Narrative codes and expressive styles in the Virtual Museum

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Abstract

Knowing the history of a city and of the transformations that have led to the present configuration of an area or an urban landscape is a topic as fascinating as complex that requires a great effort both in terms of archival and iconographic research and in terms of the subsequent critical interpretation of the documents found. Very often the researcher is faced with a scenario which is a heterogeneous set of data that needs to be verified from time to time, in order to reconstruct the temporal consecutio and the development of the transformations that have occurred. Each scholar aims to a representation of the bases of history to bring back to light the starting stages that have marked the natural – or anthropic – development of the city. The research aims to narrate, reconstruct, and visualize the historical stages that, starting from 1806 have led to the current configuration of the weastern wing of piazza San Marco.

Parole chiave
Digital reconstruction, urban and architectural transformation, virtual museum, narrative strategies

Topics
Narrare / testimoniare / tramandare

MU.VI.VE. One of the the virtual rooms. Digital elaboration by I. Friso.

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Innovative styles and codes for narrative strategies in Virtual Museums (G. D'Acunto)

During the last twenty-five years, the concept of digital culture has taken more and more root in the means of communication and divulgation of the cultural heritage. The historical and artistic value of such heritage is certainly the symbolic form of the social context – that is, the greatest expression that identifies a community – in which it was produced. At the same time, the awareness that we are living in a historical moment characterized by the increasingly predominant presence of technology and digital tools in our everyday life has settled in the collective conscience. Even the majority of our communications and interactions with other individuals are handled by digital instruments. This radical transformation of the communication systems has interested also the world of art and culture in general, creating new and increasingly complex systems of narration and use of the tangible and intangible contents based on perception and remote activities of users [Balzola, Monteverdi 2004]. The digitalization of the whole cultural heritage in particular is now accepted and recognised as a fundamental step towards the progress of culture itself through new channels of enhancement, use and conservation of the memory of the past. There must be however complete awareness that it is always dangerous and ambiguous to talk about progress in the artistic field. The contents of any artistic expression can never be read from an evolutionary point of view: the systems of use and narration are what changes instead, adapting and adjusting themselves to the times they go through. Therefore, it is clear that nowadays we face a necessary process of convergence between two different fields – the cultural/humanistic one and the digital one –, due to the fact that culture itself is trying to find a new *modus operandi* to guarantee its own diffusion and survival. It is now the time of *digital humanities*, that is, a digital transposition of reality in which new relationships and new connections between contents, traditionally very distant, arise. Interpretative methodologies that lead to the reconsideration of the entire cultural heritage develop.
In the digital reconstructions associated to the field of cultural assets in general, the rigour in the reading and interpretation can be carried out with different types of research – such as the one described in this essay – characterized by a methodology based on a serious and rigorous philological approach. Reconstructions are based on the critical and informed analysis of both reliable and other various historical sources and aim to go way beyond the spectacularization of memory and art meant as a set of fascinating images or videos that populate the Internet and claim to spread artistic culture even though they have no real content. Therefore, if a digital reconstruction must necessarily enhance the historical-artistic data instead of distorting them, we could still ask ourselves a question that has been waiting for an univocal answer for more than fifty years: in a digital reconstruction, which instance prevails between the aesthetic on and the historical one? Cesare Brandi, in his famous work *Theory of renovation* dated 1963, tried to separate the two main values of a monument or a work of art in general, wondering which of the two aspects should prevail on the other during a renovation, meant in this case as a physical procedure on the asset itself [Brandi 1963]. Those same two instances are predominant in the issue of digital technology. As a matter of fact, digital technology seems to almost make these two instances encounter peacefully in the process of reconstruction that, at least in its theoretical structure, could be compared to a stylistic reconstruction, but that, at the same time, does not concern the asset itself, but its digital clone. The complex process of digital reconstruction can safeguard both instances. The historical instance, intended as the value of historical document of a fragment of heritage, is guaranteed by the philological rigour of the reconstruction. The aesthetic instance appears instead in the digital clone that can freely reassemble into its parts and avoid the signs of aging, decay or, in other words, the patina of time. According to this interpretation, the reconstruction doesn't resolve in a digital clone, but becomes a critical-interpretative model that replaces the asset itself and can finally aspire to stylistic unity, never achieved during the construction phase, and leaving the asset, now stuck in its condition and in its historical stratifications, unscathed. Thus, the digital model renounces the ambition to be a 'faithful copy' of the real data and instead immediately offers itself as a semantic model with a strong critical and interpretative nature. Moreover, it is able to store and communicate not only the visual form, but also and above

