

Chapter 14

The Role of the Architectural Survey in the Sustainable Refurbishment of the Historical Building Heritage



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Introduction

Cultural Heritage and Historical Building in the Sustainability Paradigm

“The protection and enhancement of cultural heritage contribute to preserving the memory of the national community and its territory and to promote the development of culture” [1]: the Code of cultural heritage and landscape, entered into in Italy since 2004, brings together in the concept of cultural heritage the artifacts and landscape assets relating to different scale of the habitat. Buildings of historical monumental interest to villas, parks, and gardens that have artistic or historical interest to public squares, streets, roads, and other urban open spaces of artistic or historical interest are all intended in a vision of common presence of each artifact to form without distinction of continuity the unique value so strongly settled in the personal and collective identity of the country constituting a truly distinctive element in social, civic, and economic terms.

Alongside the many other notions of constitutive assumption, cultural heritage is also defined by the characteristic of being in continuous change and change, following the transformations of the social environment of which it is simultaneously memory and development trigger. The different presence, function, and its same role depend in fact dynamically on the social, cultural, and technological context of reference and on the environment constituted by a community, the territory, and its institutions.

Among the peculiar characteristics of the Italian cultural heritage and the building one in particular, its historicity on a large scale certainly constitutes the most

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macroscopic character. On the one hand, it identifies and conditions about the approaches and methods of work, but on the other hand, it has constituted precisely the precondition of its longevity, through the flexibility to accept the transformations that the historical building heritage presents, sometimes even more than the modern architectural buildings [2, 3]. Thus, the possibility to get new skin at every stage of life substantiates the dynamism and flexibility of the historical Italian building heritage and gives an added value in terms of sustainability of the transformation interventions: is the historic building a resilient building?

The Identity Potential of Historic Buildings as a Driver of Sustainability

This continuous and changing interaction between artifact and environment therefore simultaneously makes the cultural heritage an object, a cultural, identity, and economic resource but also a marker for understanding the society that is called to preserve it, protect it, and enhance it in all its potential [4].

And if the notion of sustainability includes the enhancement of the potential of the environmental resources of urban and architectural contexts, this potential is defined by all those characteristics of material and immaterial value settled in the cities and in the historical buildings by the *genius loci*, and then the architectural survey can also take the function of a tool for revealing this potential, according to an innovative disciplinary meaning that inserts traditional instrumental attitudes on the inevitable paradigm of interpretation and transformation of contemporary urban reality defined by sustainability.

The Role of the Architectural Survey in the Sustainable Refurbishment of the Historical Building Heritage

The survey of architecture and environment is a technical discipline which due to the digital revolution of the last two decades has brought back into its own field many instrumental innovations that have fastly taken place consequently changing its scientific statute in a increasingly complex and constantly evolving framework [5].

In fact, the survey assumes variable configurations depending on the type of object investigated, the context conditions (human resources, technology and time available), and above all the purpose of the survey; if aimed at the documentation for the knowledge of the building, the documentation for the restoration of the building, the documentation for the construction of a new building.

Another non-secondary element that influences the operational framework project is also the size of the context in question and whether it consists of a single

architectural building or an urban-scale complex (a square, a street, a block) or even from an urban quadrant or a settlement. For the reasons mentioned, the survey's outputs are articulated both in a linguistic sense—drawings, static or dynamic 3D models, videos, interactive mappings—and in a thematic sense—representation of dimensions, materials, functions, degradation characteristics, of the structural setup, and so on—in a very variable and wide spectrum of representations and views only partly codified and to be redefined each time on a case-by-case basis [6]. Considering the architectural survey as the first knowledge's phase of the building process, an important update is required today by looking at every transformation of the existing architecture in the logic of sustainable intervention, a logic in which the traditional instrumental and methodological variables of the architectural survey must be further supplemented by a series of representations capable of accounting not only for the physical characteristics of the building but also for its attitudes to resilience and its immaterial dimensions of economic and social value.

The study of the systems characterizing Italian historical settlements carried out through the disciplinary tools peculiar to Drawing and Survey has a long tradition and is based on well-established investigation methodologies and extensive literature. The continuous technologies improvement allows today to update the survey and representation methods attempting a discretization more pertinent to the multi-dimensionality of the complex systems analyzed (Fig. 14.1).

A deep understanding of urban realities, in fact, could pass only today for a more integrated representation that is able to give back both the material data (in its visible characteristics of size, shape, materials) and the immaterial one of its genius loci (in the features that define in such a peculiar way the character of an urban environment: from the function of a place to the chronological dimension that connotes the rhythm of life in the day or in the seasons, to the social typology of its inhabitants), both indestructible factors of identity formation of a city.

