Chapter 4
Καλλιόπη or On Interpretation, Presentation, and Participation: Models in Architectural Heritage Conservation

ABSTRACT

The chapter underlines the peculiarities of architectural, and it focuses on specific methodological aspects, in particular related to historical studies and their aims. Advanced digital models for historical buildings are based on the synergy of 3D-modeling and database-modeling. In particular, documentation, surveying, computer based-visualization, virtual reconstructions, digital archives, and digital museums, as well as gaming, edutainment, and e-tourism approaches favor the development and diffusion of non-linear, multi-directional, and media complex storytelling for heritage study, interpretation, presentation, and conservation.

INTRODUCTION

A building is a complex organism, synthesis of spaces, surfaces, volumes, and materials, made by constructive systems. It is the result of processes of transformation and modification, expression of interventions and of architectural cultures that have occurred since its construction to the present day. Each building has its own quality of “individual”, therefore the term

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“handmade” (or “artifact”) is often used to highlight how a historic building is a product of human activity.

Architectural heritage has specific historical and aesthetic values (Brandi, 1963). It should be noted that historical values also includes the construction techniques of the past, now no longer in use – often not repeatable because the loss of the ancient material culture –: These techniques are the witnesses of cultures of a specific historical age, useful timelines to reconstruct the life of the building, and static reason of existence.

Therefore the issue of an architectural scientific representation conceptually cannot be limited to the one of its surface – as far as conducted at the highest level of photorealism – or to the metric accuracy of measures – as far as necessary –, but inevitably it must aim to the understanding, representation, interpretation, and presentation of historical and aesthetic characteristics.

Consequently the contents of architectural heritage representation are influenced by: Building characteristics (for example a ruin of classical age, a medieval castle, a renaissance palace, a baroque church); Specific representation aims (such as geometrical-dimensional surveying, degradation analysis, communication addressed to non-expert users, etc.); Last but not least, levels of definition (scale or, for a 3D model, the Levels of Details).

Digital technologies favor the representation of architectural heritage by 3-D complex models. In particular models represent dimensional and geometrical building’s aspects, architectural and constructive characteristics, and transformations. Moreover they can be a core for the aggregation, organization, analysis and management of the vast and heterogeneous information associated to architectural heritage, such as surveying and design drawings, historical documents, scientific data (Centofanti & Brusaporci, 2012).

The spread of digital tools has brought the research on architectural heritage to pay attention on some lines, in particular: The ways to move from the physical content to the 3D model; The design of datasets; The study of the potentialities given by software and instruments, often born for different applications – mechanical design, forensic surveying, architectural design of new buildings, etc. – (Chiavoni & Filippa, 2011).

The representation is the first and more important tool for architectural heritage’s study and communication, because visualization allows the scholars to “see” their ideas, make them experienceable, verify them, and – consequently – representation aims to change, improve, and share concepts.

3-D modeling favors an heuristic process, because the modeler is required to check and modify the results of the modeling procedures according to an iterative process of reading / understanding / communication of the architectural artifact’s characteristics and values. In particular architectural survey-
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