

ICT PROJECT FOR THE MUSEUM OF *CASA MARTELLI* IN FLORENCE, ITALY: FOR A VIRTUAL TOUR OF TODAY'S AND YESTERDAY'S COLLECTIONS

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ABSTRACT

Through the use of multimedia centered on imaging technology, three-dimensional survey and customized educational itineraries, a noble ancient palace with its relevant art collection becomes a very communicative museum. This paper presents the project plan and first achievements, featuring the objectives, the explorative tools and impacts on visitors and users.

The purposes of the project are to reconnect threads between artworks and documentary sources, which have been cut or forgotten, and to reveal to the museum's visitors the lost evidence of these links, either attested to by direct figurative references or by art-historical reconstructions.

The technical aspects of the planned paths for different kinds of visitors are meant to engage the users and make their cultural experience unique and personal: both the applications on site and through the Web will broaden the visitor's perspective providing information, suggestions and stimuli for an integrated and accurate perception of all elements related to the family's collections and home.

Key words: Information and Communication Technologies, Virtual Tour, 3D models, interactive interfaces, House-museum

1. INTRODUCTION

Casa Martelli, an ancient palace owned for centuries by this Florentine noble family, has been recently restored and transformed in a National museum, limitedly accessible just a few hours per week by reservation since 2009. Even if partially refurbished, especially to adapt the building to public safety regulations, it maintains the peculiar quality of an elegant "house-museum" with exceptional 18th-19th century *trompe-l'oeil* wall and ceiling paintings (Fig. 1), original doors, draperies and pieces

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of furniture still adorning ceremonial rooms and a fine and valuable collection of artworks, dating back up to the 15th century and gathered through time by different members of the family. The last Martelli kept the majority of the paintings belonging to the family arranged in a suite of rooms especially designed for them in the 18th century, preserving the late-baroque taste for art viewing and enjoyment (Figs. 2, 6).

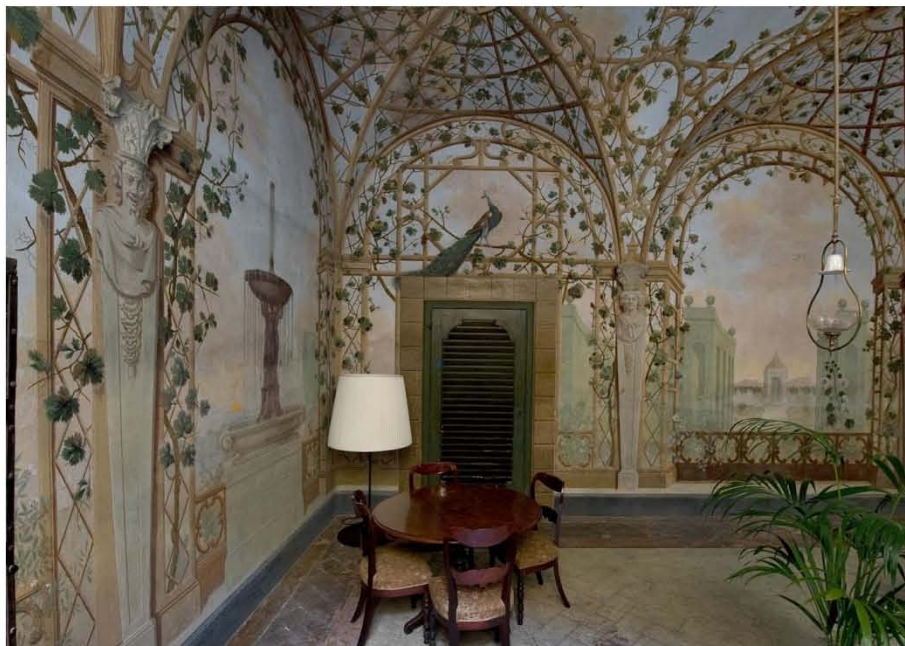


Figure 1. The frescoed “winter garden” on the ground floor.

