upload links to their digital collection. Users should prepare a simple .xls file with the following data:

- object name
- link to thumbnail
- link to local/national context
- link to global context (e.g. Europeana, if available)
- geographical place name or geographical coordinates.

If geographical coordinates are not available, the geoparser web service will automatically determine them from the geographical place name. The detailed description of the

requirements for a well formed input .xls file could be found in the example file downloadable from the tool.



Editing the table

In the fourth column of the collection table, you will see a square button marked 'M'. If you click the button, you switch to a map view. You will be able to zoom in on the selected record and enable:

- editing the properties of this record;
- changing its location.

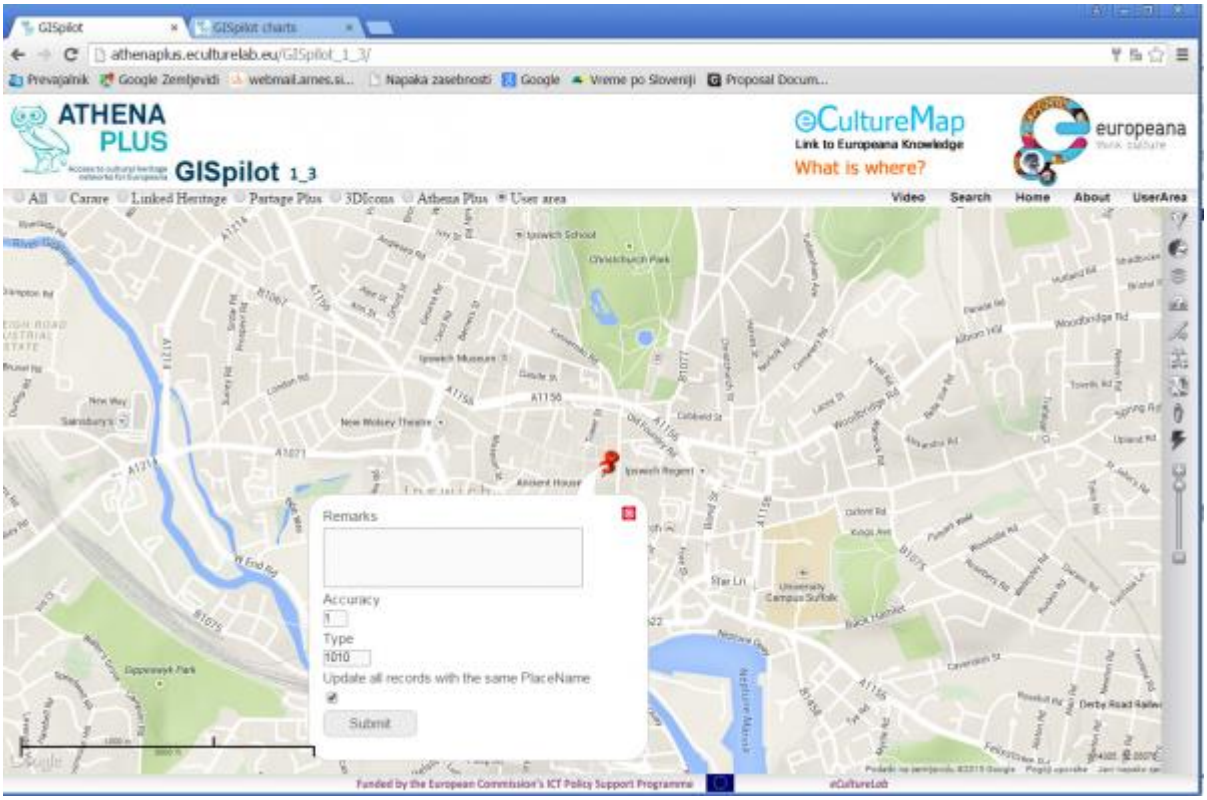
Each column can be sorted by clicking on its name in a header. A new page can be accessed by selecting a page number or pressing the arrow key.

The records are edited with the 'Lightning' icon on the map

A popup opens, and the user can edit remarks, accuracy, type of the record (archaeological heritage, built heritage, library item,...).

If the user clicks the checkbox to update all records with the same PlaceName, then all records having the same PlaceName in the table are updated with these same updates.

By clicking the 'Submit' button the record(s) are updated and displayed in the table. The user can change the view back to table view (original) by clicking on 'UserArea' - see top of page where you can also select between the different content collections available ('UserArea' is the button most to the right).



Map functionalities

Beside the usability described in the current use cases, the map itself has several functionalities:

- Basic interactive map functions (zoom to all, zoom-in, zoom-out, pan)
- Switching the basemap layer (available: Google Physical, Open Street Map, Google Satellite, Google Streets, Google Hybrid)
- The user can use a filter tool to reduce the number of digital objects displayed on the map. Because of the different languages of meta data, the automatic translation from English to native languages is provided in the background by using Microsoft Translator V2 API (e.g. filter by “castle” displays heritage containing word “château”, “Schloss,” “slot”, “castello” in the title)
- The search tool performs searching by free text among map content and presents the location of the selected object on the map - “Where is what?”. The search tool is performed by Europeana search API 2.0

Incorporating the eCultureMap to your website

The use of the eCultureMap is free for all. It is possible to embed the map or some specific features on a potential user channels or platforms. More information about this topic can be found at the incorporation tutorial page .

Anyone can register to use the full functionality of the eCultureMap and obtain login information from Franc Zakrajsek.

AthenaPlus GIS Pilot

The eCultureMap has been the subject of a pilot action in the framework of the AthenaPlus project. Several powerful features have been developed, illustrated by a couple of use cases. The link to the actual pilot implementation of the eCultureMap is available at http://athenaplus.eculturelab.eu/GISpilot_2_0/ .

The pilot action created the following results:

- eCultureMap connected with Google Street View
- Powerful refine search among items on a certain location
- Three use cases:
  - Van Wittel vedutes
  - Geocoding historical photographs
  - Architectural heritage
- eCultureMap augmented reality mobile application: it's possible to browse over two million cultural objects from the eCultureMap on mobile device. The application is free for download (Android only).
- AthenaPlus GIS Pilot APIs: two additional APIs are available for web developers of cultural heritage related portals. The API enables the reuse of eCultureMap data and can be embeded into any webpage and/or mobile application.



Urban Explore

Urban Explore application has been described in details with examples and links to instructions at the site http://wiki.athenaplus.eu/index.php/Urban_Explore_Getting_started

What is Urban Explore?

Urban Explore mobile application offers an access to the audio-visual history / memory of a place, in an original and emotional way. Based on the use of digital resources Urban Explore offers a new way of sharing and reading an area or a specific location. Convening in situ testimonies, text documents or audiovisual archives, from Europeana and other sources, the

app enables to give a singular vision of the territory: it provides access to a set of selected and edited digital cultural content according to the theme of the walk. The user embarks on an exploration: s/he is guided by the story of a speaker and navigates through the contents over the path, digital tablet in hands. The application is designed as a fully adaptable device according to the place of the visit.

The device allows the aggregation of different data within a mobile app: Europeana data, open data, user generated contents, cultural institution contents, resources from virtual exhibitions etc.

Urban explore is based on a **specific CMS integrating mobile app builder software**. This means that you build the content of the tour in the online editor, then publish it to become a mobile app. See 'Publication and installation instructions' for more info.

General functionalities

The online CMS allows building a specific tour app from a varied set of data. The following general functionalities have been implemented:

- Generation of a path on a map
- Set up of the path: colour, thickness
- Positioning of map markers for content pop up opening
- Upload of content (video, sound, image)
- Local hosting of content on the iPad for a use without connection
- Easy update
- Customising of the graphic interface: colours, logo, header, etc.
- Specific dashboard to explore, select and reuse external data (such as as Europeana data).

Use cases

The Urban Explore pilot was developed and tested for a collective visit, combining physical and digital mediation: the participants are guided by a speaker who uses the app to enrich the visit thanks to media. The participants are not autonomous, they browse content with the app after the speaker invites them to watch a picture or a video in link with a step of the visit.

