Exhibiting Intangible Cultural Heritage using MOVIO: a multilingual toolkit for creating curated digital exhibitions, made available by the AthenaPlus project

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Abstract

A collection of digital items such as images, videos, audios, documents, does not constitute an exhibition: only when the items are carefully selected to illustrate a topic, and are tied together in a narrative or a logical itinerary, they constitute a digital exhibition. Digital exhibitions can be edited in such a way that they can provide alternative or denser experiences to the real event, involving the user in a process of discovery, knowledge acquisition, and learning of tangible and intangible cultural heritage. In 2011, the Italian Ministry for Cultural Heritage edited guidelines for realising digital exhibitions, a handbook successfully translated in English and even in Arabic. Afterwards, thanks to a funding by Fondazione Telecom Italia, ICCU, a central institute of the Ministry, coordinated the development of the open source tool MOVIO, which allows cultural institutions to edit digital exhibitions as well as to tell digital stories. The tool, realised by GruppoMeta, supports multilingualism in the back and front-end. The curator may edit the contents using different tools integrated in the software: media archive, ontology builder, storyteller, different types of image galleries, hotspots, maps, timeline, etc. The kit can be easily used by GLAMs to realise digital exhibitions in order to valorise intangible cultural heritage. During AthenaPlus[1], a European funded project coordinated by ICCU and composed by 40 partners from 21 Member States, MOVIO is further developed in order to include tools, which will facilitate the reuse of content in the field of education and tourism. It will also include a Europeana API, which will be the base to allow digital curators to enrich content.

Keywords: digital exhibitions, virtual exhibitions, MOVIO, intangible heritage, GLAM, intangible, toolkit, museum manager and curators, cultural diversity, oral traditions, performing arts, social practices, events narration, knowledge traditional crafts, storytelling, ontology, media, different communities, intercultural dialogue, cultural heritage, recording, transcriptions, Europeana, AthenaPlus, tools for documentation, promotion and dissemination, different groups of users, (re)discover (re)use less-known cultural asset, tourism, education.

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[1] AthenaPlus (2013-2015) stands for Access to cultural heritage networks for Europeana. It is a CIP best Practice network coordinated by the ICCU and composed by 40 partners from 21 Member States whose main goal is to supply Europeana, the European portal of digital cultural resources, with almost 3.5 m records. The AthenaPlus partners are also developing tools for the creative reuse of digital cultural resources and the enhancement of the multilingualism in the digital environments. All resources and information can be found at www.athenaplus.eu.

Introduction

Over the last decade the real exhibitions are even more matched with digital exhibitions that replicate on the web the actual ones. The meeting between languages and methods of traditional (i.e. non virtual) cultural promotion and the dissemination of knowledge through web-based approaches have created new languages and narrative ways that make possible to reach a wider audience than before, including people with physical impairments, facing mobility barriers or time restrictions to visit the real exhibitions.

The virtual exhibitions are not a collection of digital items such as images, videos, audios, documents without an evident *fil rouge* otherwise they are not an exhibition: only when the items are carefully selected to illustrate a topic, and are tied together in a narrative or a logical itinerary and published on the web, they constitute a digital exhibition. However they can't neither reply the real show nor use the identical language because the media are different. Digital exhibitions can be edited in such a way that they can provide alternative or denser experiences to the real event, involving the user in a process of discovery, knowledge acquisition, and learning of tangible and intangible cultural heritage.

The Italian Ministry of cultural heritage, tourism and activities organised in 2010 a working group made up of experts of the Ministry, local authorities and also private bodies from different cultural domains (libraries, archives, museums) whose work gave rise to the first Italian guidelines for the realisation of digital exhibitions[2]. This handbook had a considerable success and was also integrated and translated into English and Arabic by an international group of experts within the INDICATE project[3].

The theoretical work carried out by the Italian working group on digital exhibitions became very soon a project proposal for the realisation of a tool that put into effect the suggestions provided in the handbook and can be an effective, easy-to-use and cost-saving resource for the cultural institutions that want to create digital exhibitions. The MOVIO project (MOVIO stands for MOstre VIrtuali Online)[4] was realised by the Central Institute for the Union Catalogue of the Italian Libraries (ICCU), a body of the Ministry, and GruppoMeta for the technical side thanks to a grant of the Fondazione Telecom Italia that in 2011 funded 7 projects supporting the enhancement of the 'invisible heritage'[5]. It was recognised that MOVIO could play a fundamental role in giving visibility to the unknown or unexplored heritage that is often closed in storehouses and, at the same time, assuring the long term accessibility to the mass of knowledge generated by the temporary exhibitions that, for their nature, have a limited life span.

MOVIO is a kit of tools enabling all cultural institutions, independently from their public or private nature, to create and publish easily narrations targeted both to experts and non-skilled audiences; it helps the exhibition curators to edit the contents using different tools integrated in the software: media archive, ontology builder, storyteller, different types of image galleries, hotspots, maps,

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[2] "Mostre virtuali online. Linee guida per la realizzazione", 2011, http://www.otebac.it/index.php?it/320/mostre-virtuali-online-linee-guida-per-la-digitalizzazione
[3] "Handbook on virtual exhibitions and virtual performances", 2012, http://www.indicate-project.eu/getFile.php?id=412
[4] The information about the MOVIO project as developed in Italy are available at www.movio.beniculturali.it
[5] http://www.fondazionetelecomitalia.it/bandi/bandi/beni-culturali-invisibili/43/progetti-finanziati

timeline, etc. MOVIO supports multilingualism in the back and front-end and it is released with the MIT license that allows the widest possible reuse of the software[6].