all the most intimate and profound meaning of that same form. Virtual museums try from the very beginning to translate a specific historical or artistic event into a rich system of communication that is fundamentally based on digital reconstructions and enhances itself with meanings and contents used to interact with the general public. One of the most stimulating and insidious challenges that those who deal with virtual museums have to face daily is the representation of the intangible value of the exhibited manufacts. The process of narrating the intangible stratification of the meanings and contents condensed in a single fragment of heritage is not to be taken for granted. This process is conditioned by the necessity to maintain a constant equilibrium between scientific rigor, narrative effectiveness, and market needs. From this point of view, the evolution of the ways of narrating and the more and more widespread and rooted presence of the *media* have played a fundamental role in this process. On the one hand, they have enormously enriched the *range* of solutions at the disposal of architects and curators but, on the other hand, they have significantly complicated the whole scenario. Thus, it is not surprising that, with the ways of use increasingly more shaped by the indissoluble relationship with technology and its complicated rules the contamination of the traditional codes with innovative styles and other narrative solutions has become an evolutionary trend as natural as essential and necessary. This is particularly evident in museums, where the value of an exhibition is measured, among other factors, also according to the ability to represent the intangible value of the works of art of the set-up in a tangible, effective and, most importantly, universal way. The solutions based on the so-called *immersive-technologies* are among the most interesting in this process of expressive restyling for their potential and versatility, counting among them applications that range from *Projection Mapping*, to *Augmented Reality*, to *Virtual Reality*, to *Immersive Rooms*. *Immersive* solutions work on perceptive and sensory mechanisms taking advantage of the illusory effect generated by various devices of projection and visualisation. They enable to transform the space and the physical environments, virtually *immersing* the spectators in an experience that can enrich, integrate, or even obliterate and substitute the actual exhibition space.

Case study: the Virtual Museum of Venice (I. Friso)

The case study described in this essay deals with a methodological approach based on the issues discussed so far. The aim is to narrate the historical events of a part of the city of Venice, Piazza San Marco to be exact, in a virtual museum through the transformations that have led the square to look as it appears nowadays.
In the specific case illustrated here, the aim is to narrate, reconstruct, and visualize the historical stages that, starting from 1806 – the year in which the city of Venice was annexed to the Kingdom of Italy – have led to the current configuration of the wing that delimits the west side of one of the most visited squares in the world. This complex work can be conveyed through the means of a digital museum, which is a powerful means of communication and enhancement of its results, aimed at both scholars and the general public, showing the different stages of the research that we are about to describe. The aim is to create a 3D environment that functions as a searchable database and is accessible both online or at the traditional museums involved.
The methodology follows a rigid and rigorous step-by-step scheme already used in similar research fields and consolidated and verified over time [Giordano, Olson 2018]. The first step was the archival research, the analysis of the texts, and the systematization of all the retrieved documents. This enabled a back-in-time process which identified some very precise moments in history and the *consecutio temporum* of the most significative urban and architectural transformations. The second step was the photgrammetric survey, which was obtained using the most sophisticated technologies on the market and shows the courrent situation of the case study [Bergamo, Ciammaichella 2016].
The elaboration of data, with programs for multi-stereo matching and stitching, is based on the recognition and interpolation of homologous points that are in different photographic frames. Through this procedure it was possible to obtain a point cloud which replicates exactly the

