DIGITAL LANDSCAPES PAESAGGI DIGITALI

DIGITAL PROCESSES FOR THE REPRESENTATION OF CITY, ARCHITECTURE, PRODUCT

PROCESSI DIGITALI PER LA RAPPRESENTAZIONE Della città, l'architettura, il prodotto

6

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La collana adotta un sistema di valutazione dei testi basato sulla revisione paritaria e anonima (*peer-review*). I criteri di valutazione adottati riguardano: l'originalità e la significatività del tema proposto; la coerenza teorica e la pertinenza dei riferimenti rispetto agli ambiti tematici propri della collana; l'assetto metodologico e il rigore scientifico degli strumenti utilizzati; la chiarezza dell'esposizione e la compiutezza d'analisi. Per temi specifici la revisione anonima è effettuata da esperti esterni scelti dal comitato scientifico.

..dL

Digital landscapes / Paesaggi digitali Digital processes for the representation of city, architecture, product Processi digitali per la rappresentazione della città, l'architettura, il prodotto

Landscape is not scenery, it is not a political unit; it is really no more than a collection, a system of man-made spaces on the surface of the earth. Whatever its shape or size it is never simply a natural space, a feature of the natural environment; it is always artificial, always synthetic, always subject to sudden or unpredictable change.

J.B. Jackson

La collana mette in luce il ruolo della rappresentazione digitale come metodo di prefigurazione del progetto e come strumento di indagine per la conoscenza. Le rappresentazioni, che siano rivolte al pensiero, alla comunicazione o alla costruzione, sono generalmente improntate su processi impliciti che scaturiscono nella mente del progettista. La digitalizzazione impone la necessaria esplicitazione delle azioni per la costruzione dei modelli. Gli ambiti indagati sono il paesaggio, la città, l'architettura e il prodotto. Attraverso esperienze teoriche e casi studio si dimostra quanto le scelte insite nei processi siano foriere di creatività e invenzione. L'interesse verso le procedure per disegnare prevede l'utilizzo di processi aperti e condivisi anche per agevolare il dialogo tra le discipline, rendendo il modello informato e creando un nuovo legame tra modello concettuale e modello costruttivo.

The book series highlights the role of digital representation as a method of foreshadowing the project and as an investigative tool for knowledge. The representations, whether they are aimed at thought, communication or construction, are generally based on implicit processes that flow into the mind of the designer. Digitisation imposes the necessary explicitation of actions for the construction of models. The areas investigated are the landscape, the city, the architecture and the product. Through theoretical experiences and case studies it is shown how much the choices embedded in the processes are the harbingers of creativity and invention. The interest in procedures for designing involves the use of open and shared processes also to facilitate dialogue between disciplines, making the model informed and creating a new link between conceptual model and construction model.

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ANNA SANSEVERINO

HBIM MONITORING ECO-SYSTEM Semiautomated procedures for the setting up of enriched cooperative systems

Foreword by

RICCARDO FLORIO

Afterword by

SALVATORE BARBA





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To my beloved ones, the pillars of my existence

The one who influences the thinking of his time influences all the moments that follow him. Leave your opinion for eternity

Hypatia of Alexandria philosopher, astronomer, mathematician

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FOREWORD

Writing today about the representation of architecture necessarily means confronting the possibilities and potentialities that are rendered by specific methodological processes that imply resorting to particular computerised procedures and using sophisticated instruments.

As a matter of fact, the complex themes underlying the operations of the design and representation of architecture and the city acquire a particular specificity and pertinence, especially in light of their action of constructing reference models, the latter undertaking the task of analysing their deep roots and explicating their characterising components in order to make possible the subsequent operations of analysis, knowledge, and assessment.

This initiates an exploration of the architectures that, in many cases, establishes an enhancement model for the configuration characteristics examined by setting in motion analytical-knowledge processes aimed at examining the conditions in the "state", the capabilities, and potential of the architectures that — interpreted both in their paradigmatic emergence and their valued role within the complexity of the whole — reveal the code of belonging to the urban structure.

The interconnected actions of reading and collecting data make use — in some cases requiring in-depth study — of advanced surveying techniques that make it possible to acquire morphometric and material-colourimetric data of the artefacts, rendering, through high-quality processing and detailed control of the data collected, their spatial configuration interpreted as part of the compositional layout.Nowadays, survey activities are intended as integrated operations. Regarding this aspect, some considerations should be made, weaving an even deeper link than the one already existing between the fields of data collection and their restitution.