The MOVIO kit has different components and services:

- **CMS MOVIO**, the open source content management system for the realisation of the virtual exhibitions; it can be accessed via web and as microsite via mobile devices using both the Apple and Android operative systems;
- **MOVIO APP**, to access the virtual exhibition through mobiles;
- **MOVIO HUB**, the catalogue of the real and digital exhibitions, a native mobile APP connecting all MOVIO instances;
- **Online wiki tutorials** and **training courses** on the use of MOVIO and the implementation of the guidelines for realizing virtual exhibitions (the manuals are in English and Italian, the video recordings are in English).

The MOVIO project included a test phase with real use cases: curators from museums, libraries, archives, and universities experimented the first release of the CMS and provided feedback about the functionalities of the software. Nine digital exhibitions are now online[7]; they range from archaeology to contemporary art to architecture. MOVIO has also proven to be extremely flexible: it has been used by the University of Modena and Reggio Emilia as source of information and archives of the training material produce along a series of laboratories. Many other exhibitions are under construction.

Further developments[8] are expected for MOVIO: it is currently further developed in the framework of the AthenaPlus project in order to include tools which will facilitate the reuse of content in the field of education and tourism. Those tools will also include a Europeana API, which will be the base source to allow digital curators to enrich content. The final results are expected in August 2015.

MOVIO achieved a resounding and unexpected success: after the launch in March 2014 several training courses were organised by AthenaPlus in Croatia, Italy, Poland, Lithuania, Romania and several hundreds of attendees participated; other appointments are planned in late 2014. The interest in the tool is demonstrating that MOVIO could fill a gap providing not only an innovative and performing tool for the creation of digital exhibitions, but also a core platform of information and good practices in support of the process of intellectual creation that is behind every exhibition.

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[6] http://opensource.org/licenses/MIT
[7] http://www.movio.beniculturali.it/index.php?it/68/mostre-realizzate
[8] All information about MOVIO development are available in the AthenaPlus Wiki, http://wiki.athenaplus.eu which includes also video tutorials and other training documentation on the tool. The Wiki is managed by the Belgian partner PACKED vzw.

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Figure 1: Training course of MOVIO in Rome, at ICCU (MiBACT) on May 2014.

The (end) users

At the time of writing, MOVIO is designed mainly as a tool for the creation of digital exhibitions. On going developments are expanding the toolkit to use in education and tourism as well. This is why we identify the following key stakeholders:
- Staff from GLAM-organisations
  o Collection managers
  o Curators
  o Marketing team
  o Heritage mediators
- Tourism organisations
- Educators
- Students
- The general public
- Researchers

During the first phase of AthenaPlus project, the focus is mainly on the GLAM-staff. When developing the tool, the AthenaPlus team collected information on the needs of these people involved and based on this, defined the requirements initially focusing and vertically configuring MOVIO for these GLAM professional users. This revealed some fundamental aspects in relation to the creative applications for the (re)use and (re)discover of cultural heritage content.

Starting from a **general end user** of a digital exhibition, we can identify a role as mere **visitor** or a role, which tends more towards a **user** side. This distinction in patterns requires for multiple navigation modes; one to freely explore the content offered in the exhibition, allowing for more interaction; and one to follow a predefined, if possible even personalised path[9] which provides

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[9] Currently developments are on going to allow users to log into the front end interface of MOVIO and choosing their own role (e.g. student, tourist, …). Based on some general profiles, the user can access all the published content in addition, they can access personalized navigation if logged in.

selected chunks of information. A user of an exhibition is also more likely to interact with the contents presented in the exhibition; this is why MOVIO also includes comment fields, and soon option buttons to share certain parts of the exhibition through social media channels.

Access for the **general end user** should be equally interesting and visually appealing on multiple platforms. The representation of an exhibition in MOVIO is therefore compliant with display on different devices such as tablets, mobile devices, laptops, smart-blackboards, etc. Another aspect of access optimisation is the provision of multilingual features throughout both back- and front-end of MOVIO. A **user** benefits from multilingualism in the case where an exhibition is made available in more than one language (e.g. Italian version and a copy in an English version). A **curator** benefits from multilingualism at the side of the exhibition's creation. The back-end interface of MOVIO exists in several languages, with new languages being added gradually[10]. This means that the entire functionality of MOVIO (all action buttons, system messages, etc.) can be available in the language of the curator creating the exhibition. This severely lowers the barrier of the tool's use.

MOVIO is designed to become teamwork platform for GLAMs: The **curator** might take the responsibility to create the storyline and make semantic connections between the items or collections that are represented. The **collection manager** will provide the digital material (reproductions, metadata) to the curator as base material. The **marketing** team will make efforts to disseminate and advertise the finished product (managing the presentations of the exhibition), while the **heritage mediation** team might use the exhibition in specific mediation programmes. All of them will use the same back-end with different user profiles.