Several other use cases are possible:

- In the framework of a solo visit: the user is totally autonomous in his visit path and his use of the mobile app. In this case, the user walks between different points of interest proposing media and the mediation is based on the mobile app.
- Outdoor touristic route
- Enriched urban promenades
- Indoor digital guide (in a museum, in a cultural institution, or a particular place)

Selecting the content

Urban Explore proposes several levels of content:

1. The main content
   this is made of digital resources collected, edited and integrated into the app directly by the Project owner.
2. The external content

these contents are used to enrich the main media and come from existing databases such as Europeana. They are aggregated into the app thanks to the search module of the CMS.

3. The User-generated content

this is a participative content layer directly harvesting on the social media like Youtube, Instagram, Flickr or Twitter. They are pushed on the app and aggregated to the other sources of content.

The Urban Explore application is also available in a web version for access to features and additional content. The web version is a transposition of the mobile application on the web. It retains the same design and the same content.

Urban Explore Publication instructions

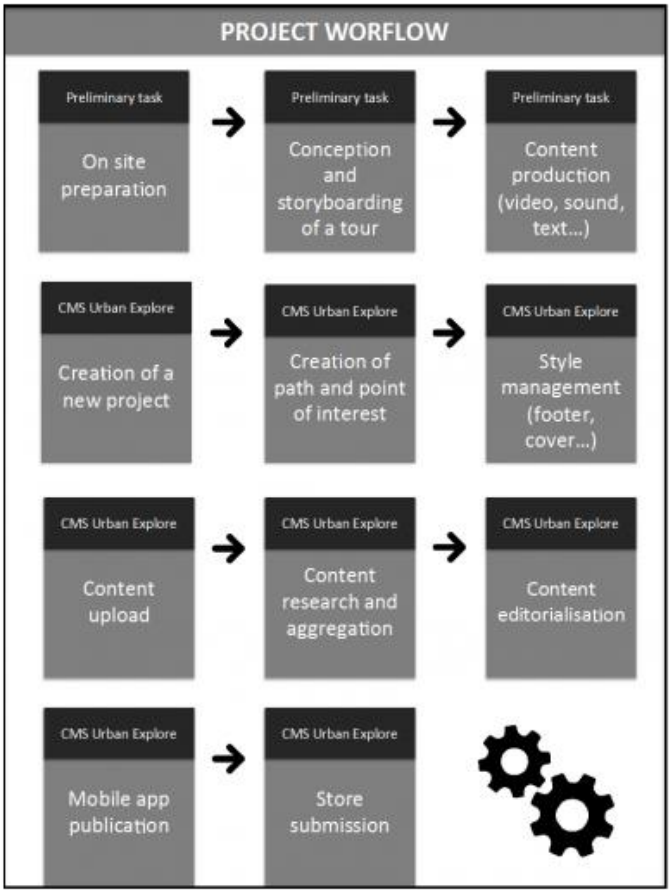
The publication process requires first to create and manage a project, and second to choose a publication mode.

This could be a store submission (only iOS currently). Below are presented selected steps in process of creation the project. Full instruction is available at:
http://wiki.athenaplus.eu/index.php?title=Urban_Explore_Publication_instructions

Target users skills

The editor is a tool for professionals from urban, culture, art and heritage fields. The use of the back office and the creation of an Urban Explore project require basic skills:

- Convert video and audio
- Image processing (resize, crop...)
- Knowledge of content management in a WordPress CMS type
- Knowledge of digital map editing with tools such as Google Maps Engine
- Knowledge of databases to harvest
- Knowledge of social networks



Trip creation

Path management

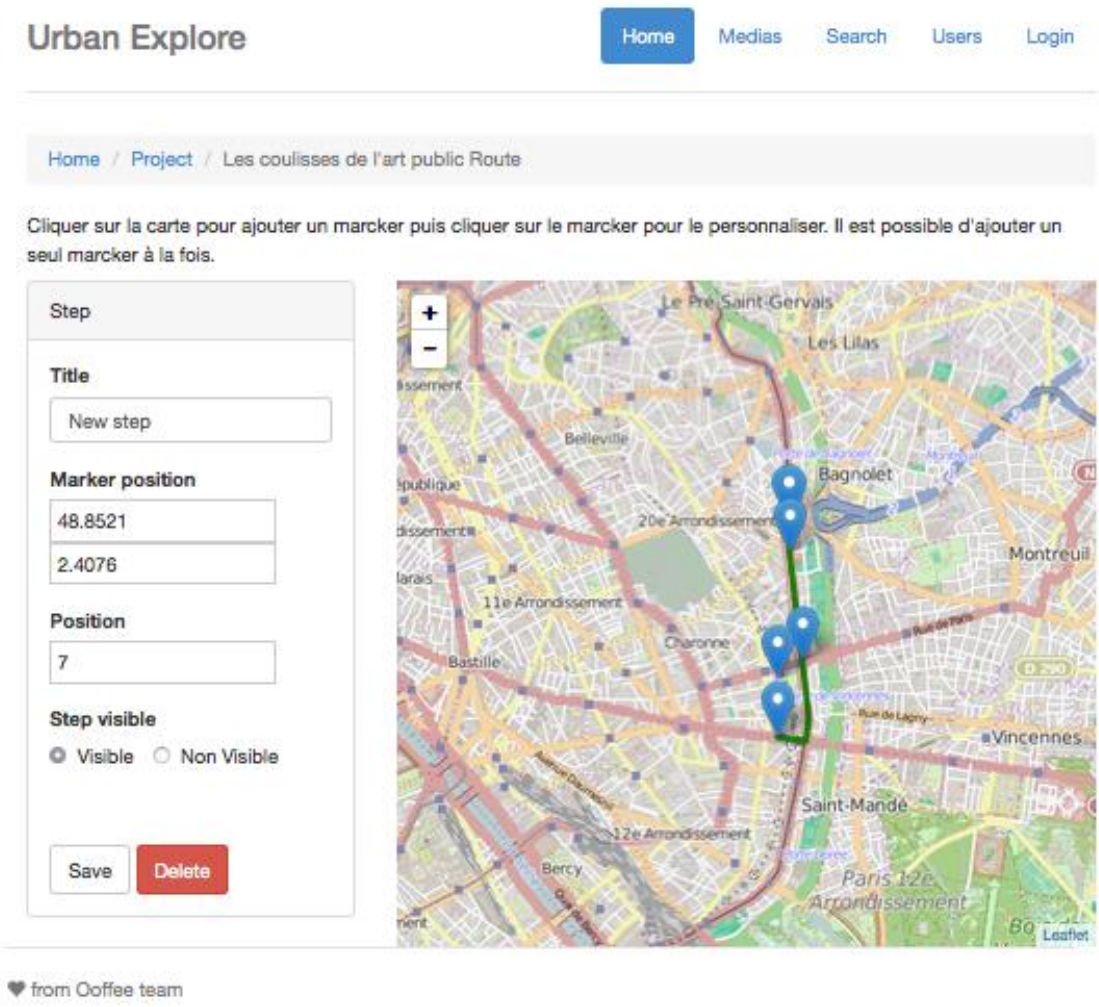
The edition of the course is the first step. It is accessible from the project dashboard and opens a mapping editor.
The editor enables to draw a route on the map and change the parameters of the line:

- Color
- Thickness
- Style

The editor enables to add or remove a waypoint on the map with a pictogram and define:

- Name of the step
- Position of the stage in the course (number)

All information entered in this part is automatically reflected in the table project dashboard part.



