Introduction

The article presents different approaches of structuring and visualising information in two ICT tools recommended for museums and educational institutions. One is the Ontology module of the creative virtual exhibition tool called MOVIO, which has been developed in the framework of the AthenaPlus project as discussed in this issue by Maria Teresa Natale, Sam Habibi Minelli, Barbara Dierickx, and Marc Aguilar Santiago in their article Innovative Approaches for Narrating Tangible and Intangible Cultural Heritage: the AthenaPlus Creative tools. The other is the Storynet system of the digital storytelling application called HOMM (www.homm-museums.unimore.it/site/home.html), which has been developed by Officina Emilia (University of Modena and Reggio Emilia, Italy) in collaboration with Crafts Museum in New Delhi, India. The primary aim of this paper is to focus on and compare the different logic and ways of thinking manifested in these tools rather than to describe their functionalities in detail.

Structuring and presenting relations among different groups of information is a relevant issue for the development of applications for the cultural heritage field. The question of the structuring and visualisation of data should be considered in the same way as the management of any other type of information. The MOVIO and HOMM tools provide two different approaches and solutions to the questions raised.

The Ontology builder of MOVIO

MOVIO (http://www.movio.beniculturali.it/index.php?en/1/home) was developed as an open-source virtual exhibition tool under the coordination of ICCU (Istituto Centrale per il Catalogo Unico, Roma). Its testing is an ongoing activity in the framework of the AthenaPlus project (Work Package 5 - Creative applications for the re-use of cultural resources, Work Package 6 - Pilots for testing the creative use of cultural contents). The Museum of Fine Arts – Hungarian National Gallery (Budapest) has taken part in the project as one of the pilot partners in 2014 and created an online virtual exhibition module. The virtual exhibition entitled The Eight and created by the digitisation group of the museum presents a Hungarian group of artists from the very beginning of the 20th century. The virtual exhibition The Eight is not a mirrored version or a mutation of a real exhibition but an independent virtual display of artworks and artists. It is based on several printed publications, exhibition catalogues about this group of artists, and it is a completely independent presentation of the activities of these eight artists.
The structure of HOMM’s Storynet system is similar to that of MOVIO in that it uses all kinds of digital contents like images, texts, videos, audiovisual materials, etc. The basic idea is nearly identical.

*The Eight* (1909–1918) (Róbert Berény, Dezső Czigány, Béla Csóbel, Károly Kernstok, Ödön Márrfy, Dezső Orbán, Bertalan Pó, and Lajos Tihanyi) was the most remarkable and revolutionary Hungarian group of artists of the period. The activities of these artists were strongly influenced by the different trends of the turn of the century, such as the art of the Fauves, Post-Impressionism, the painting of Paul Cézanne, and, to a lesser extent, Expressionism, Cubism, and Art Nouveau. All members of the group went to Paris to study in the first decade of the 20th century: Bertalan Pó, Ödön Márrfy, Béla Csóbel, Róbert Berény, Dezső Orbán, and Károly Kernstok studied at the Académie Julian between 1901 and 1907, but most of them visited the drawing lessons at Colarossi and at the Grande Chaumière, where they could meet the prominent representatives of the Fauves like Henri Matisse, André Derain, and Albert Marquet. Furthermore, some of them attended the classes of the Académie Matisse.

Besides the French orientation, these Hungarian artists studied at European academies with a more conservative approach, such as the Akademie der Bildenden Künste in Munich, and were educated in such Hungarian schools of the period as the Royal Hungarian College of Art, the Royal Hungarian Institute of Arts and Crafts, the Municipal Technical Drawing School, and the private school of Simon Hollósy at Nagybánya.

Having joined the pilot project of the MOVIO creative application, the museum primarily aimed to present the European context of the activities of *The Eight*, and their relations with French, German, and Hungarian artists in a spectacular way. After reviewing the relations of persons and institutions, four basic groups of information were outlined. These were the interrelated networks of the eight artists, their professors abroad and in their native country, their educational institutions abroad and in Hungary and, last but not least, their artworks. Drawing such networks with many common components needs a tool that can visualise the complexity of these interlacing networks.

The structure of the Ontology builder, one of the core modules of MOVIO, provides the possibility of creating field-level specified entities and defining relations between each of them. In building up the network system of the eight artists in MOVIO, the following entities were created: artists, professors, schools, and artworks. In order to display the interfacing relations among the single elements within the entities, one-to-many relations can be defined. In this case, the relation between the artists and the professors can be described with a student of label, between the artists and the schools as studied in, between the professors and the schools as taught in, etc.
After creating the entities and the relations, a visualisation tool of the module makes these networks visible in a graph format.