The creation of a digital exhibition might be entirely virtual and addressing intangible cultural content, or might actually become the digital counterpart and extension of a real-world exhibition. In the last case, a great deal of the preparatory work to create a digital exhibition is already done. There might e.g. already be some kind of narratives which can be (re)used, a storyline by which to present the featured content(s). There might also even be texts – although these require rewriting in order to adapt them to an online context. Such exhibitions offer the benefit of not being linked to space and time constraints; they can act as a kind of archive or prolongation of the physical alternative, which usually is only available for a selected period of time. In these cases, the work of the **curator** is already to a great extent finished. But still, transferring from an analogue to a digital context requires the readiness of your digital material. This is often where the **collection managers** come in: they have to make sure content is IPR cleared before it can be published online; there has to be a sufficient amount of metadata, the content should be stored somewhere in order to make it available through the MOVIO interface. The preparation of the content might even entail digital image manipulation such as adapting sizes for optimal display in the MOVIO front-end.

Specific to MOVIO is the possibility to create an elaborate navigation between the contents that make up the exhibition. The **curator** is able to layout a path, but also to semantically connect various parts or elements of the story to be told (using the Ontology Builder). Specific instruments in MOVIO provide depth to the story: storytelling instruments, interactive timelines and interactive mapping but also personalised word lists or vocabularies. These lists function like a glossary and provide links between contents or elements, and additional annotations.

Apart from making use of the content coming from the own institution or the one prepared by the collection manager, MOVIO also allows the integration of related content via sources such as the

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[10] At the time of writing the MOVIO back-end is available in English, Italian and it is going to be translated in further 15 languages.

Europeana API. This way, more[11] than 30 million objects from more than 2,300 institutions from 36 different countries are made accessible and do not need to be processed-in again by content contributors, before use and display in MOVIO: any subject can use such resources with the licenses published on Europeana the same.

The main requisite that came about during all consultation was that a tool such as MOVIO **should not** fully automatically create digital exhibitions, tourist routes, or educational packages but rather enable the curation by an expert.

Moving on to the use scenarios of MOVIO in the future, we foresee also the use of MOVIO by educators and students.

Some of the tools offered by MOVIO

MOVIO enables the GLAM curators, managers and the editorial staff to use it in many ways: from the creation of a simple website up to a complete visitor guide with personalization and mobile applications and customized navigation modes using conceptual maps, QR code readers, interactive geographical maps, time-line creation and much, much more. In this section we will describe some of the tools targeting the support of intangible exhibition creation process.
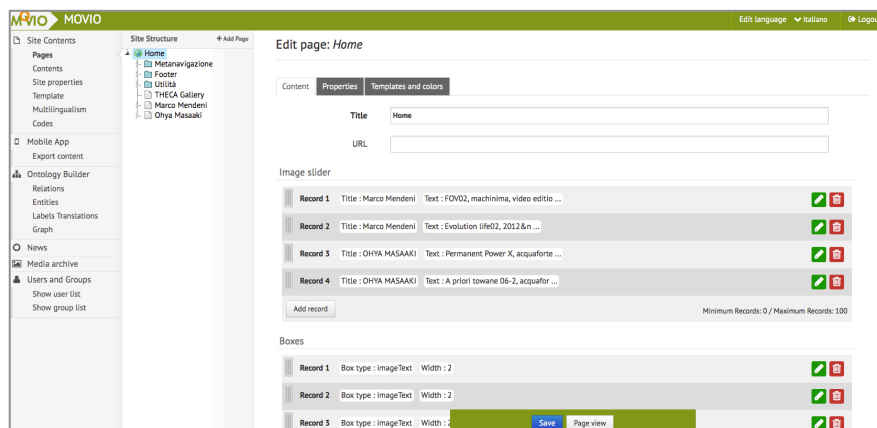

Figure 2: MOVIO back-end interface.

The back end of MOVIO is very simple and needs no IT expertise: MOVIO satisfies user needs from primary media gallery creation up to on-line promotion and further more with the creation of personalized narrative approaches and fully mobile marketing and communication level. In fact, the first and most basic need of any small archive or museum is the creation of a media gallery and later on the museums need on-line sites and mobile and personalized ways of (re)use and creating intangible promotion models.

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[11] Source statistics: Europeana, November 2013: http://pro.euroepeana.eu/content
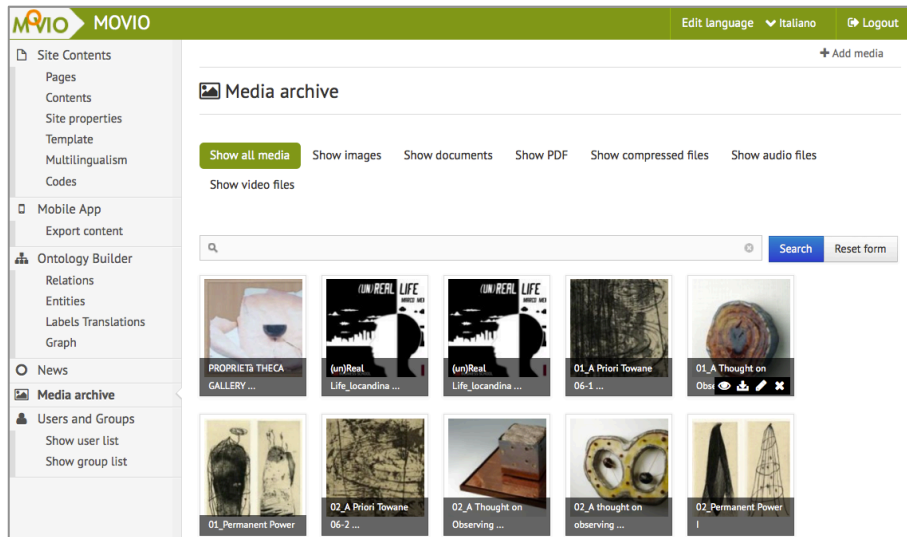
Figure 3: MOVIO back-end, the media archive (images, courtesy Theca Gallery, Lugano).