Home page management

The home page of a project displays a visual cover for the project, the editor enables to customize it by uploading an image. A simplified map editor can manage the zoom level of the default home page.
The editor enables to modify the content of the home page texts, 3 text fields are provided:

- Project Name
- Project Description
- Text of the party "learn more"

The text editor allows formatting rich text:

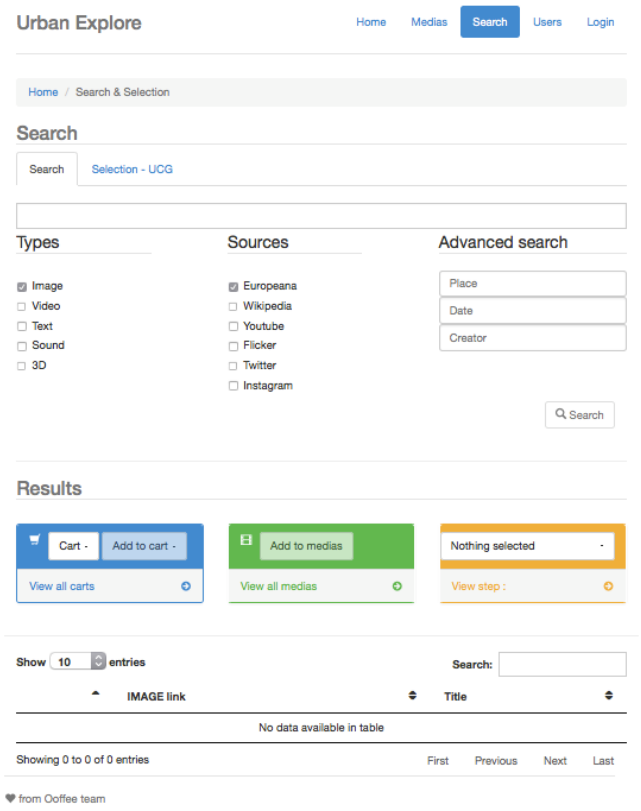
- Bold
- Italics
- Underscore
- Typo size
- Font color
- Justification
- Bulleted list / Number
- Link



Search module

Access to the search module can be done from the overall dashboard, the project dashboard and the part on step management, as well as a permanent link on all pages.

The search module enables research, selection and allocation of content from existing database and web platforms: Europeana, Wikipedia, Youtube (for now). It displays the selection of media types, selection of sources and fields of advanced search criteria.



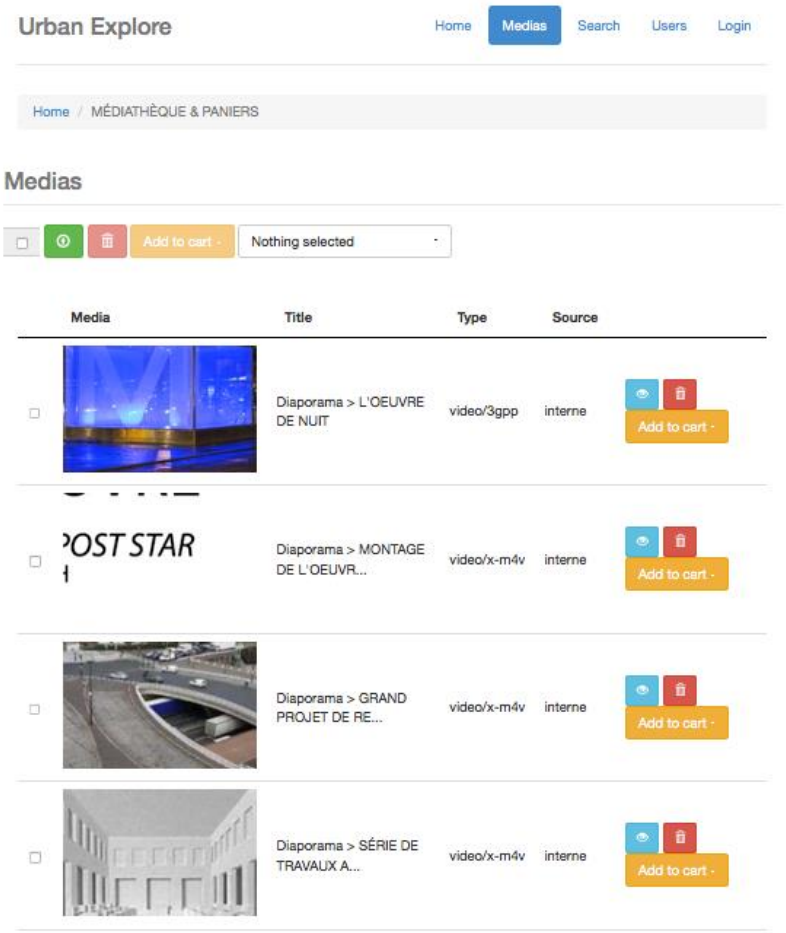
Media module

Access to the module Media and baskets is made from the overall dashboard, the project dashboard and the part for step management, as well as a permanent link on all pages.

This part of the CMS includes all the content uploaded by the user to create his visit projects. This system allows to share the content; content can be consumed in various projects.

Editing of media elements (title, description text) is done at the level of the step management, not in the MEDIA module.

The media are integrated in modules displaying a player, the title of the media and the media description. The Urban Explore application displays a module per media and several modules by step, all module elements are editable in the step management part. The editor enables to add and remove media modules in a step. The editor allows to upload or remove media and edit associated text information: title and description. Once uploaded the media can be viewed in the editor.

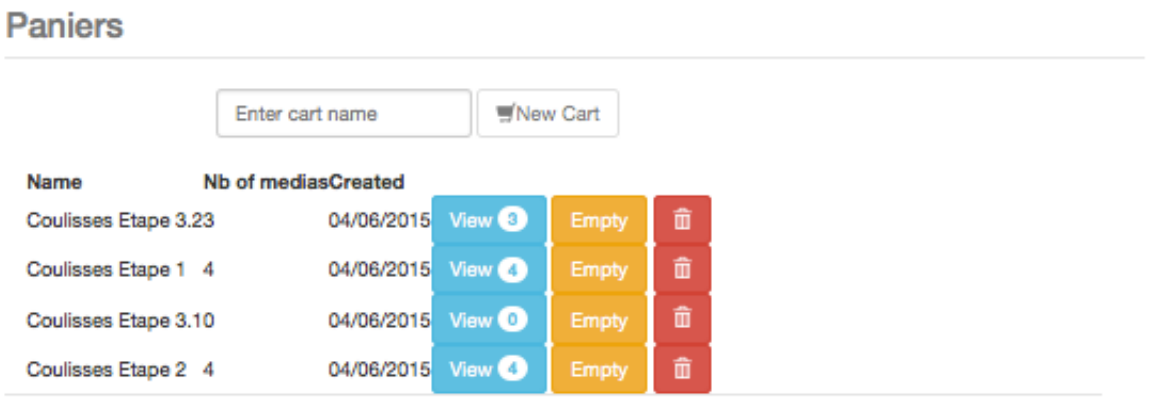


Carts

The carts are accessible from the modules SEARCH and MEDIA. The notion of cart is transverse to the project and path, the media recorded in a cart can be consumed in different projects.

From the results of a search or uploaded media, the user can create two types of carts:

- Fixed cart: displays a selection of content identified in a search at a M moment, generating a fixed cart saves the research results that have been checked.
- Dynamic Cart: displays a result according to research criteria / changes over time, the generation of a dynamic cart saves all search result items, which are then automatically updated.



Content

External content

The CMS allows to search, browse and select 2 external content sources.

Europeana

Images, videos ands sounds from Europeana are displayed into the CMS, by default the CMS provide 5 elements which can be associated to a visit project:

- Content (image…)
- Title
- URL
- Data provider
- Licence

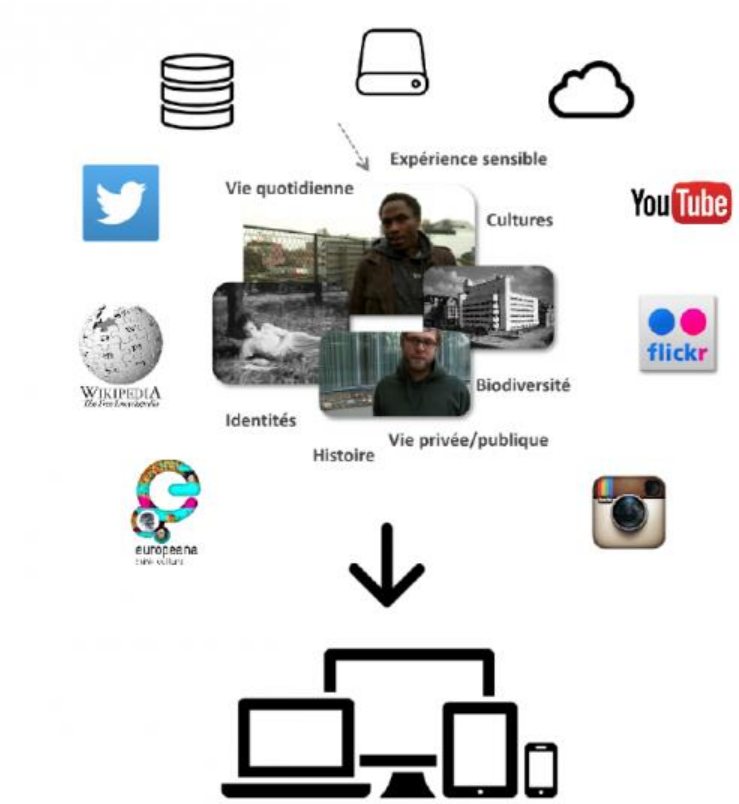
Wikipedia

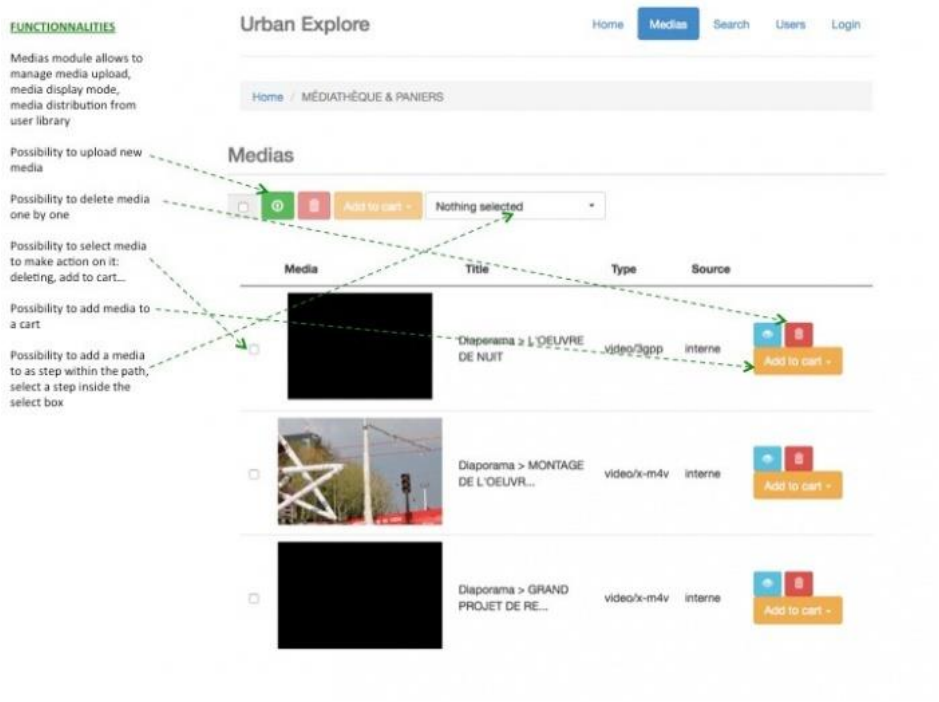
The CMS allow to search and select text from Wikipedia and extract them from a a form by default the CMS provide 2 elements which can be associated to a visit project:

- Article title
- Article sum up (first text paragraph on the top of the form)

User-generated content

The CMS also allows to search, browse and select content from social media as User-generated content. The research is made by key words or ID of user account. You can use the content from YouTube, Flickr, Instagram and Twitter.





More examples available at:
http://wiki.athenaplus.eu/index.php/Urban_Explore_Create_new_Project#CMS_User_Guide

4. BEST PRACTICE EXAMPLES

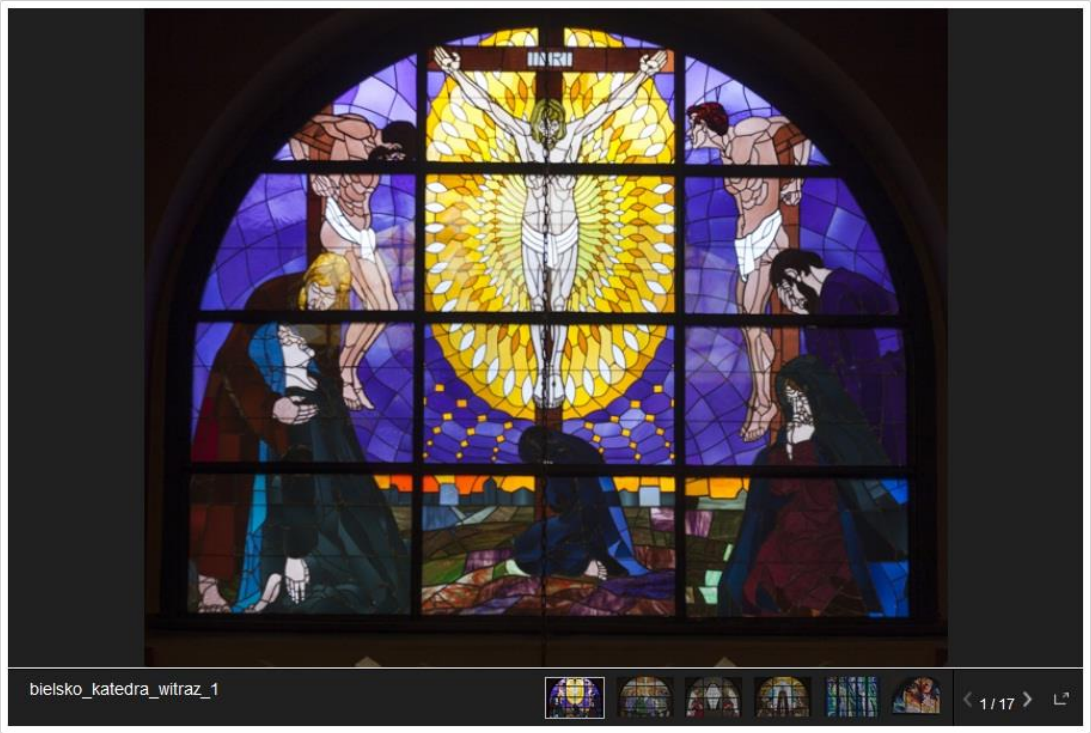
All the creative application have been developed and tested in the framework of AthenaPlus project. The most visible result, available for external users from any place at any time are virtual exhibitions. Some of them are located on the Italian Ministry of Culture server, some have been downloaded on the partners servers at the project end. The list of available online virtual exhibitions is listed at the end of this paragraph.

However the first glimpse on the work done, and features implemented by the partners can be made on the AthenaPlus blog at the address:
https://athenaplus.wordpress.com/2014/10/09/exhibitions-without-walls-movio-pilots/

Exhibitions without walls. MOVIO pilots

The advantages of digital exhibitions are obvious: Online digital exhibition can be visited by people from all over the world. Well curated exhibitions are excellent learning tools that can make accessible to the public even the most valuable and fragile works and documents, without putting the national and international cultural heritage at risk.
In the frame of the **AthenaPlus** project **MOVIO** an innovative tool to support cultural institutions in the realization of online digital exhibitions is refined and developed further by adding multilingual interfaces, and features for education and tourism. Several partners from the AthenaPlus consortium volunteered in creating pilot exhibitions with the MOVIO tool.
The examples with some selected illustrations presenting chosen features of the application can be seen on the blog. In the Manual are picked up just single illustrations for each exhibition.

Art Nouveau in the architecture of Poland





The exhibition presents Art Nouveau architecture in Poland, its diversity, motifs, details and different techniques used to ornate buildings.