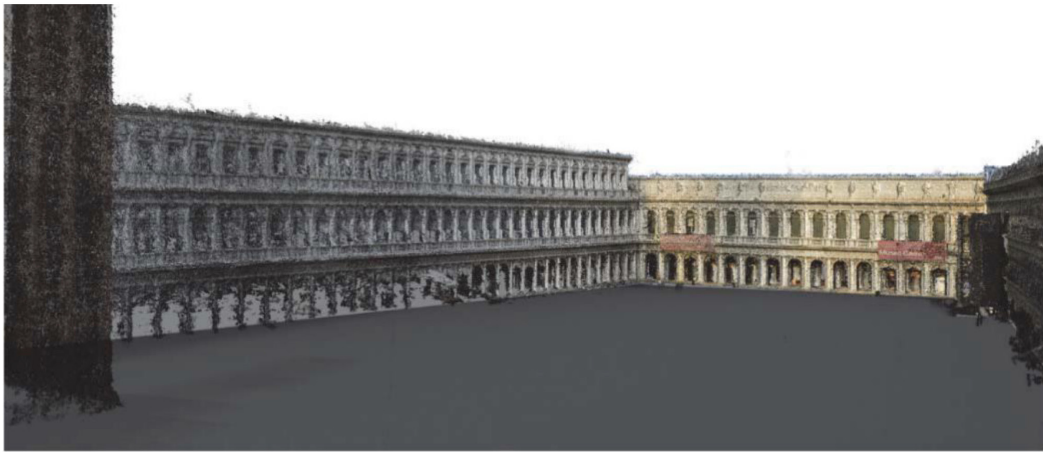

Fig. 01 Point cloud realized through the process of elaboration of frames. (Digital elaboration by I. Friso).

spatial conformation of the surfaces and takes also into account the chromatic information of the restored dots. This cloud allowed to virtually model the buildings respecting the real dimensions and the proportions of what had already been built (fig. 01).
The third step was the restitution of a geometric and interpretative model of the small church designed by Sansovino inserted in the sixteenth-century Piazza San Marco (fig. 02). This part of the research was conducted in collaboration with professor Kristin Huffmann from Duke University (NC).
The digital reconstruction of San Geminiano's church was based on some documents: there are some Venice's view by Canaletto that show the urban context of Piazza San Marco with the Sansovino's church on its west wing at XIX century, but the documents we refered were an ancient survey by Vincenzo Maria Coronelli, another one by Antonio Visentini and a third one by Robert de Cotte in which we can see the same plan of the first two survey but a different section where there is a different kind of dome.
The final step of this "phase of reconstruction of the events" consisted of the restitution of a third digital clone that crystallizes the Napoleonic Wing in 1806 in which the project by Giovanni Antolini, for the new imperial residences was thus included in the Venetian context of the time (fig. 03). The drawings of the Antolini's project on the archive of Fototeca dei Civici Musei Veneziani helped us to reconstruct the spatial configuration of the new imperial residences. Digital models are the starting point for the study and the development of new ways of historical narration of the events via the creation of multimedia videos, Immersive *Reality experiences*, *online* accessible *databases*, or apps for mobile devices. Their aim is to support, enrich, and implement what is already offered by traditional museums, but without aspiring to substitute them. On the basis of these reconstructions, this work – which is still a *work in progress* – aims to build a museum of the city able to implement and complete the expositional and cultural offer of the city museums. The study of the architectural transformations of Venice during the Napoleonic era would help understand a story well known only by the experts.
During the last decades, with the advent of the so called "Digital Era", the spaces and means for the spreading of knowledge about museums' collections and projects have considerably widened. The digital world – intended as a place of detailed study and research of new ways of communication – has proved to represent a strong mediatic response [Piredda 2019].
The increasingly massive presence of ICT in contemporary society has introduced "a series of genetic mutations in the communication system that in a short time has revolutionized us, our society and our communication models" [Arcagni 2016]. Moreover, it has inevitably pushed cultural institutions to update themselves and to start a complex digitalization process on several levels. Lev Manovich's *software culture* has hybridized the paradigms of production and communication modifying the fields of research and spreading the use of words such as *transmedia*, *gamification*, *engagement strategies, wearable* computing that have