The curatorial choices of display, lighting and communication that have been made by the museum curators are oriented to save the sense of a domestic and private environment, even if noble and full of historical values. These should not appear invasive or unnatural. Captions have not been affixed near the works, and there are no cases containing information sheets in the rooms. Visitors, so far, have been guided by art-historians or museum attendants through the open rooms, receiving directly from them the interpretative keys to the historical owners, the place and the main pieces of the collection. Moreover, artificial lighting is diffused and reinforces the pre-existing chandeliers, not focusing on each painting or object as generally is done for exhibit arrangements.

However, the museum has been recently suffering from a lack of highly qualified personnel permanently available for groups or individual visitors, which are increasing and variously characterized.

This is one of the reasons why the curators of the museum intend to convey the unique essence of these spaces in a new didactic tool, accessible also on the Web, and in addition reveal, through it, to all visitors what is not immediately visible

walking through the rooms: the changes in display and the renovations according to the cultural taste of the exponents of the household; the valuable artworks which have been inherited by other branches of the family or sold in a time of decline and are held today by important museums, in and outside Italy; the cross-references between visual and textual documents related to the Martelli's art patronage, commissions and purchases (as in Fig. 3, the statue is attested to be in the gallery).



Figure 2. A detail of the entering room of *Casa Martelli*'s picture gallery on the first floor.



Figure 3. *The Martelli Family* by G.B. Benigni, 1777-1783 (Museum of Casa Martelli), and the statue of *Saint John the Baptist* by Desiderio da Settignano (Bargello National Museum).

When the palace, with its contents, passed into public hands, an extensive archival research on the family, the property and the collections was indeed undertaken, in order to orient the choices on how to reuse the old building. The present project creators intend to exploit this material complementing it with educational activities to develop the visitor's trails based on specific topics.

2. THE PROJECT

2.1. Objectives

On the basis of a common agreement aimed to expand the communication channels of the distinctive "home-museum" and of the collecting history of the Martelli family, art-historical objectives and technological engagement modalities were developed together by the Directors of the museum and the Geomatics for Conservation and Communication of Cultural Heritage Laboratory (GeCo Lab) of the University of Florence.

Since 2006 GeCo Lab collaborates with public and private entities on projects which need to correlate metrics and spatial three-dimensional data with specific concerns and results of other kinds of survey. GeCo Lab applies techniques and tools created within the cartographic sciences to enhance knowledge and representation of Cultural Heritage at various scales, from the urban/territorial one to the decorative elements and movable objects field (in particular, for the developed experience on medium and small sized objects see Tucci et al. 2012). The Lab develops modern and integrated surveying methods (3D scanning systems, digital photogrammetry, topography, etc.) testing advanced hardware/software instrumentation in contexts of significant interest, as it is the case of the *Casa Martelli* museum, to obtain 3D models and make use of the output for scientific or educational purposes.

The project plans to reach out to visitors on two dimensions: during the real visit of the museum and on the Web.

Taking advantage of digital technology's potential, the project looks forward to return in new forms and relations the results of significant historical and documentary surveys carried out over the last 20 years and released in various publications (e.g. Civai 1990) and in the computerized inventory of the on-site collections.

The main goals of the projects are the following:

- Customized visits: Provide personalized pathways for small groups of visitors in the museum, factoring out - with the right supportive interface - the presence of specialized touring staff, and for users on the Web interested in a virtual tour. The subjective choices within the proffered itineraries will ensure in both cases a high level of involvement, interaction and quality of the insights.
- Potential audience: Disclose the specific nature of the museum to a public that generally still does not know about it, as for example Florence non-residents, young people, families with children, and people with disabilities. Access to contents will be made available also to English-speaking visitors and progressively to those of different linguistic areas. For younger visitors, audio-visual narratives on certain topics and artworks will be inserted in the digital itineraries, as well as games based

on what they have seen. For the partially sighted, a real size replica of a famous Renaissance statue that was owned by the Martelli family (Fig. 3) will be presented on site for tactile exploration. For hearing-impaired persons, audio-visuals could be adapted with subtitles or translated in sign language.