*Created by: **ICIMSS**, International Centre for Information Management Systems and Services, Torun, Poland*

Architecture and Visual Arts at the Old University of Vilnius

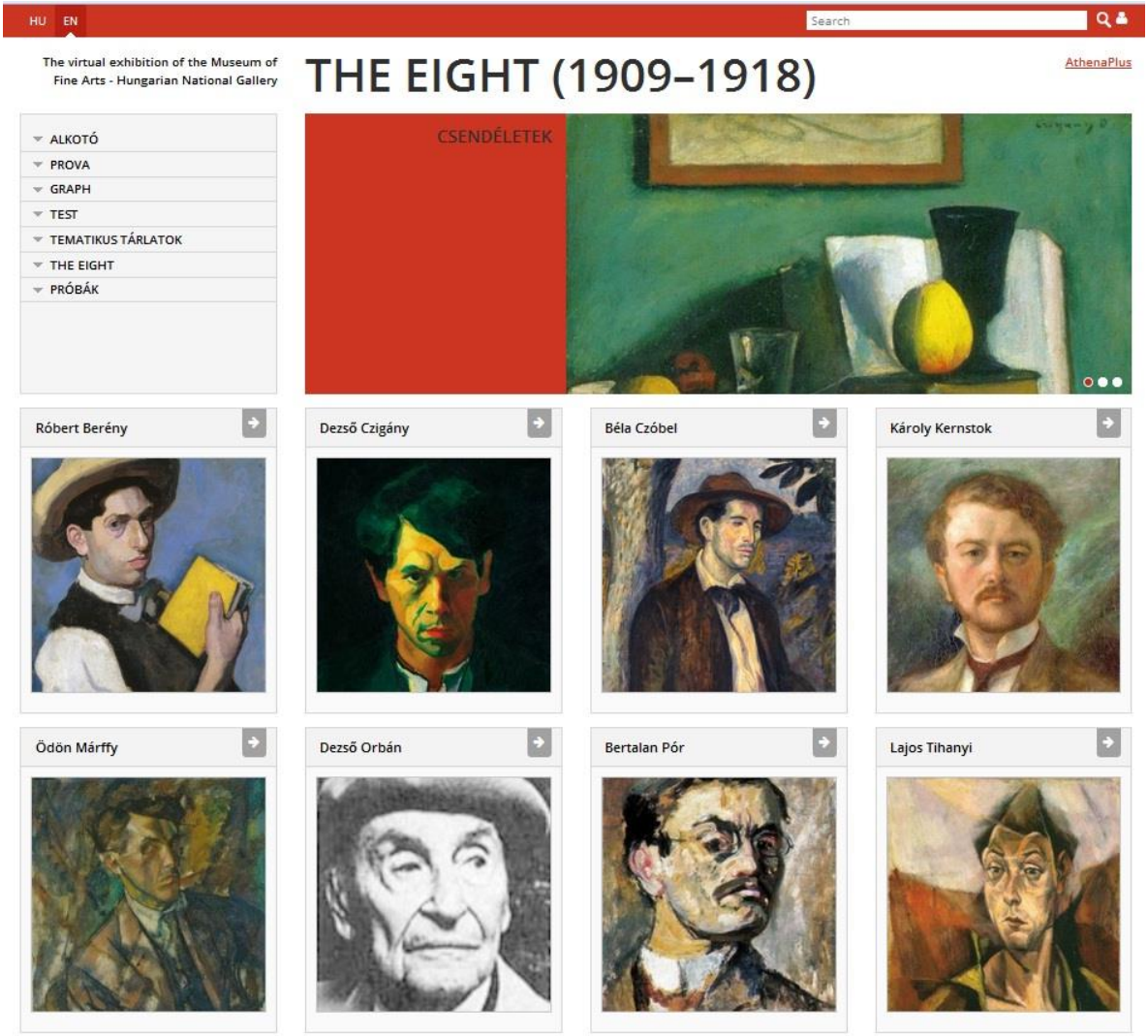


An exhibition about the University of Vilnius is done in three ways:

- Presenting history (using timelines and storyteller);
- Presenting artists (professors and students – in total 52 artists at the moment) who worked/studied at the University of Vilnius (using ontology builder);
- Presenting their artworks (using galleries, hot-spot, storyteller – in total, 212 artworks at the moment).

Created by: ***LAM*** *– Lithuanian Art Museum*

A NYOLCAK (1909–1918) / THE EIGHT (1909–1918)



Three elements of MOVIO will be emphasized: use of the Ontology builder (in context of a traditional collection browser), the Timeline function and the CMS. Testing the Storyteller function is planned at a later stage of the pilot project. We have tested the MOVIO through creating a virtual exhibition for a Hungarian group of artists called The Eight, based on different publications of previous real exhibitions.

*Created by: **MNG**, Museum of Fine Arts – Hungarian National Gallery, Budapest*

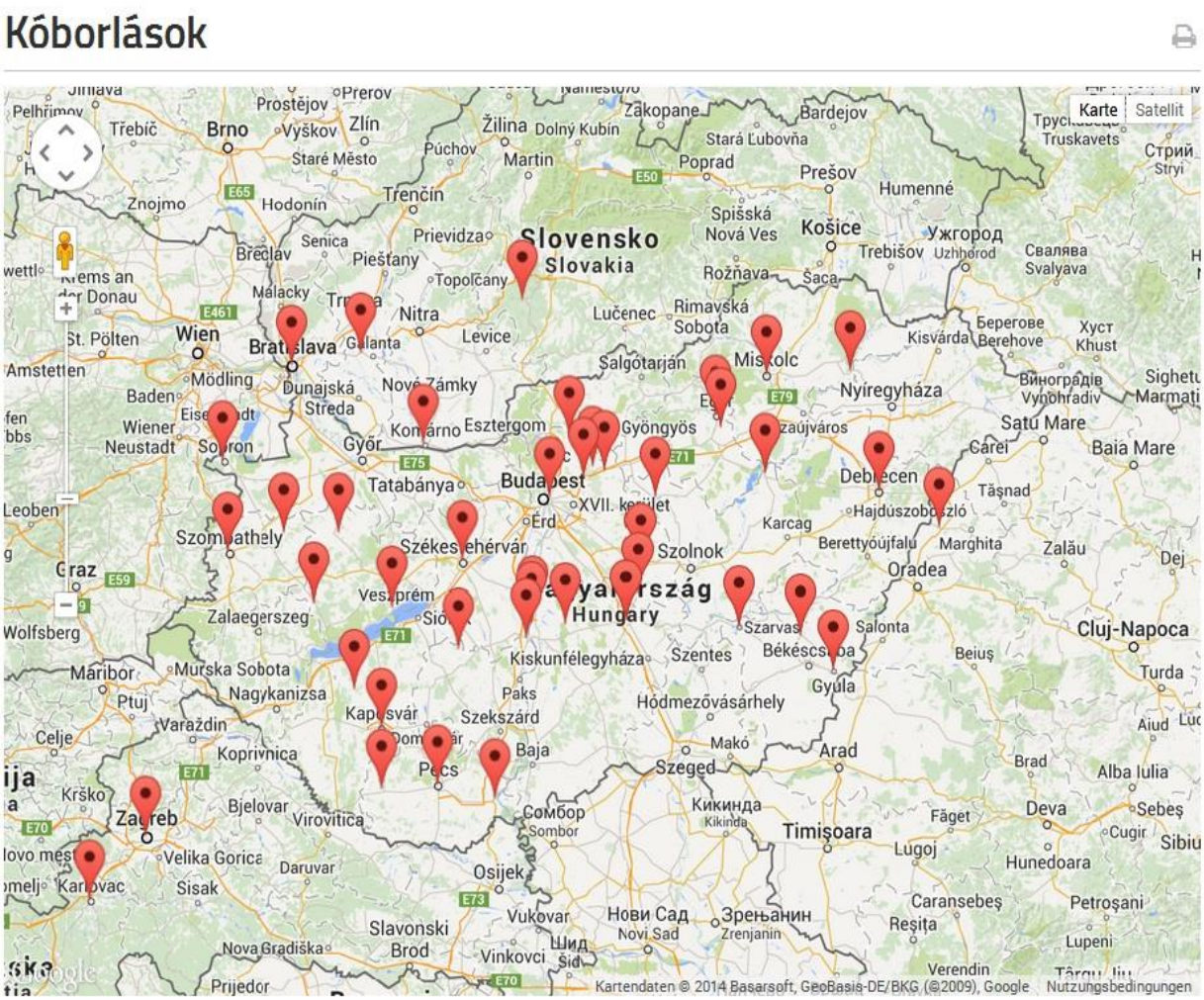
From Data to Creative Content. A Century of the Wristwatch



The exhibition shapes the story of the invention and the development of the wristwatch with items from the Museum of Arts and Crafts collection. The exhibition commemorates the centenary outbreak of the WW1 which started the production. The material is based on a corresponding temporary exhibition held this year at MUO. It contains an interactive application which tends to preserve and develop an interest in our non-material heritage.