Ontology builder: Leaving a model where the curators used a linear corridor of narration, now thematic paths can be created instead, correlating content items and personalizing the content fruition.

The Ontology Builder is the back-end tool for managing the *entities*, the *relations* and a*ttributes* connecting the *entities* (to which the curator may associate documents, images and other media).

The *relations* between *entities* are expressed by verbs: this guarantees the correctness of the logical path connecting them. The final result of the map can be visualized by the curator (from the back-end) and by the end user from the front-end even in portions (see next figure).
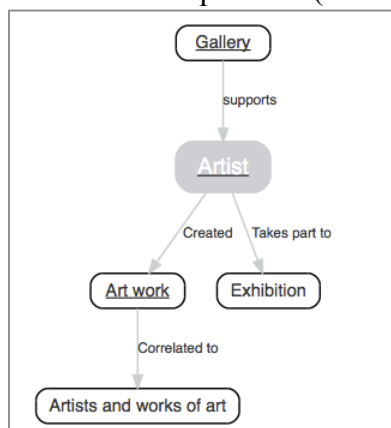

Figure 4. **Example of how a simplified conceptual map can be created through the Ontology Builder in MOVIO SCMS.**

The user can access the list of the contents represented by an *entity*, simply by clicking on it. (in the previous figure, selecting 'Artist' you would be redirected to the artists page). Each content item can then be navigated in terms of description and eventually be played (for videos). The curator creates cards and descriptions thanks to the Module Builder that allows the curator to create a personalized metadata schema describing the exhibition and include textual description, photographic galleries, visual media play, etc.

Storyteller: The storyteller is an instrument to narrate stories. Three are the main ingredients of the storytelling: the story (in intangible digital exhibitions we use digital media contents); the author/storyteller (in the case of such digital exhibitions, this role is performed by the curator); the public (who will read, listen and, interact socially commenting, etc.). As such, the MOVIO SCMS

(Semantic Content Management System) is the most adequate instrument for having a digital continuation of the storytelling tradition with the added value of public direct involvement. To best follow the storytelling process, we decided to design a vertical sequence template, which presents on the narration line texts, video, images, etc. In-depth contents will be linked by means of the Ontology Builder and as same as in Blogs, each narration item has a permalink to be quoted or shared as a single relevant piece of knowledge.
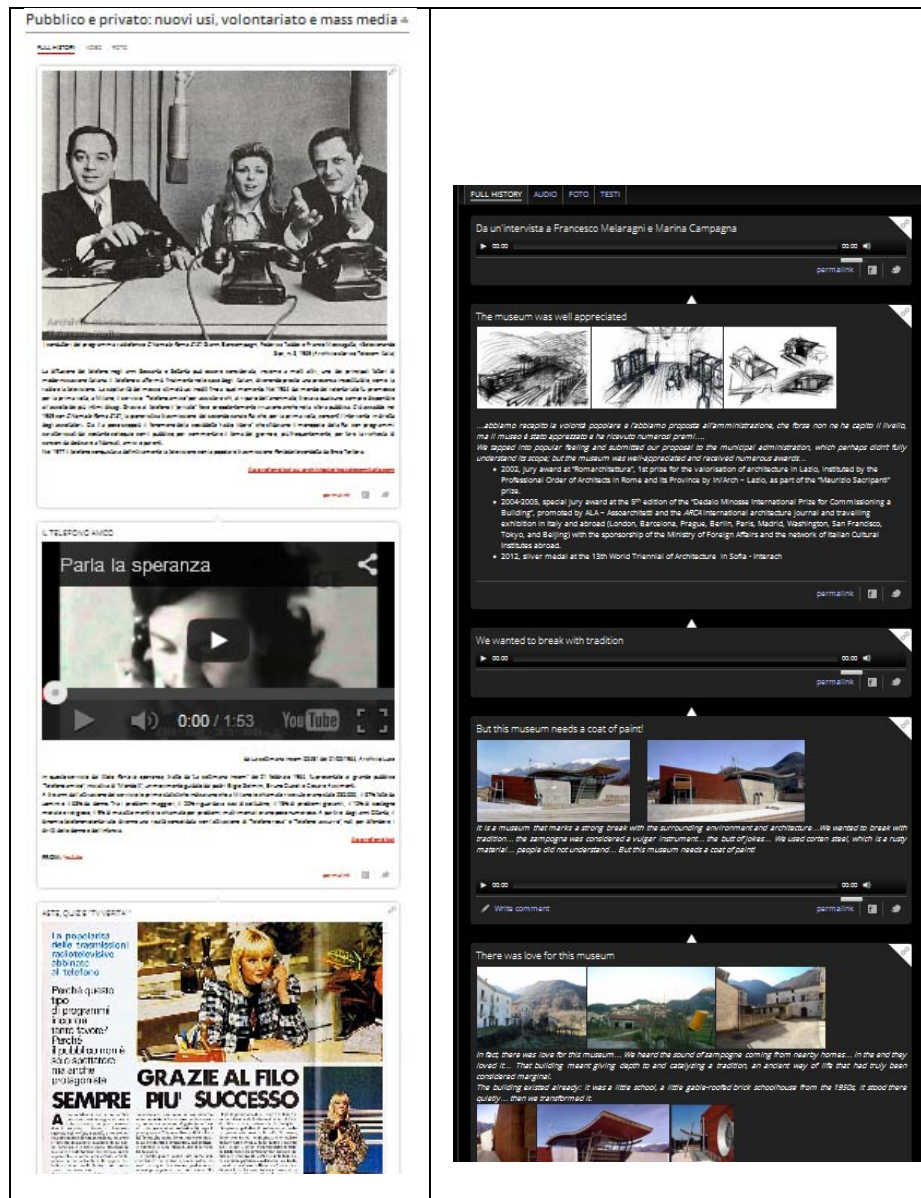

Figure 5: Mock-ups of the components of a narration in the storyteller module.