- Extension on the Web: Since the already existing Web pages dedicated to the museum (see References from Internet) are just for informational purposes, it should be possible to deepen the overview of the museum through a virtual tour and relative highlights, and more incisively transmit online the sense of continuity with the domestic private past and the hospitality approach of the “home-museum”.

- Personal involvement of remote visitors: Transfer online the active relationship with the environment that develops during a site visit, giving the chance to interact with the museum staff, to post comments and photos on a web forum, to share appreciation through links to the most common social networks.

- Recovery of the connections with the “Martelli artworks”: Promote contact and exchange of historical information and educational material with museum institutions and private collectors, in and outside Italy, which own artworks linked in various ways to the noble family, either because commissioned by its members or known to be in their possession. The outcome should be a clear acknowledgement of the past-present continuity of the artworks and of the changes of context.

2.2. Overview of the multimedia educational tools

At the heart of the project is an integrated system of multimedia content to surf through interactively according to different routes based on the visitor's interests and needs. Not only artworks still in *Casa Martelli* will be taken in account and put on focus, but also distinctive ones connected to the family's art-history held today by other institutions and collectors. Various key issues will be addressed while presenting pieces of the collection, opening windows on broader cultural trends and similarities in distant contexts.

The planned interfaces are of two kinds: mobile devices (tablets) inside the museum, and, online, a sub-website on the official page of the Museum. The access to contents will be following the four required conditions for an enjoyable learning experience, identified by “edutainment” specialists: a sense of discovery and fascination, appeal to multiple senses, the appearance of effortlessness, the availability of choice (Packer 2007).

The HD digital display of the artworks, also in 3D in the case of a few selected sculptures, and the set of information (text, images, audio/video) associated with them, will be accessible choosing from a range of sensitive areas (hot-spots) to be found in a representation of the museum's spaces.

As for the Web application, an appropriate frame for the focusing passageways would be a virtual tour consisting of 10-15 immersive panoramic photographs, one for every relevant room, stitched together in a circular itinerary. This would allow the Web visitor to preview the museum's environment or to bring back to mind what he has already seen in person, in both cases with high-level perception at 360°.

For those, instead, who will use on site the guide-tablet provided by the museum, the browsing experience through contents may start recognizing visual markers placed

in specific locations, or, more traditionally, selecting hyperlinks from an orientation map.

As for the arrangement of the educational programs, the project can benefit from the discussion and collaboration with the education agency of the State museums in Florence, as well as make use of external specialist staff, especially for digital storytelling techniques. By another point of view, computer engineers will take care of the development of the relational database and of the software required for content management and exploitation on the Web and on mobile devices.

While art-historians are proceeding with the identification and collection of material to populate the database (digital images of artworks and of the house-museum in the current state, old pictures, texts, videos, music...), GeCo Lab has been outlining the logical system design beneath the communication project, defining data and relations between the information categories, and identifying the operations which could be performed in an interactive environment by the user. In parallel, GeCo Lab has surveyed several sculptures displayed in the house-museum and processed the data in order to integrate the digital 3D models in the multimedia system (Figs. 4, 5).



Figure 4. 3D digitization of a bronze statuette representing a *Dancing faun with cymbals*, first quarter of the 18th century (Museum of Casa Martelli): a picture taken during the survey by means of a multistripe laser triangulation scanner, and the digital 3D model shown without the photographic texture.



Figure 5. 3D digitization of the bust portrait of Ugolino Martelli, 1518-1519 (Museum of Casa Martelli): a picture taken during the survey by means of a hand-held scanner, and, on the right, the digital 3D model shown without and with the photographic texture.

As said before, another tool will fulfill the historical-critical perception of the visitor in the museum: the physical replica at a real scale of the full-length marble statue of a young Saint John, known as the “San Giovannino Martelli” (Fig. 3). For centuries it has been attributed to the famous Renaissance sculptor Donatello, and today is mainly assigned to Desiderio da Settignano, in what perhaps could have been a co-partnership with his master Donatello (Bormand et al., 2007: 124-127). The illustrious sculpture was sold by the Martelli in 1913, during a stage of socio-economic decline of the family, and displayed since then at the important National Museum of the Bargello in Florence.

