hommsw

Networks-of-stories to value tangible and intangible heritage in museums

Margherita Russo
Dipartimento di Economia Marco Biagi
University of Modena and Reggio Emilia
Italy

Ruchira Ghose
Crafts Museum
New Delhi
India

Mauro Mattioli
European Centre for Living Technology (ECLT)
Ca' Foscari Unversity
Italy

Issues

Social inclusion, lifelong learning and the regeneration of competence networks are key processes which foster innovation.
Museums can play an important role in these processes and ICT strongly supports the effectiveness of the interventions required.
Among them, digital tools to tell stories are becoming increasingly popular. Narratives in new dimensions enable the formation of personal and community identities and the construction of meanings ([1] [2]).
Homm-sw supports multimedia narratives which enhance tangible and intangible heritage in education, and cultural mediation, as well as in tourism.

Present supporters: who and why

Currently, the promoters are: Crafts Museum (New Delhi, India) and Officina Emilia (University of Modena and Reggio Emilia, Italy).
Crafts Museum, set up in 1956, has embarked on a major restructuring programme to upgrade facilities and also to 'open up', in every sense, its extensive collection of artifacts, so as to better appreciate and value the wealth of traditional skills. The monthly Crafts Demonstration Programme where 40 – 50 artisans are invited from across the country offers a unique opportunity for research and documentation of craft traditions.
Officina Emilia offers hands-on workshops in science, technology, history and society so students (as well as their teachers and families) can better understand the social context in which they live. It is a 'meeting place' for schools and businesses, where processes of production and innovation and social transformation are examined on a global scale.
Although quite different in terms of their collections, the two museums share certain interests and concerns. First, the craft sector in India and the mechanical industries in Italy are both repositories of abundant skills and knowledge that ought to be tapped for future growth. Second, the regeneration of competence networks in these sectors is crucial to sustain employment and livelihoods. Third, exposure to skills and practices in these sectors is an important instrument for education and innovation. Both organisations aim for a new identity for museums as agents of social and economic change.
By offering support to the education and training systems, Crafts Museum and Officina Emilia hope to reach a much wider range of citizens, complementing the knowledge gained in more formal centres of secondary and tertiary education with the unique inputs and approach museums can provide.
Homm-sw has been developed as one of the ICT tools to support this goal.

Challenges

In the last decade, digital storytelling has spread rapidly due to the growth and possibilities offered by ICT devices ([3] [4]). Together with crowd sourcing it can deepen and enrich the understanding of tangible and intangible heritage. Digital storytelling still faces some critical challenges: creation of content on tangible and intangible heritage, classification and re-use of existing documents and clips, cooperative and coordinated production of new content. Moreover, for effective exploratory paths and a more analytical approach to browsing material, contents must be set in the overall perspective of the narrations, to ensure narration is coherent. Finally, validation and dissemination of related outcomes must respect scientific standards.

Homm-sw: the architecture

Homm-sw is based on four pillars: (1) a web system for creating and managing the community of users, authors, administrators of the sw platform and of contents; (2) ICT information points in the museum that integrate contents; (3) a website with a personal workspace that allows for the possibility to 'prolong the visit after the visit'; (4) a working group for production and content management, and a set of collaboration tools to expand the storage of content.