Vocabulary: GLAMs curators and content managers can create personalized vocabularies with three different formats: *Generic* (fully personalized); *Geographic* (as example: Europe > Italy > Tuscany > Florence) with a pin on a geographical map; *Event* with the possibility to define events and associate them to a timeline.

Europeana API[12]: the back-end of MOVIO includes a dedicated connector to Europeana. This connector enables the curators and editorial managers to execute content searches on Europeana and link them to the content on the MOVIO front-end.

(1)

(2)

(3)

Figure 6: through the back-end, (1) the curator can associate Europeana content to the current narration; (2) on the front-end the user can find the Europeana related content and (3) open one of them and be redirected to the Europeana page.

Semantic multimedia content management approach

After the involvement of cultural curators, researchers and cultural mediators we identified the most relevant user requirements needed to support content (re)use and (re)discover. The most innovative aspect of MOVIO is the fact that the content is no more managed as 'put in a box' for later use: MOVIO allows the curators to add content and structure media by already using a semantic conceptual organization and personalized vocabularies. As a consequence MOVIO enables institutions and cultural subjects to create virtual exhibitions and narrations following conceptual maps.

The semantic approach of MOVIO allows the use of the available formatted information for preparing virtual exhibitions and creating virtual versions of real exhibitions thus, providing a continuity from the virtual to the real exhibition. MOVIO enables a vertical semantic multimedia content management system (SMCMS) specialised in the management and promotion of exhibitions: it contains tools, templates, and repositories, designed and developed for a better

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[12] API: Application Programming Interface

support to museums, curators and exhibitors. The system gives the opportunity to prepare semantic queries using special relations, and it integrates tools for the management of routes allowing the creation of custom paths. MOVIO supports the creation of ad hoc description cards, provides support functions for the preparation, the enjoyment and the sharing of the virtual exhibition.

MOVIO HUB

MOVIO enables the cultural institutions to autonomously customize and enhance the interface and its functionalities. We imagined that one day all the MOVIO instances could be connected and channelled through one only mobile channel, a HUB. Starting from a local vision we expanded the goals to a broad and more powerful paradigm.

Figure 7: autonomous vision. The GLAM can create its own MOVIO instance and create, publish and update mobile applications

Starting form a localized vision, the innovative opportunity for cultural and educational or tourism stakeholders is having the possibility to connect all the MOVIO instances together and make them accessible from a single natively mobile instance with no additional effort from the side of the curators as the different single MOVIO instances are already interoperable.

Figure 8: a collaborative marketing vision. Many GLAMs instances of MOVIO are channelled together through a dedicated platform called HUB.

The HUB would indirectly offer broader visibility to Europeana content (as it is already connected to each MOVIO instance), it would enable better promotion and cultural marketing and (re)discover and bookmark and correlate less-known cultural assets.