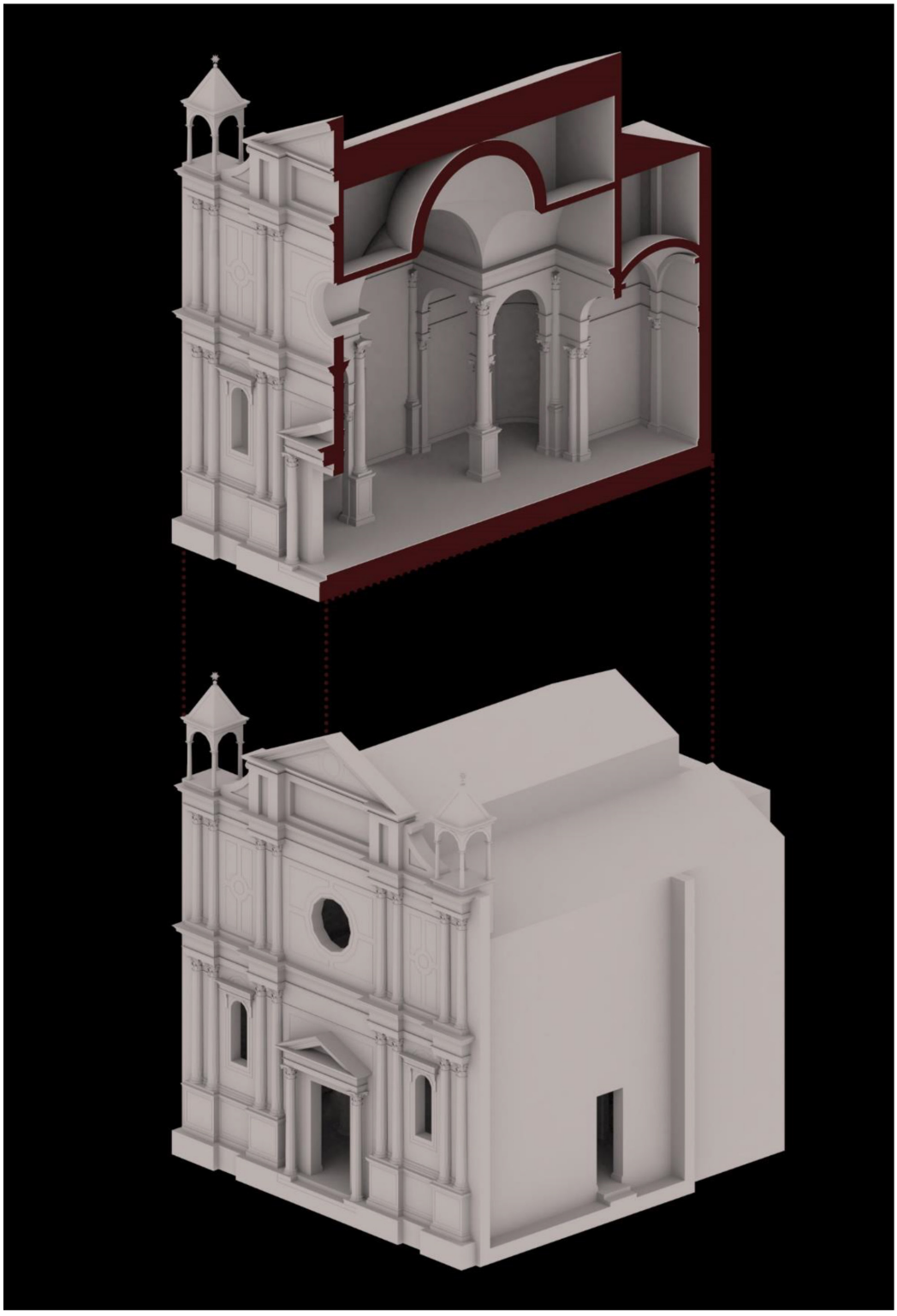

Fig. 02 Digital reconstruction of the Church of San Geminiano. (Digital elaboration by I. Friso).

determined the birth of new types of images and visual devices [Manovich 2010]. Over the last few years, museums have shown a growing interest in the web, no longer considered only as a promotional space, but also as a valid and innovative tool for user interaction and involvement. A museum can be effectively backed up in its functions by its online counterpart and by experiences of Immersive Reality. In this way, it can participate in the spreading