Homm-sw: tools

The application is online at www.homm-museums-software.org. So far, it implements the engine for creating and managing the activity 'networks-of-stories', to create a nonlinear and open multimedia narration [5], [6]. Homm-sw has tools that:
• support educators, also in contrasting learning difficulties, in developing inclusive and collaborative educational practices
• support curators
• facilitate crowd sourcing
• create a personal web repository of contents and connections
• share contents to be published, if approved by the administrator
• create a network of contents and applications, at different levels for different users and specific needs.
Registering as a new user is helpful: your activities will be saved and retrieved for you in a new session.
Login to access the list of activities.
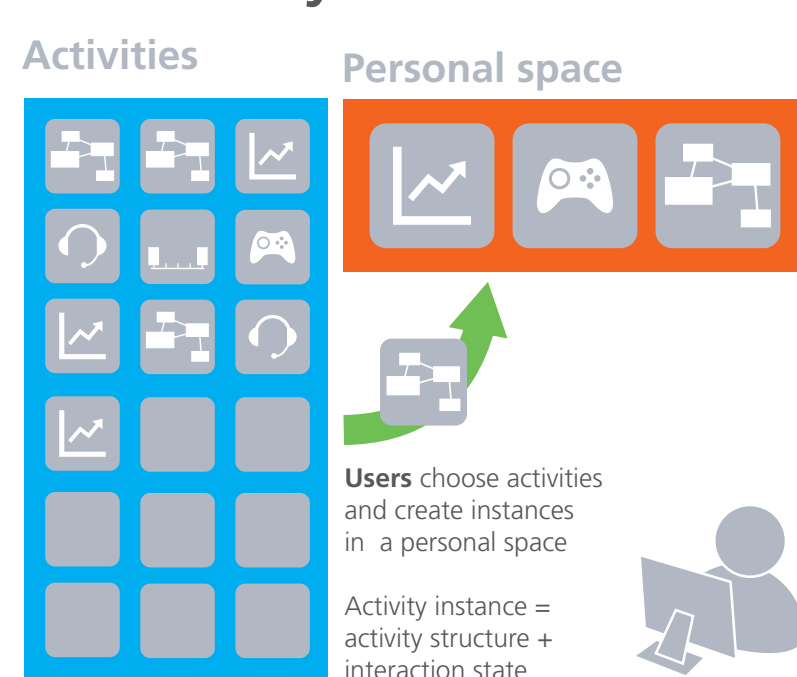
Software architecture

1.Homm-sw goals

• Deliver multimedia contents about museum topics

• Offer interactive applications ("Activities") to visitors
• Build tools to assemble Activities
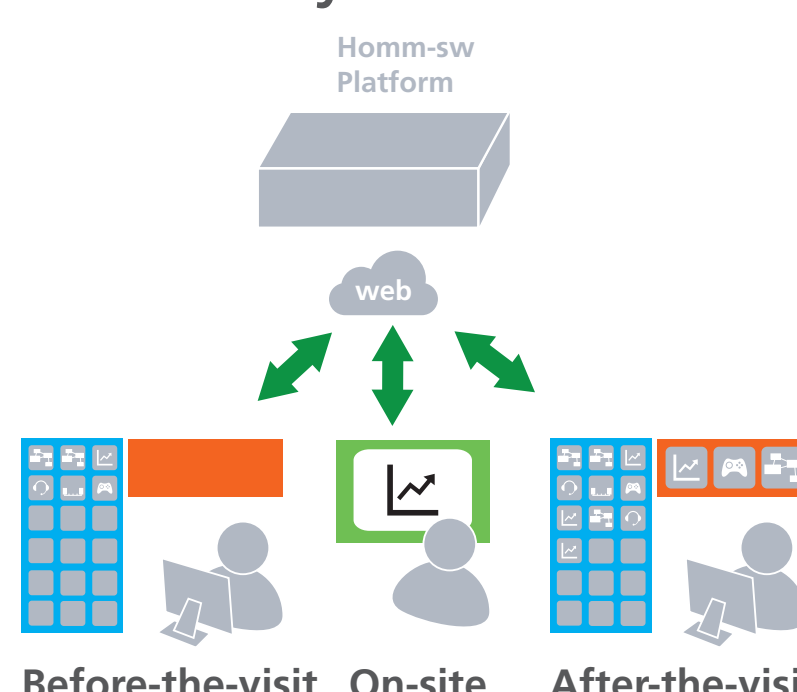• Organize a community around the museum