Technological platform

The MOVIO architecture[13] uses completely open source technologies and in particular the Glizy framework: Glizy is an open source framework implemented using PHP and maintained by GruppoMeta. This framework is object oriented and aims at providing a layered approach. As shown in **Figure 9**, Glizy will manage the interaction among the presentation layer (namely the front-end), the publishing layer (namely the back-end interfaces and services) and the data layer (the back-end data storage and management).
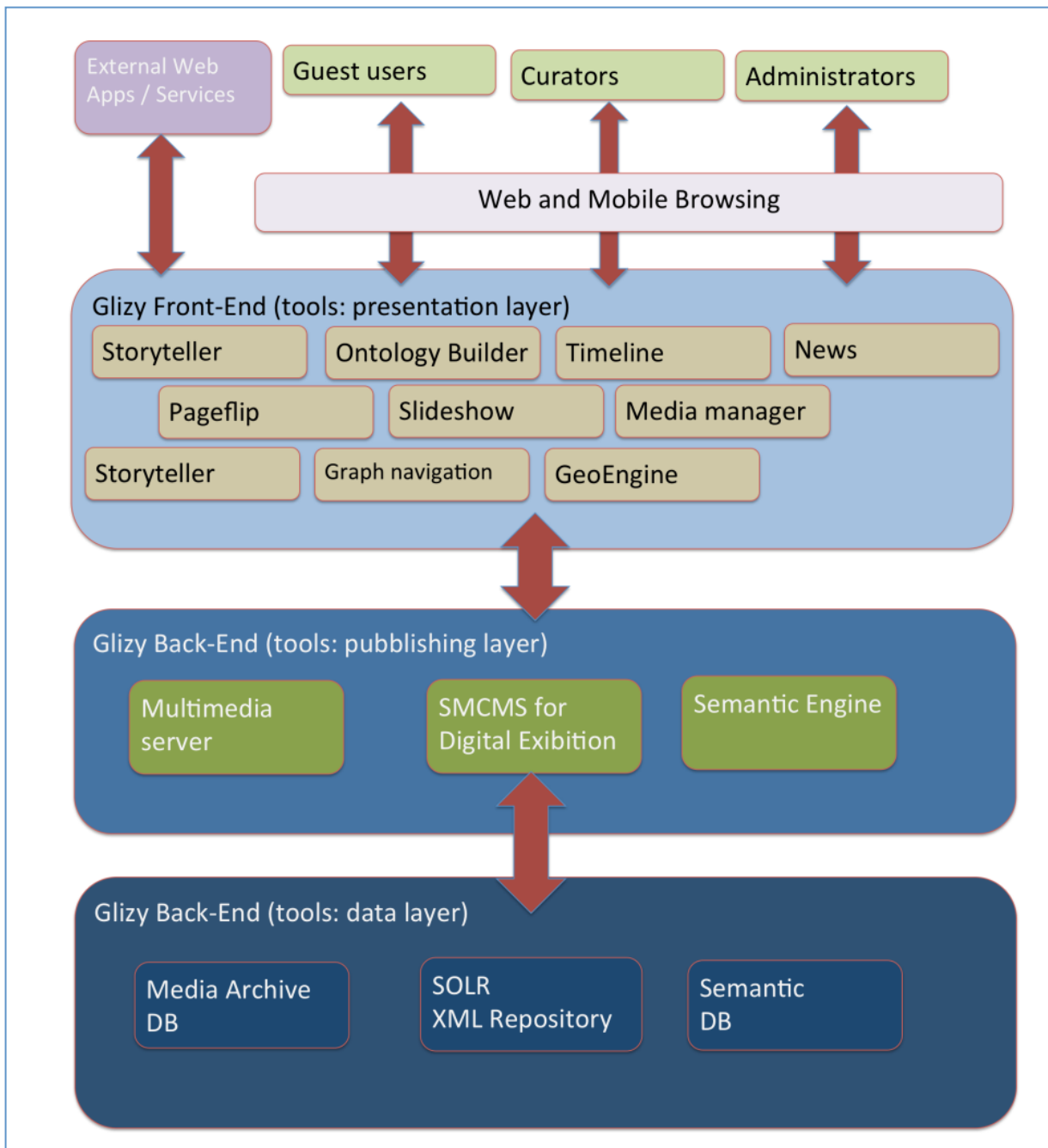

Figure 9: MOVIO conceptual architecture, Glizy framework.

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Glizy is a customizable platform, very flexible and scalable, that allows developers to add new modules and to modify the existing ones by creating new functional classes and templates. As anticipated, Glizy is an object-oriented framework and it allows the creation of elementary operations.

The communication among the different layers of Glizy is performed through special object types, which act as containers and data descriptors. Web Services methods can be published and internal Glizy services can be activated inside the framework (in this case the layer communication is performed through messaging with the following methods: events, observers, listeners).

Glizy's services are built to be independent so that they can be activated or disabled and it will be possible to develop additional services without the need to modify the existing architecture.

Glizy framework is based on the 'design pattern' model and thus different services will be added as plug-ins to the existing architecture following a Service Oriented Architecture approach (SOA).

Case stories and results: intangible exhibits

Some Italian institutions and private organisations already published some graceful websites and have personalized the Italian MOVIO instance to promote and narrate their collections. Among the others we would like to put into evidence private ones like the Historical Archive of Telecom Italia[14] (narrating the history of the telephone in Italy), and the Theca Gallery[15] (exhibiting contemporary artists) and some public ones like the Biblioteca Universitaria Alessandrina[16], the Museo Centrale del Risorgimento[17], the Soprintendenza archeologica per l'Etruria meridionale[18] . All of them have already released their own virtual exhibitions using MOVIO.
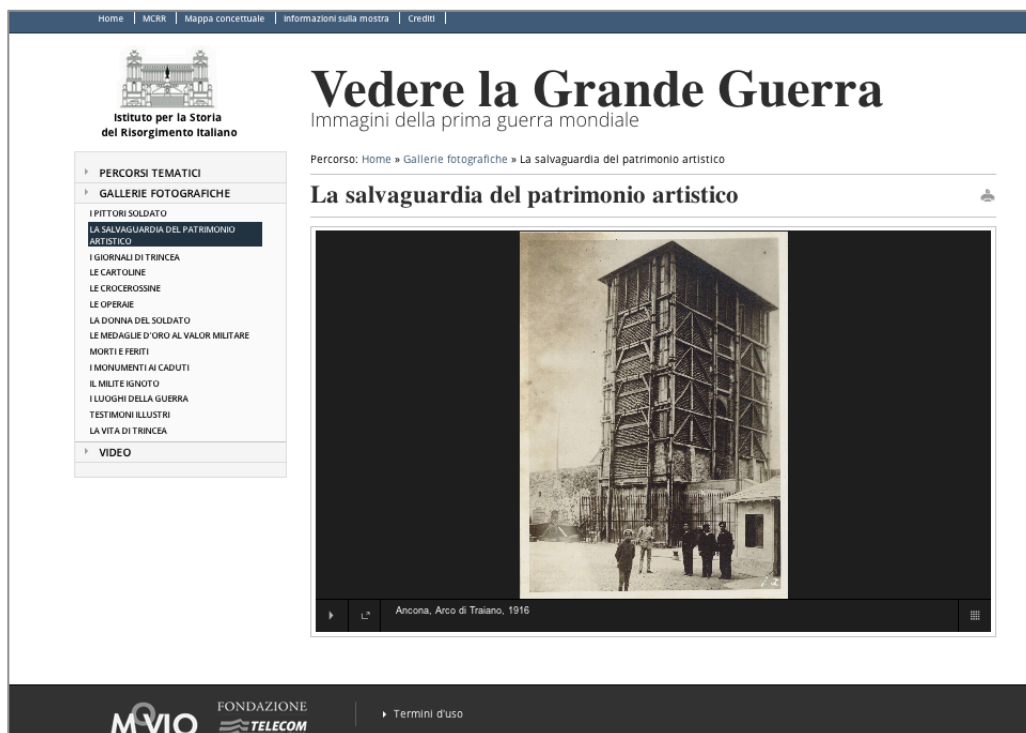