*Created by: **MUO**, Museum of Arts and Crafts, Zagreb, Croatia*

Who am I? I will not say…



For Hungarians, Sándor Petőfi means much more than just a poet who lived many years ago: he embodies poetry itself. This exhibition was created from the materials of the permanent exhibition of PIM, which deals with Petőfi's short but intense career, and the dilemmas it involved. The virtual exhibition sketches the main periods of Petőfi's carrier and the map of his connections, but there are some new topics such as a digital footprint, a role-play, and the comments of the ‚Z' generation.

*Created by: **PIM**, Petőfi Literary Museum, Budapest, Hungary*

Queen Christina of Sweden

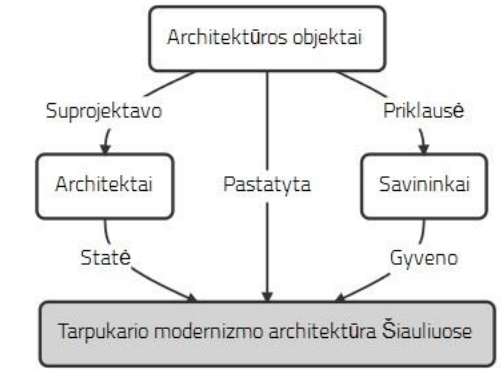


Queen Christina of Sweden (1626-1689) was one of the most famous women of her time. Few historical figures have been discussed so much and so controversial, and the impressions of Christina are as diverse as they are contradictory.

*Created by: **RA**, The Royal Armoury and Skokloster Castle with the Hallwyl Museum Foundation, Nationalmuseum, Sweden*

The Modernism Architecture of Šiauliai in 1930‘s





The digital exhibition introduces the 1930‘s architectural heritage of Šiauliai, reveals its meaning and contributes to the strengthening of the city‘s historical and cultural identity. Historical images, personalities, who owned the buildings and the architects, who created the face of the city are the key to learn about unknown Šiauliai Old Town.

*Created by: **ŠAM**, Šiauliai „Aušros“ Museum, Lithuania*

Detailed information of these and many more examples of creative projects developed with MOVIO and the other AthenaPlus creative tools can be found in D6.5 of the AthenaPlus project, which can be accessed here.

5. HELP-DESK

If you would like to make a suggestion, report any problem or obtain additional information, you can address your questions to the developers with the following forms:

MOVIO	https://docs.google.com/a/i2cat.net/forms/d/1KuacQX6XXFiDUoY0VxWy8LXn4XE5peCU0pe1bi6qhoc/viewform
Cityquest	https://docs.google.com/a/i2cat.net/forms/d/1MoWvC0AQTaX84HQHO7nVy_wDun3OS6LLLa8NogpSsnM/viewform
Schooltrip	https://docs.google.com/a/i2cat.net/forms/d/15XCy6KwzQUnuu4EqkmVsF_-Lr20b4OWz8Rbtg23xq7E/viewform
eCultureMap	https://docs.google.com/a/i2cat.net/forms/d/1Nf5K-vTJJng8UWq7AXAMPqTU5nbFl7afHWCfWz7noQ4/viewform
UrbanExplore	https://docs.google.com/a/i2cat.net/forms/d/1tGn4imqICMHWu-VZYQs1PZcPnaVOyCRHUCUFm6ge-XQ/viewform

Don't forget to add a contact email to your comment so that we can reach you!

6. FAIR USE AND BENEFICIARY OBLIGATIONS

Several of the creative applications prepared in the framework of the AthenaPlus project are available for free use as based on the open source. Therefore the interested institutions are welcome to use the created software just for a simply use for their needs or also for further development. In the case of development and improvement of the software they are obliged to offer access to this new release on the same conditions i.e. for free.

Each institution interested in the software use is expected to sign a short form of cooperation to let the developers know how good and popular their product has been. In a case of any bugs or disfunction such partnership agreement can also be used for communication and possible improvement.

7. ACKNOWLEDGMENTS

This manual is based on the creative applications developers instructions, and include materials from printed articles, leaflets, and the project blog. Apart main authors of instructions to the creative applications and creators like Sam Minnelli, Barbara Dierickx, Franc Zakrajsek, Claire Loucopoulos and Julien Brouillard, we thank to the project coordinators Maria Teresa Natale, Rosella Caffo and Simonetta Buttò who inspired and managed the entire process.

APPENDIX 1. GUIDELINES FOR INVOLVING USERS IN THE DESIGN OF YOUR PILOT

Innovation is a very important asset for organisations. However, innovation driven only by technological push has a market risk. Companies may find themselves in a situation where they have a promising engineered innovation in their hands while users will ignore it, because it was designed and marketed out of the user experience. Hence, it is essential to reach out to external stakeholders, and organise actions in which we can hear their opinions and suggestions.

One proven and tested way to solve the gap between technology and society is to involve the prospective users into the process of developing these innovations. The involvement of users on innovation research ensures that the products and services have not only a "user touch" but also a user point of view and the user experiences included. Including users as participants, co-creators, co-designers, first usability evaluators and other roles on the innovation projects diminishes the risk of project failure and increases the probabilities of a successful technology.

To this end, the purpose of this document is to provide pilot partners with a set of recommendations to assist them in organizing sessions in which the external users' feedback, both professionals and prospective visitors, can be generated and collected.

Before the session...

Strategies to launch sessions with users

The main point for you to consider is to seek synergies with your own activities, so that you can add a "Get to know our project" session at some convenient point. Here's a set of things you can do:

End users

- Schools and high schools visiting your institution are a great opportunity. Before the visit, discuss with the teacher the possibility of using some time to present your project to the students and the teachers, and have them fill a feedback questionnaire afterwards.

- Organise a session to present your project at a local library or community center.

- If you have an open museum day (i.e. in Barcelona many museums have free entrance every Sunday after 3pm), you can consider setting up a small stand in a corner. This stand would have some promotional posters, a few computers in which the interested visitors can check out your creative project, and a staff member answering questions and making sure that each visitor who has accessed the creative project fills in a questionnaire.

Professionals

- For large institutions, you can organise a training session with the creative tools with participants from other departments.
- Organisations which have a budget to organise training workshops are strongly encouraged to administer the questionnaires and/or the interview guide to the workshop's participants, either as a paper form at the end of the session or via an online form a few days after.
- You can also organise a dedicated creative tools training session for the local professional associations (this is especially indicated for those organisations interested in the education and tourism sectors).

Tips for recruiting users

Here are a few tips to recruit users:

- Communicate with the prospective participants through your usual channels. If you have a monthly newsletter, announce that you will be holding a session to present your project. If you have a website or presence in social media, run a short newspiece on it.
- If you'll be offering some refreshments, do not fail to mention this fact in the recruitment communication: believe it or not, it does make a difference ;)
- To manage the registration of participants, you can use a free event planning tool such as www.eventbrite.com
- In cases in which you recruit the participants individually (that is, not as part as an organisation such as a school or a professional association), you may expect as many as half of the registered participants to not show up.

During the session...

The realisation of a user involvement action integrates, generally, a six-step process:

1. Welcoming
2. Presenting the activity
3. Preparation for the activity
4. Core activity
5. Feedback collection
6. Thanking, rewarding and closing

The core activity of the session may be different depending on whether the participants are end users or professional users:

- In the case of sessions with professionals, the core activity will be a short training session, in which the workshop leader shows the promotional material available on the creative tool, goes over some examples of projects created with the tool (so that attendees learn about the possibilities of the tool), and gives some basic ideas on how to work with the backend.
- In sessions with end users, the core activity will be promotion and dissemination, in which the staff member running the event tries to get visitors to access the creative project and provide their feedback afterwards.