2.Multimedia clip repository

Clip repository
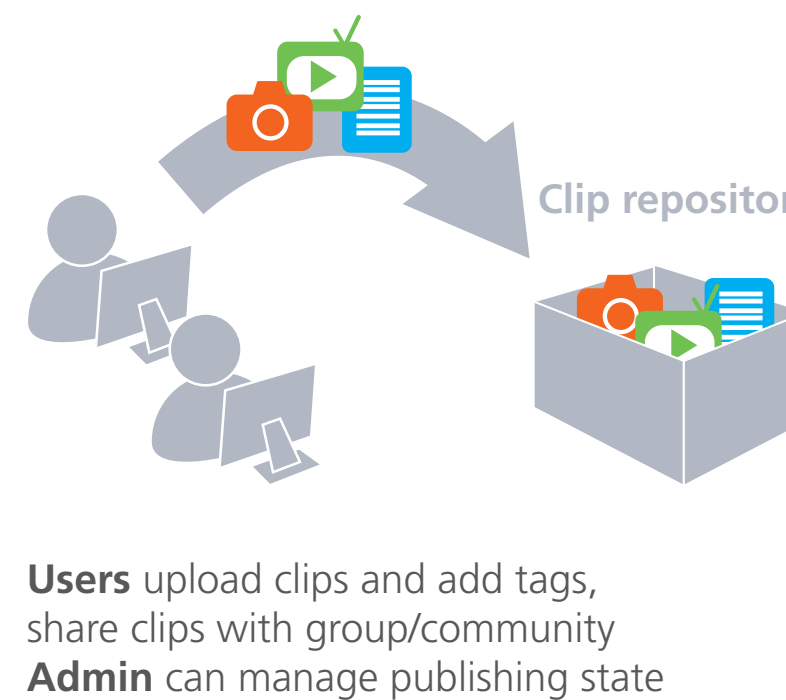
Users upload clips and add tags, share clips with group/community
Admin can manage publishing state

3.Activity authoring and use of clip repository

Activity authoring engine

Activity

Clip repository

Authors organize clips and add specific data for Activity (i.e. nodes and links for StoryNetwork, dates and location for a Timeline)

4.Activity engines and custom activities

"B" Story-Net

"A" Story-Net

Timeline

Clip repository

Custom activities (simulations, games, self-evaluation, statistics, communication tools)

5.Personal space and activity instances

Activities

Personal space

Users choose activities and create instances in a personal space

Activity instance = activity structure + interaction state
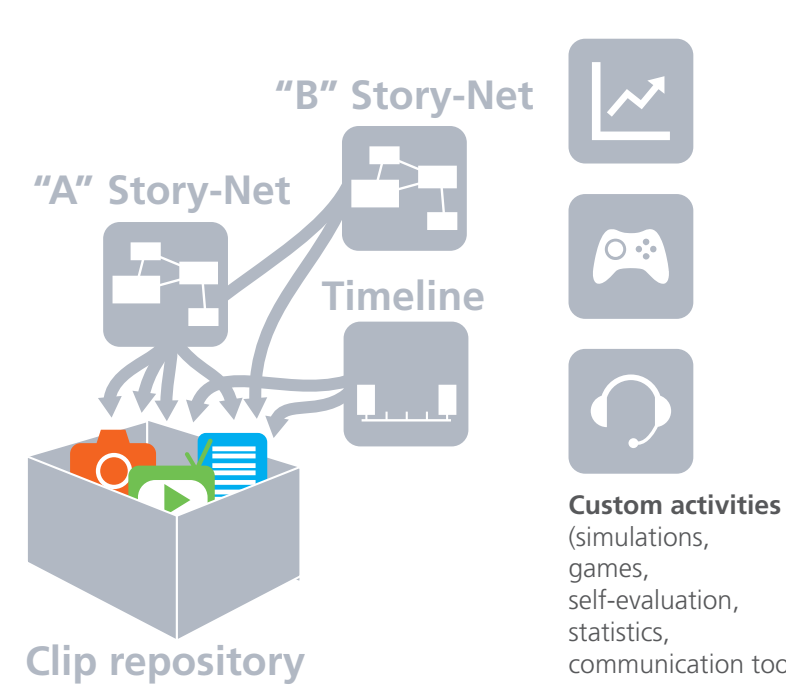
6.User interaction state generalization

Homm-sw Platform

Activity state (generalized property bag)