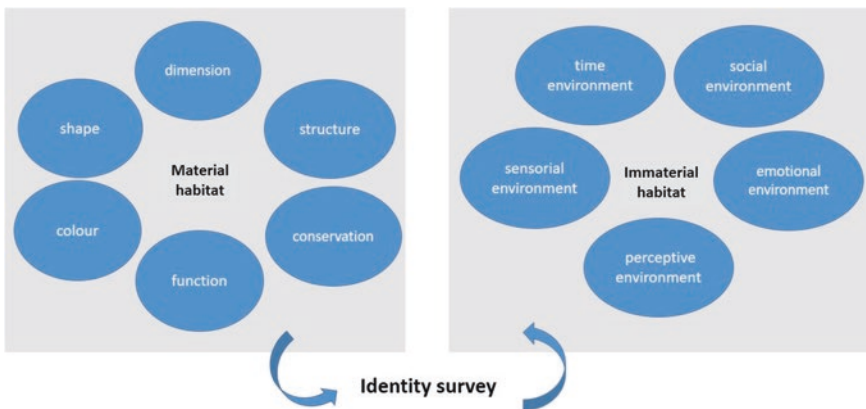


Fig. 14.1 The Identity survey model

The formulation of the workflow is therefore structured as follows:

- (a) Acquisition of information elements on the architectural and environmental heritage
- (b) Definition of the numeric, graphic and textual dedicated repertoires
- (c) Production of documentary repertoires with multi-scalar contents: basic, when related to the description of natural and artificial buildings, and critics, when related to the thematic elaboration of basic information

To these standard representations we propose to add the interactive maps for the description of the identity features of the place: soundmap, chromomaps, and olfactory maps [8].

Results and Conclusions

The methodological and instrumental workflow described above focuses on the objective of verifying on the field the theoretical model of “identity survey” that, while substantially based on the 3D model and the use of canonical two-dimensional drawings of architecture, is not limited to visual suggestion but tends to the comprehension and involvement of the user in the dimensions of the townscape that make it an environment: the synchronic and diachronic physical impact with the place, the particular social interactions that take place there, etc.

Based on these premises, a campaign of “identity survey” has been designed and started on a sample case located in the historic center of Florence, Piazza San Pierino (Fig. 14.2).

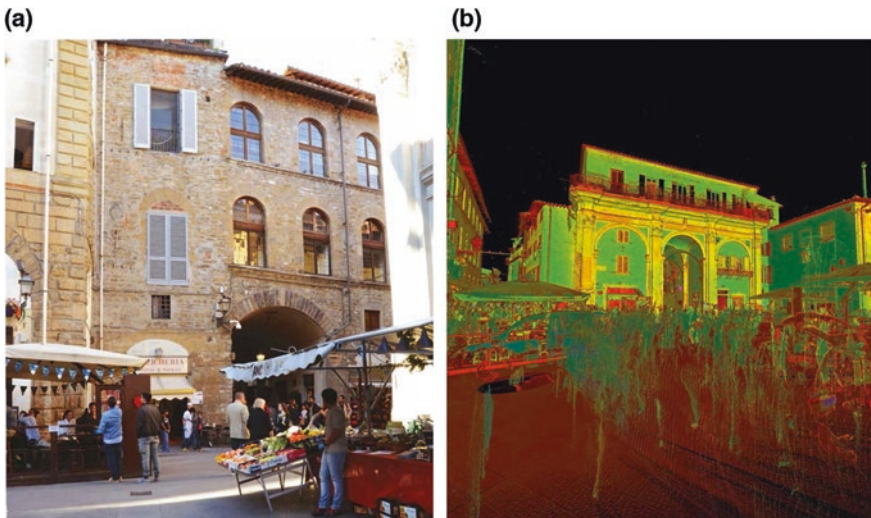


Fig. 14.2 (a, b) The S. Pierino square in picture and Laser scanner view



Fig. 14.3 Example from the interactive platform

The data acquisition phase was critically oriented towards a synthesis prepared for reading on several levels through the graphic and visual representation of the square describing together images and imaginary: together with the dimensions of the building, also those of memory and values that over time have stratified themselves to form the visual identity that all mentally associate to the historic center of Florence (Fig. 14.3).

The nodal and more innovative phase will be constituted by the interactive representation, interpreted as the convergence between survey data and 3D dynamic representations to allow the production of models destined to become dynamic data in real-time to realize “identity maps” to be used via smart devices [9].

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