The digital model of the statue, which GeCo Lab is going to obtain in the next future, will serve as the basis for the physical model in marble or synthetic resin, which will be achieved through advanced automated milling or 3D printing technologies (as in Tucci and Bonora 2011).

2.3. Expected results and impacts

The project plan includes also the final outcome tracking stages and the possibility to make improvements to the communication system and technological media, after evaluating the results with respect to the initial objectives. The monitoring activities will consist in collecting feedback in the museum and online, to survey users' satisfaction and profiles. The information could be retrieved through the observation of visitors behavior, giving direct interviews, or proposing questionnaires on-site. On the Web, pre- and post-visit comments and a quantification of the virtual visitors will give a useful orientation.

However, as authors of the project, we must admit that all of the elements which may be weighed somehow and are here described as possible indicators, are just allusive. We are indeed aligned with museum management studies which make the following preliminary recommendations for their evaluation models:

"Before suggesting some measurable performance indicators, a review of the risks of using them may be healthy. First, it cannot be over-emphasized that many, if not most, of the critical qualities of good museums cannot be measured numerically. Ratios cannot measure the importance of a museum's purpose or the quality of its educational programs. A collection of ratios for a given museum should never be intended, nor be read, as more than a partial portrait" (Ames 1990).

Given this premise, the criteria we have identified to evaluate the outputs of the project are the following:

- with respect to the development of the contents: the number and significance of meetings and contacts between the museum curators and scholars and/or owners of "Martelli artworks";
- as for the visitors: the degree of participation, satisfaction, enjoyment; an increased number of participants with special needs; the repeated occurrence of non-residents coming back after a while; the choice of visiting the house-museum to appreciate the historical context of "Martelli artworks" seen elsewhere;
- general resonance: number and importance of press mentions;
- as for the website: number of visits, number of interactions with the Web forum, number of citations and comments posted on social networks;
- follow-up activities: requests for documentation and didactic media (pictures, DVDs, apps, books...) related to the palace, the history of the family and of the collections.

Expected impacts could be also: the fact that the museum will be included in tourist and educational programs as a symbolic reality of a certain historical period and culture; and, on the research ground, the acknowledgment that puts the museum, along with the Martelli's collecting history, in relation to similar cases pertaining to other geographical and cultural contexts.

In the end, quantifying helps the museum curators to determine if the memory of the visitors' experience remains as knowledge and therefore turns into culture. And if the "image" of the museum, to be interpreted as the expression of the peculiarity of this institution, grows roots in the community over time and space.

3. CONCLUSION

Several information and communication technologies and competences are involved in carrying out the *Casa Martelli* project, aimed to exploit previous studies and episodic educational experiences in a single integrated system. The authors have presented different issues related to the planning stage of this project, highlighting objectives, means and expectations.

An intuitive interrelation of various kind of contents, supported by an immersive explorative guide system, will help to clear the evolution of an art collection that reflected not just one personality, in a defined age, but several cultural wills and inclinations along generations, and also the changes in the refined dwelling that provided or still provides its scenery.

In this way, without betraying the “non-museum” approach fundamentally chosen by the curators, the place and the collections will clearly transmit their conveyed messages and be a cultural reference point for a wide public which appreciates the feeling of being hosted as a guest in a private and, at the same time, historic house.

The tools illustrated in this paper will benefit not only the museum’s visitors, but also the administrators of the artworks: the curators of the house-museum and the ones who have in charge “Martelli pieces” kept elsewhere. The photographic and 3D surveys have in fact a documentary importance, since the spherical panoramas of the house-museum’s rooms and 3D models of the artworks may serve as reliable records of their current conditions, in view of future investigations. Also, the relational database, with its cross references on artworks and contexts, is going to work as a digital reservoir that can be further enriched and supply material for other engaging itineraries.



Figure 6. More details of the Martelli’s picture gallery.

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