Activity + activity engine structure

Activity interface

7.User lifecycle in Homm-sw

Homm-sw Platform

web

Before-the-visit   On-site   After-the-visit
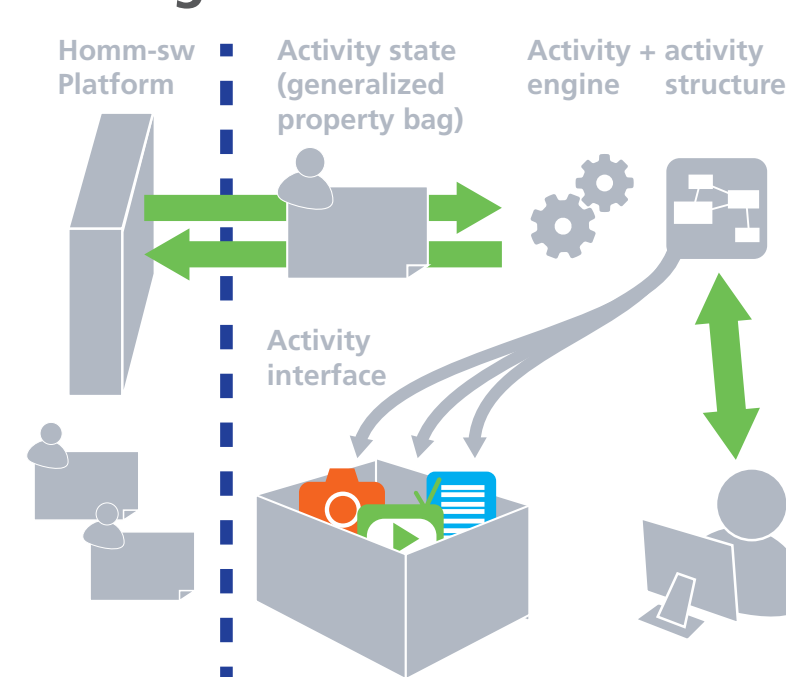
8.User identification and user roles

Web: credentials (unm/pwd)

On-site: proximity or visual identification

Admin role

Authenticated user role

Tutor role   Group

Screenshots

Personal workspace

Play mode

Browse & play mode: home page

Browse & play mode: a clip
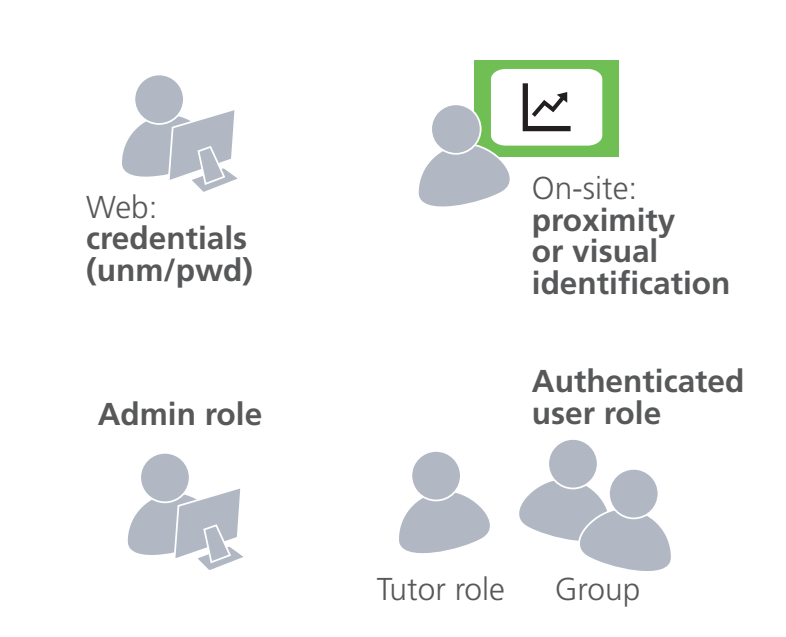
Drag and drop a story-net in your **personal workspace,** then you can browse a short description, have a more analytical view, explore the story-net by playing the clip.
Each story-net is a collection of linked clips, video, album and text, with metadata allowing tagging and listing according to the dimensions defined by the users (such as: subject, media type, chronology).
Browse & print mode. Click the clip in the graph or in the list: in these environments narratives provided by each clip are easily seen in the conceptual map proposed by the curators.
Play mode. Have a look at the video-clip with the instructions. Or start by dragging and dropping a clip to the center: it then appears in your playlist, and the perspective on the story net changes, as that clip becomes pivotal to the entire narration.
In the floating graph: pull a clip and read the description on the link. Clips in your playlist may be viewed in the viewfinder or zoomed. Clips already viewed are marked in your list: you can play them again or return afterward, in the more analytical browsing mode.
Watch the caption of the clip and possibly change the order in the playlist according to your interest and curiosity. Shift to a more detailed browsing of clips: text and images of individual clips can be easily printed; videos can be played and albums browsed. The webpage of each clip can be shared through social media. More information on the network-of-stories (introduction, index, references) can be easily accessed.