Figure 10: The Istituto del Risorgimento Italiano has opened in May 2014 an exhibition (visited by the President of Italy, Mr. Giorgio Napolitano). The exhibition web site and the guide and APP (IOS and Android) were realized using MOVIO.

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[14] Link: http://www.litaliachiamo.it

[15] http://54.247.69.120/build/movio/theca-gallery/

[16] Link: http://movio.beniculturali.it/bua/societasindacatopolitica

[17] Link: http://movio.beniculturali.it/mcrr/immaginidellagrandeguerra

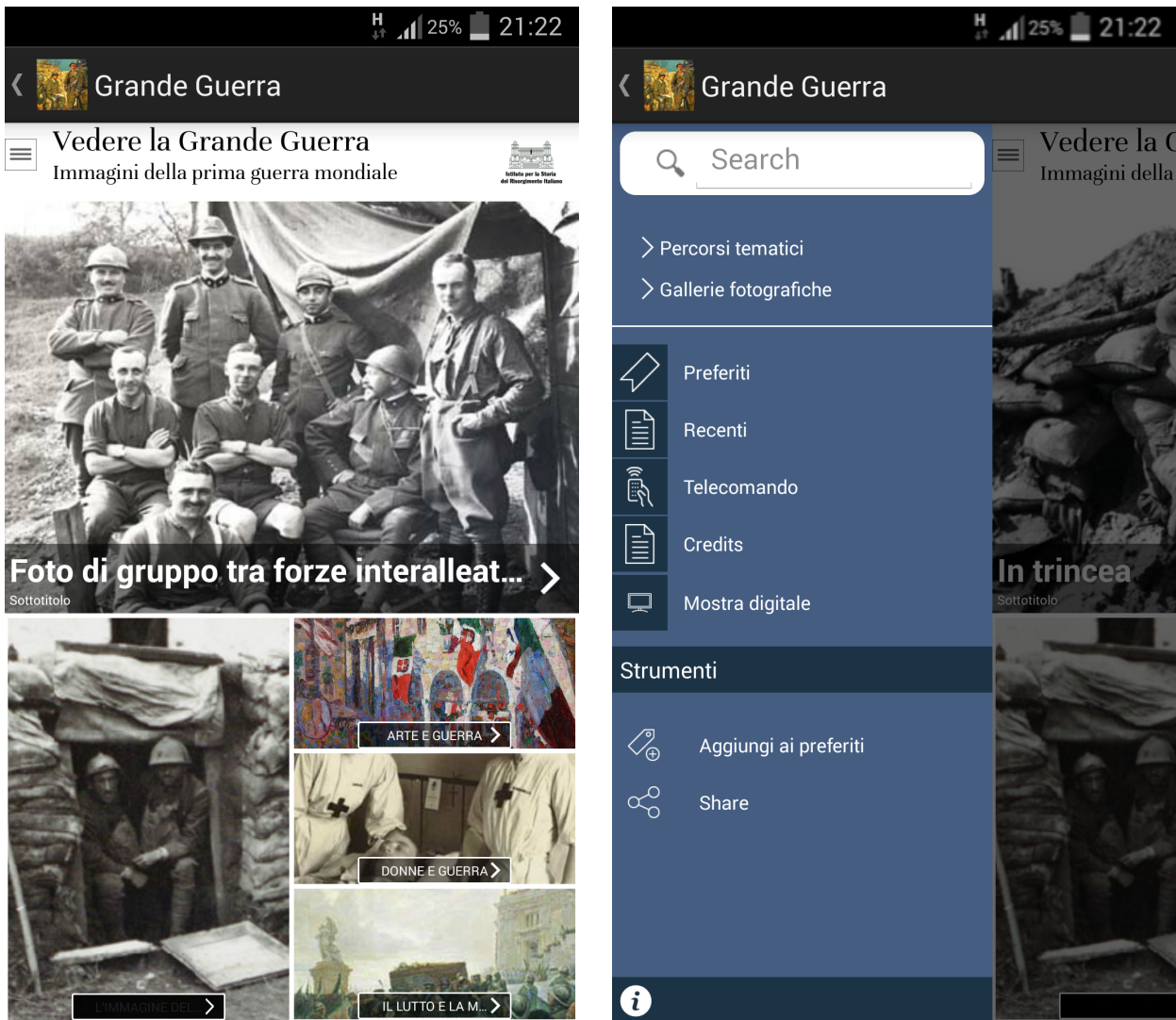[18] Link: http://movio.beniculturali.it/sbaem/sulleormedieracle/

Figure 11: The Istituto del Risorgimento Italiano exhibition: the mobile APP screenshots of the 'home' (left image) and of the navigation menu (right image).