What do we mean by integrated operations? Does such designation of meaning — which until now has only been ascribed to architectural and urban surveying — also apply to the operations concerning the restitution and representation of architecture and the city?

Architecture is de-constructed within its multiple features reflected in the different representative planes: the investigations carried out on the horizontal planes, on the elevations, on the interior space structure, on the recesses and projections of the slits and light cuts, on the plasticity of its shapes, on the geometric relationships between surfaces that turn into different figurative and figural aspects, are all complementary processes towards the final re-construction of the heuristic identity of architecture within that multifaceted, mutable, and "never-identical" act known as its perception. Representation thus becomes the ultimate act of knowledge, the culmination of a multiform event that stems from the premises of gathering data by means of surveying operations and that, at the same time, derives from a shift in the observed reality that is projected into a parallel spatiality where the experience and cultural quality of the process of re–presentation are engrafted, via a sign transliteration that concurrently proposes a synthesis and generates a new figurative model. Interpretation thus measures the essence of things and becomes a generative operation based on the everlasting interaction between acquired knowledge, imagination, cultural memory, and creative capability.

Namely, the defragmentation of the action of re-presentation concentrates the force of its transcriptive becoming and signifies its final quality amongst the multitude of selective separations that, just like a chemical rainfall, identify and secrete the necessary losses.

The possibility of using computer-based tools that astoundingly accelerate the processing of data collection and qualitative and quantitative recognition thickens even more the increasingly tight link between data management methods and representation models.

Provided that the term "integrated" comes from «to make whole or entire, complete and consistent» (as per the Online Etymological Dictionary), then we should not dismiss the need for representative standards to confirm the wide–ranging and new configuration possibilities offered by algorithmic computation. Upon establishing data processing procedures, the latter increasingly defines new and surprising ways of re– presenting observed realities, resulting in a cognitive extra-value that fosters further forms of representation aimed at completing and complementing what we might call 'traditional' ones.

These preliminary remarks are necessary to introduce the extensive work by Anna Sanseverino, *HBIM Monitoring ECO–System* (*Semiautomated procedures for the setting up of Enriched COperative Systems*), which taps, with methodological rigour and argumentative pertinence, into the very prolific field of the interrelations established and to be established between data collection and management methods, the rendering methods and the subsequent implementation and correlation of the overall results.

A work that, despite its complete adherence to the most accredited current research trends that lead the author to the proposal of an original *methodology for the long-term management in a BIM environment of Cooperative Enriched Monitoring Systems* [*ECO–Systems*], still declares a positive and persistent reference to the traditions of Classical Culture.

I believe this is evident in various aspects of her discussion, e.g., when referring to the importance of correct and methodical maintenance and the consequent monitoring of the physical–chemical–mechanical conditions of structures and infrastructures in the framework of the so–called *Structural Health Monitoring* [SHM] approach. Indeed, this is a reminder of the organic conception regarding the similarity between the human organism and the structural and architectural organism typical of the Renaissance tradition, as expressed by Filarete in the *Treatise on Architecture* and later reprised by Raffaello Sanzio in his famous *Letter to Pope Leo X*.

A further significant moment is Anna Sanseverino's choice for the operational simplification of her methodological proposal. The case study is the Temple of Neptune at Paestum — besides providing, as the author herself states, «the possibility of carrying out experimental applications based on the rich database already available and built up over more than a decade, also bearing in mind a possible further implementation of other types of data» — otherwise becomes admirable evidence of the actual effectiveness of the methodology validated through the study of an architecture that, on the one hand, expresses to the highest degree the quality of Greek architecture in the composite richness of both the dogmatic compliance with the architectural device and the invaluable exceptions that make it stand out, and on the other, offers itself as an existing and resilient architecture that reiterates in a given seriality components and elements with high figurative complexity.

While the main objective of BIM modelling is certainly to standardise as many elements as possible, in this specific case, standardisation becomes the inescapable harbinger of further in-depth studies, which the author appropriately identifies and implements through the integration of proper HBIM procedures and specific supplementary workflows. The result is a study — conducted by Anna Sanseverino with critical acumen and clarity of purpose — that offers a relevant and original contribution to the fine-tuning of the procedures that revolve around the related operations of observation, knowledge, interpretation, data collection, processing and management, restitution and representation of reality into spatial models that govern their formal concurrent features and ensure their future protection and conservation.

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