Chapter 1

Representing Architectural Heritage: RAH

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ABSTRACT

Architectonical artefacts are in many ways one of the most extraordinary legacies that past civilizations have left to us from a cultural, technological and functional standpoint, because of the impact that the development of the material culture and building techniques had for ancient communities. The definition of a protocol designed to achieve an understanding of the object of Cultural Heritage consents the realization of various models. These models are the bases for all the critical, selective, specialist next analyses and elaboration. This work discusses the possibilities offered by the integration of heterogeneous method, traditional and innovative, for massive surveying and digital representation technologies.

INTRODUCTION

Speaking about architectural survey for the process of data gathering means penetrating the most dynamic fields of research, particularly because of the close relation that links the discipline with the technological development. The relationship between direct collection of information and the appliance of software and hardware devices help us to record the undergoing changes of the survey in an important moment of revision, from a traditional approach to one intimately connected with the huge potential provided by digital technologies.

The integration of the traditional approach with the continuous technological advancement and in particular the great digital revolution provide new research tools that are easily applied to science. In the field of survey and representation, like in many other disciplines where it is necessary to gather data, the introduction of new information technologies has quickly revolutionized the way we understand and address the matter. Even though the fundamentals of the existing disciplines haven’t changed, they have been interacting with new tools and applications for a long time now.

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The survey as well as technological advancements led to the development of three different areas of research: the first deals with data collection (nowadays they are able to provide, in a short time, a large amount of information with a high degree of detail); the second area is more restricted because it is addressed to research and suggests new low cost solutions; the third concerns the traditional methods and their integration with the former two.

The survey operation, as a process involving deep knowledge, aims at the accurate representation of the analysed subject and its goal goes beyond the consideration of the technique and the specific instrument, making the ultimate result of this process broader and more amplified (Docci, Bianchini, & Ippolito, 2011).

It’s not appropriate to focus the attention on a specific technique only but to integrate all different techniques, tools and methodologies, in order to achieve the best interpretation of the analysed subject.

For this reason, drafting a procedure based on the interaction between direct and indirect high cost and low cost methodologies for the elaboration of 2D and 3D models would be a topic of great interest.

This study aims to suggest a modus operandi for the standardization and regulation of data collection, processing and recovery procedures, in order to make the final scientific results more objective and correct.

All of these considerations make it clear that the problem must be addressed as a whole, by designing, testing and applying innovative management tools able to deal case by case with the complex issues we have outlined. Such tools, however, cannot achieve their full potential without a substantial change in perspective: architecture cannot and must not be regarded as an isolated entity but as part of a larger “cultural cluster”.

Obviously, this implies the necessity of broader management and the application of different skills of architects, archaeologists, restoration specialists, administrators, informatics scientists. People involved at all levels of organizing the operation and in many other capacities will all be called upon to address the problem, material and cultural.

This work discusses the possibilities offered by the integration of heterogeneous method, traditional and innovative, for massive surveying and digital representation technologies.

The forward examples aim at proposing some possible guidelines derived from the activities carried out in the last years of my research within the Department of History, Drawing and Restoration of Architecture of Sapienza University of Rome.

The main aim is to discuss the advantages of a non-contact digital-catching in the reconstruction of architectonical and archaeological contexts which have undergone substantial transformation, such as the case of San Peter’s Dome and the Divo Claudio’s temple in Rome.

The second aim is to discuss the advantages of digital catching during the phase of documentation and analyses of the architectonic and archaeological artefacts.

When working with complex structures, in particular domes or archaeological structures, the integration of surveying methods has proven to be necessary, and can now be considered standard practice. It is thanks to this integration that we are capable of understanding the object of study and analysis, in both general and detailed terms. Surveying is thus to be intended as a rigorous methodological process that, through operations of the selection, measurement and representation of important points, is capable of describing the geometric-spatial, dimensional and formal qualities of the object of study and, in absolute, allowing for the achievement of the profound awareness of the aforementioned object (Gaiani, Benedetti, & Apollonio, 2011; Remondino & Campana, 2014).

Different methods have been employed since antiquity, opportunely integrated to determine and measure the spatial coordinates of significant points. The aim is to simplifying the complex reality of
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