General principles for user involvement

During the preparation and coordination of user involvement actions, the project partners will keep in mind general principles such as:

- Users are helping you. They have no obligation to you or your research in spite of their potential interest in your technologies.
- Ask them if they would like to be involved in this research and commit them to give insights.
- Remember them that the research takes some time and effort both for them and you as a researcher.
- Remember that they are very generous to assist to your activities and to give you their time.
- Treat them very respectfully.
- Be patient with their ignorance of the technology that they are exploring.
- Facilitate their participation.
- Make the event a good experience to them.
- Thank them for everything.
- Share some photos with them as a souvenir of the activity to share with others (and the odds to come back next time will increase)

Tips for running sessions with users

- The main gold rules to be considered when preparing user involvement activities are:
- Activities have to be prepared in a positive and non-stressful mood for everybody, including the researchers.
- First at all, be sure that technology is really working and ready to be used for the users. Don‘t make users wait for technical preparations. When they arrive, everything should be ready to be tested or displayed. Respect their time.
- Don’t forget items for registering data on the event (photo camera, notebooks, etc).
- Don’t forget any printed questionnaire you consider necessary to use and enough copies and pen/pencils for each user.
- Foresee any additional material you’ll need such as promotional material, markers, etc.
- It is much recommended to have an assistant researcher to help you making pictures; observing and interviewing the users as you’ll do run the workshop.

After the session...

After the session, it’s time to collect the feedback and report the event. Generating feedback on the participants’ experience is what gives you the ability to adapt to their recommendations and make use of their suggestions.

Collecting the feedback

Several feedback collection tools, ready to use, were included in D6.1 of the AthenaPlus project, which you can access here. These comprise end user questionnaires, professional questionnaires, interview guides, etc.

Pilots are encouraged to adapt these to their contexts, for example by:

- Translating the questionnaires to their local language
- Adding, removing or rewording questions if needed
- Changing graphical elements (i.e. adding the pilot institution's logo)

An online version of the questionnaires can also be easily created with Google Forms, which sometimes helps in administering the questionnaire after the event and analysing the results.

APPENDIX 2. THE EXPERIENCE OF USING MOVIO. INSIGHTS FROM PILOT MAKERS

During the month of April 2015, interviews with six of the piloting institutions were conducted in order to gather a final feedback on the usage of MOVIO in the context of cultural heritage institutions, focusing particularly on organisational changes, concrete insights on MOVIO and insights on the topic of digital exhibitions.

The interviewees were:

- Donatas Snarskis – "*Architecture and visual arts in the Old University of Vilnius*" Lithuanian Art Museum (LAM), Lithuania.
- Iva Mestrovic and Petra Milovac – "*A century of wrist watches*" Museum of Arts and Crafts (MUO), Croatia.
- Marina Battaglini and Paola Puglisi – "*Gaspar van Wittel's drawings for Vedute*" Central National Library of Rome (BNCR), Italy.
- Piotr Kozurno – "*Art Noveau in the architecture of Poland*" The International Center for Information Management Systems and Services (ICIMSS), Poland.
- Karin Glasemann – "*Exhibiton on Queen Cristina of Sweden*" Nationalmuseum Sweden; Royal Armory; LSH, Sweden.
- Jovita Vilimaitiene – "*The Modernism Architecture of Šiauliai in 1930's*" Šiauliai Aušros Museum (SAM), Lithuania.

What follows is an overview of the questions and the gathered answers.

1. Was the exhibition the result of a team effort – requiring the expertise and support of different departments of the museum? Or was it mainly developed by an individual person?

The digital exhibition was, in all the cases, the result of a team effort. Different people contributed with their own specific knowledge to create a well-functioning exhibition: in every instance at least two persons worked on the pilot.

If the institution taking part to the pilot activity was a museum, then various departments were contacted during the creation of the digital exhibition. If the institution didn't have departments – as for example ICIMSS – the exhibition still resulted from the joined efforts of various people.

Collecting materials, information and images, organising the content, and structuring the exhibition often required the support of additional people, for example curators, photographers, technicians able to work with digital tools, or people managing the digitized contents.

2. Did you hire additional staff to create the pilot, or did you perform this with in-house manpower?

The pilot was mainly performed with in-house manpower.

The only exception was MUO, where the exhibition was created by Iva Mestrovic and Petra Milovac: they work exclusively on European projects thus could be considered to be additional staff.

3. How aware/unaware was management level of the pilot trajectory and eventual outcomes? Do you think there's an interest at top level in incorporating digital tools such as the ones offered in AthenaPlus?

The management level of both smaller and bigger institutions was mostly well aware of the pilot trajectory. It was also interested in incorporating digital tools in order to promote and present the institution's digitized collection and to involve a larger number of visitors.

The only exception was the Nationalmuseum Sweden, where management level was not well aware of Athena Plus tools and benefits. The piloting activity was performed without the aim of publishing the exhibition as MOVIO was considered to be an interesting tool but for smaller museums.

4. Has taking part in the pilots changed in any way the way you work with digital tools in the museum? Did the pilot trajectory – getting acquainted with the tool, learning how to work with it, thinking about how to make it work in relation to the collection in the institution, adding the content, seeing mistakes or bugs, trying again, …. – have any resonance/consequences in what would be considered as the 'normal', everyday way of working in the museum? Could you say that there has been any measurable change on how some issues in the museum were and are handled pre- and post-pilot?

The consequences of working with MOVIO are different for every institution and concern mainly three aspects: the everyday way of working in the institution, the production of digital exhibitions and the understanding of digital tools.

Regarding the daily way of working in the institution, no major post-pilot changes can be measured for the institutions, such as BCNR, that have been working and dealing with digitised materials for years. Slightly different is the situation for those institutions like ICIMSS or MUO that never had to create a digital exhibition before: the way they work in the institution changed only during the pilot activity, as some of their daily issues were shifted from the physical to the digital realm; there are however no measurable consequences once the pilot experience was over.

Great post-pilot improvements can be seen in the production of digital exhibitions for those institutions that didn't have much experience in this field before starting the pilot activity: thanks to the various features of MOVIO they learnt new ways to make their digital exhibitions more attractive and efficient.

Lastly, there are two consequences on the understanding of digital tools:

On one hand, participating in the pilot has led to new knowledge on the utilisation and functions of the digital tools. For example, an important insight for LAM was that digital tools must be chosen wisely and used strategically in order to fully benefit from their potential and achieve all the targets; the key element to do so is the content.

On the other hand taking part in the pilot activity has contributed towards a new awareness on the benefits that digital tools can bring about in cultural heritage institutions. For example, the Nationalmuseum Sweden realised that its internal database is not only a management tool, but can also produce interesting data for a broader public: with digital tools, this new information can be presented and promoted. Furthermore, digital tools enable the institutions

to promote the cultural heritage, to reach a broader public, to prolong the life of temporary exhibitions by moving them to the digital world, to display fragile materials, to create exhibitions that are easily accessible and portable on smartphones and tablets. These and other aspects are discussed in the following questions.

5. Can you tell us why you used MOVIO to create a digital exhibition on this specific subject?

This being a pilot activity to test the tool, the primary reason that determined the choice of the subject was the availability of materials: almost all institutions reused materials and information of previous physical exhibitions or projects.

There were also some secondary reasons. LAM for example focused its digital exhibition on the same topic as that of a permanent exhibition in order to be able to incorporate the digital exhibition into the physical one. The decision was also dictated by the possibility of interaction between MOVIO and other digital tools they were testing at the same time, and of cooperation with other institutions.

ICIMSS and SAM both chose an architectural subject. The former wanted to test the possibilities of MOVIO as applied to an exhibition on architecture, the latter found MOVIO's attractive features and functions particularly suitable for the architectural theme.

6. Now that you've spent almost a year working with MOVIO, what do you think is the key to create a great digital exhibition?

Different key aspects were highlighted. First of all, the digital exhibition needs to be founded on a strong idea with a clear message. This idea has to be supported by a careful choice of the materials to display which requires a thorough knowledge of one's digitised collection. A good tip is to choose materials that are visually attractive. Once the content has been chosen, it is essential to create a story able to express the core message of the exhibition. To do so, the various technical functions and features must be chosen and used wisely to best enhance the subject and add extra value.

If the digital exhibition is going to be integrated into a physical one, it is important that it doesn't replicate the physical exhibition digitally: on the contrary, it should present a different approach to the subject and offer features and experiences that cannot be achieved in the physical environment of the exhibition.