The importance of training

The release of a tool like MOVIO is only valuable when it is accompanied with sufficient training materials and instructions on how to make best use of the tool. For this reason, the AthenaPlus project created a dedicated training wiki including all support materials, and also offers physical training events.

The training wiki
The wiki is available at http://wiki.athenaplus.eu. This website hosts all training materials on the tools to be released in the project, so MOVIO is one of these tools. A wiki platform was chosen as it allows for easy update and collaboration/feedback. At the moment, the MOVIO training materials section consists of:
- MOVIO getting started: a simple overview of things to keep in mind before creating a virtual exhibition using MOVIO. It contains information about what to keep in mind when preparing your content, how to think about a storyline, etc.
- MOVIO manual pages: text and screenshots on how to work with the various MOVIO components. The manual works like a step-by-step guide, including also the pictograms of

the buttons you are supposed to click in order to proceed to a next step. Multiple examples are also indicated.

- MOVIO FAQ videos: short tutorial videos that answer MOVIO-related Frequently Asked Questions. These videos visualise the action described in parts of the manual pages. Sometimes, it it easier to see someone perform the creation of e.g. a timeline than to figure this out on paper.
- MOVIO example exhibition: a digital exhibition created to illustrate the different MOVIO components.
- MOVIO installation instructions: you can fill a form to receive the installation code and work in your own MOVIO instance.

The materials on the training wiki are also supported by a helpdesk, to which MOVIO users can post any problems or issues they encounter.

The training events

Some of training events were organised in the project partner countries in order to let local institutions and project partners and curators to familiarise in (first instance) with MOVIO. These events were ideal to translate the information to be found on the wiki to real case situations. Every partner prepared some content material. The training materials were explored together and exemplified using their specific context and materials. Afterwards, a period of hands-on training in a test instance was foreseen. This way the instructor could immediately detect difficulties and overcome them right then and there. The training events, especially the first few ones to be organised fairly quickly after the release of MOVIO, were also an occasion on which bugs or usability improvements could be reported to the technical team.

Some training activities were executed during the master courses for professional students (Formazione 24 ORE – Il Sole 24 ORE): the courses allowed, as example, to new curators to use MOVIO on a real private gallery[19] and real artists to be presented.

Why an Open Source License model

The open source license model has been chosen to allow any subject to take it, modify it and redistribute it respecting its open source nature. An open solution allows museums to modify autonomously the source code, allows the community of developers to expand and personalize the platform, and enables the reuse and community participation to the code update and maintenance. GruppoMeta developed the MOVIO platform and the Glizy framework with the intent to enlarge the community of stakeholders, including international ICT software developers. This also means that any additional components that will be integrated should be created in such a way that they are also open source components and their usage rights do not conflict with the license conditions applied to MOVIO. This way, the entire layer of available AthenaPlus tools will be available in an accessible way.

The MIT License[20] is a free software license originating from the American Massachusetts Institute of Technology (MIT). It is a '*permissive free software license*': the MIT license allows (re)use (even commercial reuse) within proprietary software provided all copies of the licensed software include a copy of the MIT License terms. Such proprietary software retains its proprietary nature even though it incorporates software under the MIT License. MOVIO does not require

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[19] Theca Gallery, Lugano with an exhibition about the artist: Marco Mendeni. The curatorial activity was managed by Monica Anziliero: http://54.247.69.120/build/movio/theca-gallery/
[20] http://opensource.org/licenses/MIT

licensing third parties software, as it is not embedding external code: MOVIO connects to free for use APIs (such as Google Map or timeline). As a consequence, it is not required any further licensing about these applications and tools. We did not include other tools, even if sometimes it would have been appreciated, because of the licence compatibility issues. In fact most other available tools are not under MIT license.

Future implementations

We expect to provide in the future new services supporting education and tourism and involving operators, such as:
1) **Teachers** who will be able to use the tools to integrate and extend their courses;
2) **Students** who will be able to better enrich their learning activities;
3) **Cultural operators** involved in preparing information cards (as example presenting the available exhibitions);
4) **Tour operators** involved in using paths and routes to enrich their portals;
5) **Cultural and education mediators** (associations, local authorities, schools) involved in integrating data provided by the system with information related to the area.

Conclusions

This article described an innovative approach to support curators and GLAM operators to create their intangible digital exhibitions, and effectively extend the real exhibitions using an open source technology called MOVIO. The curators may edit the content created by the museum staff or link external resources (such as from Europeana.eu) using many different tools integrated in the software and customized for the cultural and professional communities. During AthenaPlus, a European funded project coordinated by ICCU, MOVIO is further developed in order to include new additional tools, which will facilitate the (re)use of content in the field of education and tourism.

Acknowledgements

Images

Page: 6, 7, Courtesy Theca Gallery, Lugano.
Page: 9, Europeana/Alinari Archives.
Page: 12, 13 Istituto del Risorgimento Italiano.

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[8] Link: INDICATE project (for the English edition of the handbook on how to realise digital exhibitions: http://www.indicate-project.eu/
[9] "Mostre virtuali online. Linee guida per la realizzazione", 2011, http://www.otebac.it/index.php?it/320/mostre-virtuali-online-linee-guida-per-la-digitalizzazione
[10]   Link: some exhibitions curated using MOVIO: http://www.movio.beniculturali.it/index.php?it/68/mostre-realizzate