The logic of the Ontology builder assists curators in displaying relations that cannot be presented in real exhibitions because of physical limitations. In this case, a structuring and visualising tool such as MOVIO can be an efficient device to enrich the contents of real exhibitions and thereby to allow expanding their boundaries.

The Storynet system of HOMM
The other application called HOMM software, developed by Officina Emilia (University of Modena and Reggio Emilia, Italy) in collaboration with Crafts Museum (New Delhi, India) is mainly meant for museums but it offers possibilities for educational purposes as well. As such, the installation of the software in the higher education system of the arts can be strongly recommended. As a visiting lecturer at the Eötvös Loránd University of Sciences (Budapest), I find the introduction of such a tool to educational practice useful.

In the last four years I have held History of Architecture seminars for BA students at the University and during this period many things have become clear. Firstly, the traditional, conservative educational methods cannot be maintained any more, with regard to even such a strictly theoretical subject as history and basic terms of architecture. Secondly, the general use of ICT devices requires their implementation for the teaching of art history subjects as well. Consequently, a new, experience-oriented method needs to be introduced. Maintaining the traditional, hierarchical professor-student relationship in teaching, where on the one hand someone is giving the information, and on the other hand someone else is receiving it, is not a fruitful solution any more. It must be replaced with work based on cooperation, collaboration and the sharing of knowledge in a communal way – using such tools as for example the HOMM software.

The structure of HOMM's Storynet system is similar to that of MOVIO in that it uses all kinds of digital contents like images, texts, videos, audiovisual materials, etc. The basic idea is nearly identical to that represented by MOVIO. The difference manifests itself in the way it structures and visualises information. In HOMM the network of stories is made up of different kinds of clips filled with textual or visual digital contents, which can be regarded as thematic packages and can be marked with different colours. The series of these clips can be listed in a page dedicated to visualising each clip created one by one and connected to each other in a one-to-many way. Not only the colouring of the clip titles can show their types but also the different icons mark the distinct textual or visual contents. The overview page
of the listed and connected clips is on the higher layer of the Storynet system, while the clips' detailed contents appear on the lower layer, where the graph of the network can also be seen.

Connecting diverse thematic groups makes it possible to build up not only parallel stories but also any kind of units of knowledge. Thus, HOMM can be used for educational purposes such as teaching historical-theoretical subjects, and is recommended to implement in an educational setting. In the case of the History and basic terms of architecture seminar, the practice can take advantage of the communal and knowledge sharing features of the software. To illustrate it with a well-defined example: teaching the history and formal elements of the classical orders of architecture could follow an interactive process of learning. The main topic is the theme of the Classical orders of architecture. Students work in groups, in this case in five groups in order to study the five classical orders (the Doric, the Ionic, the Corinthian, the Composite, and the Tuscan orders). Firstly, they create five activities (= storynets) for the five thematic groups. Then they create clips for the different subtopics (for instance the evolution of a given order, its appearance in different regions or in different periods, the re-use of architectural forms in the 19th century, etc.) and fill them up with textual and visual contents. Since the primary aim of this seminar is to make the subject experience-oriented, one of the practical exercises is to go out to the streets of the historical centre of Budapest and photograph the architectural details of the 19th century buildings. The images captured by the students can be uploaded to the relevant clips. Secondly, the clips created in this way can be connected not only to one activity but also to all of the other groups’ activities and clips, which can offer the opportunity to compare single units of knowledge.

The digital content in this case is the knowledge that the students acquire, which they do on their own: they collect the information (texts, images), create the digital textual and visual content, upload it into the commonly used ICT tool, share their knowledge, and connect it on a higher contextual level.

For the museum environment or for the educational environment?

Working as a museologist and a lecturer at the same time, following activities and processes in museums and in higher educational institutions, I am faced with the following question when I compare the Ontology builder of MOVIO and the Storynet system of HOMM: which one is more suitable for museums and which one for educational purposes? MOVIO as a tool primarily aimed at
designing virtual or digital exhibitions can be used more in the setting of museums, while HOMM as a supporting tool for educational activities in museums can be applied primarily for educational purposes.

During the test phases of both tools, we were working with units of knowledge in each case. These units of knowledge can be transformed into thematic packages of information such as the groups of information about artists, schools, and professors in the case of The Eight (MOVIO) or about the Classical orders of architecture (HOMM). In the case of the Ontology builder of MOVIO, these units of knowledge are provided by the curators in a one-way manner, representing the museums’ traditionally interpreted one-way communication; therefore, this tool is more appropriate in the museum environment. In comparison, the HOMM software allows two-way communication through the sharing of knowledge, which is a highly recommended approach in the educational environment. At the same time, it would be a truly great achievement if this interactive, collaborative approach could be integrated into the museum environment as well.
The relational graph. Screenshot from The Eight virtual exhibition.

REFERENCES