Lastly, enthusiasm, time and patience contribute as well to the creation of a great digital exhibition.

7. Which functionalities do you think add the greatest value to a digital exhibition? Geolocalised data, interactive applications, multimedia storytelling tools, etc.?

Digital exhibitions allow for enriching the content, highlighting relations and telling stories in ways that cannot be achieved through physical exhibitions. They can also integrate other digital tools and resources. Therefore, all the functionalities of MOVIO were considered by the pilot institutions to be very important and the choice of which functionalities to use strongly depends on the subject of the digital exhibition.

The ontology builder, the multimedia storytelling, the timeline, the possibility to integrate Europeana APIs and geolocalised data are the functionalities that most of the institutions mentioned because they offered the possibility to enhance the content differently than in physical exhibitions.

However, as MUO and ICIMSS pointed out, it is often the variety of these functionalities in itself that adds the greatest value: used together, these functionalities create a diverse and complex structure that not only can present its content to visitors in new and different ways, but also allows visitors to freely explore the exhibition through the functionalities they like best.

8. Do you think cultural heritage institutions can use digital tools such as digital exhibitions to connect to a broader public? How?

All the institutions agreed that digital exhibitions can definitely be used by cultural heritage institutions to connect to a broader public because of various aspects: their location online, that allows visitors from all over the world to explore the exhibitions; the ease of access, not bound to the institutions' opening hours; the feature of multilingualism; and the possibility to prolong the life of temporary exhibitions in the digital environment.

Moreover, digital technologies are widely used for work and pleasure in our daily life so the presentation of digital collections using creative digital tools helps to connect the institutions to contemporary society.

Different ways to reach a larger audience were proposed: linking the digital exhibition on the website of the institution; linking it to other relevant websites; connecting the content that appears in the exhibition to other resources; promoting the digital exhibition as it would be done for a physical one, keeping in mind that the fact that it is online doesn't entail that the public is going to find it; raising consciousness among relevant groups of people who might have specific interests in the digital exhibition.

9. Was the virtual exhibition integrated with a physical one? If so, how was it integrated and what kind of results would you say it produced?

In each case, the digital exhibition was based on a physical exhibition (or on a previous project as for ICIMSS) as it reused the same materials, but was not integrated. This was mainly due to the fact that the activity the institutions were conducting was a pilot. In the future, some of the institutions will integrate physical and digital exhibitions.

10. Could you say that there are subjects that are better fit for a virtual exhibition than a physical one?

All institutions answered affirmatively. Some of the examples of subjects that are considered to be better fit for a digital exhibition include: fragile objects; objects sensitive to light and/or temperature; drawings, documents and papers; jewelry; small-sized objects; objects located far away from each other and/or impossible to move or transport; objects that can't be displayed due to a lack of room in the exhibition spaces.

The advantages of showing these kinds of objects in a digital exhibition are not only the possibility to enjoy them in high resolution and to zoom in to see the details, but also to present them to a broader public in spite of their fragile and sensitive nature. Moreover, it could also prove to be less expensive than moving and transporting all the objects to the site of the physical exhibition.

However, LAM affirmed that all digital exhibitions should be connected to physical ones, as the physical content is considered to be more important than the digital, unstable one. This point of view is not shared or raised by the other institutions.

11. What is your perception of a digital exhibition in comparison with a physical one? Do you think it has some kind of added value or would you say that it represents a

loss of what could be considered the core of an exhibition (for example the materiality of the objects)?

The opinion on digital exhibitions is quite unanimous: they cannot replace physical exhibitions, but represent something different and are surely highly valuable.

As both physical and digital exhibitions have their own losses and limits, in almost all cases it was agreed that the best practice would be to use them together in order to achieve an integral system. There should always be some digital counterpart to what is displayed in physical exhibitions. The level of independence that the digital part should have depends mainly on the decision of each institution: digital exhibitions can work as additions to physical exhibitions, or be completely independent systems that interact with the physical exhibitions.

A digital exhibition certainly has distinct advantages:

Firstly, it can promote the digitised objects and allows for curating the digitised collection that is normally plainly displayed on the institutions' websites without telling any kind of story.

Secondly, it is a good learning resource: digitised objects can be studied more easily and can be reached by a broader public.

Another important element is that a digital exhibition can extend the life of a temporary exhibition by transferring it from the physical into the digital world.

It also allows visitors to access additional information and relations between objects, and to explore the exhibition according to their own preferences; in addition to this, it offers the possibility to zoom in and see a higher number of details.

Lastly, a digital exhibition offers accessibility and portability on both tablets and smartphones – a very useful aspect if, as in the case of SAM, the digital exhibition is about the architecture or the history of a specific city: by accessing it on their portable devices, visitors can walk around the city following the exhibition and see the changes that have occurred in time.

12. What kind of experience do you think visitors can have in a digital environment, as opposed to a physical one?

Digital exhibitions offer different features than physical exhibitions so the experience for the visitors is definitely different as well.

One of the most evident and significant differences is the level of visitors' involvement. First of all, in a digital environment there are no opening and closing hours thus visitors are free to access the exhibition at any moment and visit it for an unlimited timespan. If they wish to see again some parts of the exhibition, they can easily go back to the relevant content. Visitors can leave the exhibition at any given moment and use different digital resources to find other information.

There is also a different level of freedom than in a physical exhibition: visitors can participate in various ways, follow a wide range of learning paths or create their own by choosing what they wish to learn and see. The content can offer more diverse materials, be displayed in different contexts and present more entries. The experience can also be more interactive as it can present video, sounds, effects, games, etc.

In conclusion, digital environments certainly make it easier for visitors to connect individually to certain stories, offer a wider freedom for the public to engage the exhibition and encourage a deeper involvement of their users.

Conclusion

The interviews outlined a set of good practices that cultural heritage institutions can follow in order to use the digital tools such as MOVIO to create great digital exhibitions.

A digital exhibition results from the joined efforts of various people working in the institution. To start, it is important to think about the concept that will lay the foundations of the digital exhibition. This means not only to come up with a strong idea and a clear message, but also to decide whether the digital exhibition will work as an addition to the physical exhibition, or be a completely independent system that interacts with the physical exhibition.

The concept needs to be supported by a careful choice of the materials to display. This requires a thorough knowledge of one's digitised collection. Even when the digital exhibition works as an addition to the physical one, it should never simply mirror its physical counterpart. In fact, the digital exhibition offers the possibility to display objects that would be problematic to show in a physical exhibition, such as fragile and sensitive objects, small-sized objects, materials located far away from each other, and so on.

Once the content has been chosen, it is essential to create a story able to express the core message of the exhibition. To do so, the various technical functions and features must be chosen and used wisely. It is essential in this phase to enhance the subject and offer features and experiences that cannot be achieved in the physical environment of the exhibition. This choice shapes the experience that visitors will have when visiting the digital exhibition – an experience that offers a wider freedom for the public to engage the exhibition and encourages deeper involvement of the users.

The perception of digital exhibitions outlined in the interviews is of something different than physical exhibitions and highly valuable. Not only do digital exhibitions enable the institutions to promote the cultural heritage and reach a broader public, they also help in the connection of cultural institutions to contemporary society and offer numerous advantages in the process of creating the exhibition and in the resulting visitors' experience.

APPENDIX 3. RECOMMENDED LITERATURE

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Ciurea Cristian, Filip Florin Gheorghe, *Multi-Criteria Analysis in Choosing IT&C Platforms for Creative Digital Works*, Uncommon Culture: Creative Digital 2015, vol. 6, no. 2 p.21-27

Dierickx Barbara, Julien Brouillard, Claire Loucopoulos (2013). *Report on existing tools and devices related to narrative approaches and requirement functionalities*. http://athenaplus.eu/getFile.php?id=178

Digital storytelling and cultural heritage: stakes and opportunities, edited by AthenaPlus WP5 "Creative applications for the reuse of cultural resources"; texts by Julien Brouillard & Claire Loucopoulos, Dédale (France), Barbara Dierickx, Packed available for free download at http://athenaplus.eu/index.php?en/169/publications

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