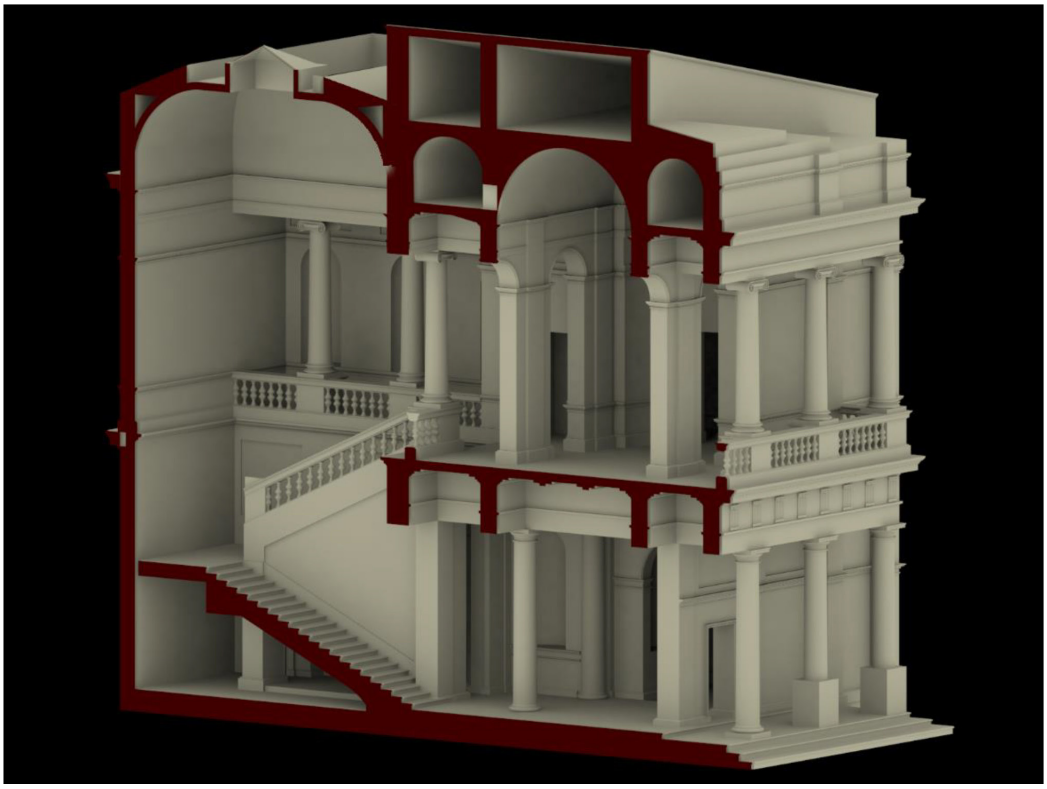

Fig. 03. Digital reconstruction of the entrance hall leading to the new imperial residences. (Digital elaboration by I. Friso).

of knowledge of the heritage both because it uses digital reproductions of the works that displays and because it goes beyond the physicality of real spaces. It is a fact that the trend of contemporary museums is to gradually substitute the motif 'please do not touch' with interactive installations that allow the general public to interact directly with the work of art, thus reducing the distance between observer and observed object. Therefore, today more than ever, become relevant ideas such as that of Duncan Cameron, who already at the beginning of the 70s insisted on the transformation from a "temple museum" – where the works of art are held – to a "forum museum" – a sort of cultural square for society [Cameron 1972]. Thus, we are witnessing a revolution where the once passive observer lives now an active experience inside a dynamic museum which, in turn, somehow denies its original essence as a mere container of works of art and promotes instead the narration of a story. Contemporary museum exhibitions have increasingly been using interactive devices, which have been defined as natural mediators that react not through technological prostheses, but through traditional communication methods – touch, voices, gestures, etc. – thus creating a more natural environment. Moreover, the *online* edition guarantees a global visibility and, most of all, brings an extremely differentiated public closer to museums. Considering these theoretical premises and attentively analysing the state of the art, a first graphic *layout* was created as the product of a research attributable to the Iuav University of Venice. It could adapt itself both to the needs of an *online* accessible *database* and those of experiences of immersive reality. The main interface is supposed to represent an aerial view of Venice with four icons that identify the historical moments in which the main urban transformations occurred. Since users can decide which historical moments to choose first, they can also decide to abandon or follow a narrative linearity based on the chronology of events (fig. 04). The first icon is about the years before 1729 (the year in which Ughi drew his map) and it gives access to a virtual room whose floor is a historical map of the city. This map is meant to show all the architectural elements that characterized the part of the city that was demolished in agreement with the Napoleonic plan. A navigator allows to move inside the room through the movements of the mouse to focus