Homm-sw extends the museum experience

Museums adopting Homm-sw benefit from this.
Before the visit: users can have a general look at museum contents and note, in their online personal desktop, what they are interested in at that stage.
During the visit: with Homm-sw users can retrieve their notes and add more about what is available on the museum's exhibits and augmented reality, hands-on activities and multimedia contents, living laboratories, demonstration programs. Homm-sw in the onsite-mode allows only notes and memos, to fully enjoy what the museum uniquely offers!
After the visit: users access their online workspace to retrieve and explore their notes, and many more contents, as much as they like.

Innovative features

Beyond those common to other ICT tools in use in museums, Homm-sw has two key innovative functions.
First, recording and retrieval of users' activities: during the visit in a museum, the visitor accessing her account may browse and take notes in her personal workspace and then retrieve and explore them, and many more, as much as she likes after the visit.
Second, narratives presented through a set of related clips (videos, albums, texts) are easily seen in the conceptual map proposed by the curators.

Conclusion

Homm-sw can be shared with non-profit organizations who intend to develop new features and share the upgrade with previous users and with new users, on the same conditions. Other engines will be implemented according to the demands of users, together with multichannel and multilingual extension. As a tool for digital storytelling, integration with features of other software applications is welcome.
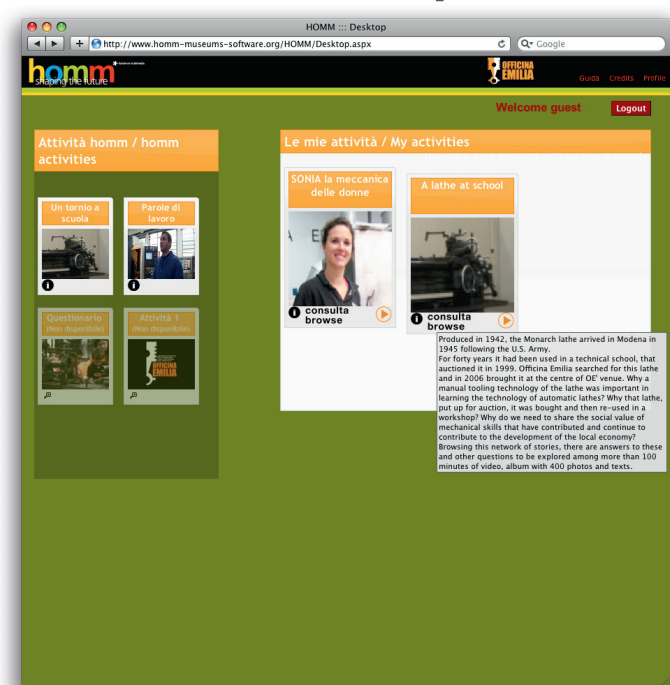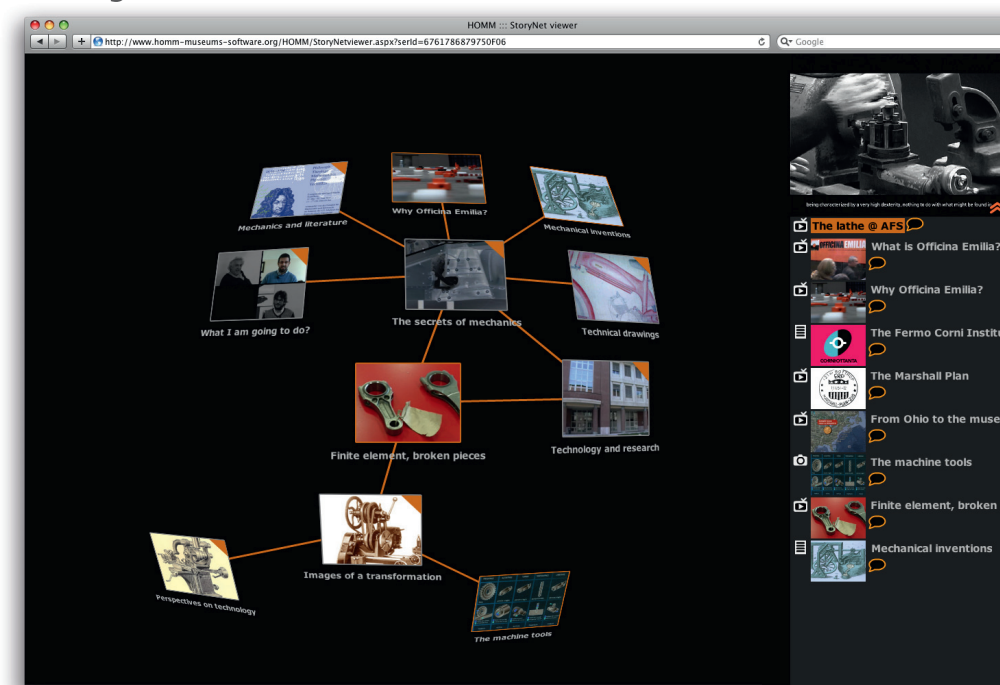
References
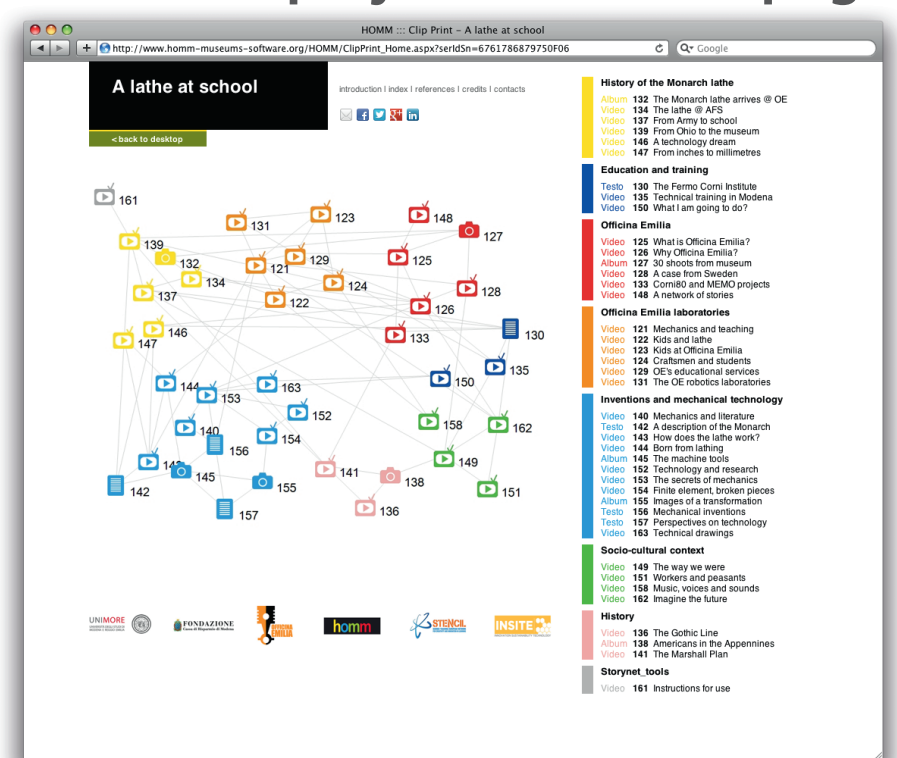[1] Czarniawska-Joerges, B., 2004. Narratives in social science research, London; Thousand Oaks, Calif.: Sage Publications.
[2] Hazel, P., 2008. Toward a narrative pedagogy for interactive learning environments. Interactive Learning Environments, 16(3), pagg.199–213.
[3] Brouillard, J., Dierickx, B. & Loucopoulos, C., 2013. Report on existing tools and devices related to narrative approaches and requirement functionalities. EU CIP-PSP Project AthenaPlus. Available at: http://www.athenaplus.eu/getFile.php?id=178.
[4] BBC - A History of the World - List of Objects. Available at: http://www.bbc.co.uk/ahistoryoftheworld/explorealtflash?Timeregion=7
[5] Crawford, C., 2013. Chris Crawford on interactive storytelling, Berkeley, Calif.: New Riders. Available at: http://proquest. safaribooksonline.com/?fpi=9780133119671
[6] R. Aylett Paolo Petta, Mei Yii Lim, Sandy Louchart, Mark Riedl, eds., 2010. Interactive Storytelling. ICIDS 2010, Edinburgh, UK, November 1-3, 2010: proceedings, Berlin ; New York: Springer.

DIGITAL HERITAGE