Figs. 04-06 Graphical layout of th Virtual museum. (Digital elaboration by I. Friso).

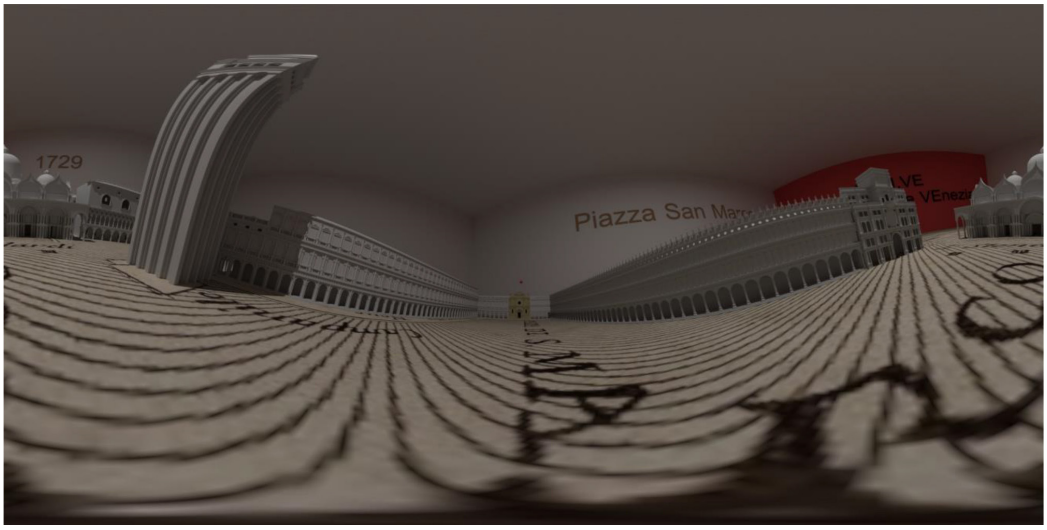

Fig. 07 Spherical image of Piazza San Marco. (Digital elaboration by I. Friso).

planimetrically on the surveyed buildings. Once the chosen building is identified by a *tag*, all the retrieved documents with accompanying captions that list their source appear on the vertical walls of the virtual room, as in a film sequence (fig. 05). When the case study is approached, the digital model of the Piazza in its adjacent context appears. A change of scale allows the users to move inside the model and to interact with it through the direct exploration of the buildings in their correspondent historical moment. An additional change of scale allows to enter the buildings to see their geometric-spatial configuration (fig. 06). The realization of spherical images imported in an *open-source* software gives access to the virtual room and the possibility to see its inside with a 360° vision through maps on the inside surface of the spheres that simulates the 360° vision (fig. 07). The possibility to access the hotspot info or the informative and accessible links allows to enrich the knowledge via the addition of text files, images or multimedia files that assist the reading and facilitate the learning process. Users have therefore free access to the documents or multimedia files that delve into some of the studied themes. It is possible to move among the different spaces of the room through the virtual navigation and following a path signalled by arrows. The aim of the virtual exhibition is to accompany the spectator in a journey towards a more in-depth knowledge of the case study. The aim of a virtual *tour* is to widen considerably the spaces and the means for the diffusion of the knowledge without trying to substitute a real experience but working alongside traditional museums for the relaunch of cultural objectives and contributing to the success of education. These new educational instruments lack in fact of the emotional factor that visitors can have only when they are in direct contact with the work of art and that instead is missed when the work of art is experienced only through the medium of technology.

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