

Digital explorations in archive drawings

A Project for Cannaregio Ovest in Venice by Luciano Semerani, 1978

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ABSTRACT

The article shows some of the outcomes of a research project begun in 2021 in collaboration with the Archivio Progetti Iuav of Venice, with the aim of disseminating the drawings, documents and projects preserved. On the basis of the documentary collection including pieces, projects, models, together with a conspicuous repository of photographs and reproductions, the research deepens a little-explored aspect of an unbuilt Venice, circumscribing the investigation scope to the 20th century masters of architecture who contributed in rethinking the urban form of the lagoon city, such as Luciano Semerani's project for the sestiere of Cannaregio Ovest in 1978.

The discussion on the Venetian structural system, the urban trace and the architectural configuration is re-established, in a dialogue between its history and its contemporaneity. This is achieved starting from the digital models and virtual tours, with in-depth texts that integrate the information actions with respect to the qualities of the architectures and urban spaces, activated and consulted with the exploration of the model.

Keywords: Graphic Interpretation, Digital Reality, Virtual Tour, Digitalization Process, Immersive Reality, Luciano Semerani

INTRODUCTION

The digitisation process of the different graphic and documentary information, preserved at the Archivio Progetti Iuav, addresses the communication of heritage, elaborating scenarios consistent with the need to promote forms of knowledge easily shared. These information can be made available on interactive online platforms, through the use of immersive techniques and technologies for data processing and restitution. They can combine theoretical and design aspects of the investigated drawings while providing new narrative strategies for immersive fruition. Contextually to the fervent debate on the use of digital technologies for an increasingly open access to the cultural heritage, some outcomes of the broader research started in 2021 are shown, which saw the collaboration between the Project Support Lab of Iuav and the Archivio Progetti Iuav developed around the common objective of enhancing the documentary, graphic and photographic heritage contained therein by means of accessible, sharable and popular digital solutions. The subject of the research was the International Competition organised by Iuav in 1978¹ during which the city of Venice became a field of testing and intellectual speculation on themes such as the regeneration of historic city centres, the relationship between contemporary design and the existing fabric, the rethinking of infrastructural connections (by land and sea) between the lagoon city and the mainland, and the question of living in relation to building typology, public spaces and services. The area of intervention concerned the sestiere of Cannaregio Ovest, which the ten protagonists of the Competition considered as a model of possibility capable of assuming a new social, economic and urban development. A place from which industrial and technological changes would provide interference and stimuli for a new architectural vision. The ten proposals show approaches and strategies that differ in terms of

intervention scale, typological choices on architectural organisms, infrastructural network, connection (physical or visual) with the historical city, design references and fields of investigation developed.

BACKGROUND

The current reflection posed on Digital Heritage determines a constant rethinking on the ways of visualisation, communication and dissemination of cultural heritage across different research fields and disciplines *“from museography to computer graphics, from archaeology to design, from art history to engineering, from archives to statistics, etc. It is therefore an overarching term, encompassing many ICT topics and heritage themes”* (Pescarin, 2016, p. 1), increasingly leading to an overlap and interconnection between different knowledge. The era of large ‘digital meta-collections’ is taking shape in an increasingly massive way, bringing into its domain not only groupings of digital information pertaining to specific institutions, but also and above all their interoperability and ability to define a dissemination of knowledge increasingly relying on shared and networked exploration (Windhager et al., 2016). Along the lines of the definitions given by UNESCO to the concepts of tangible and intangible cultural heritage (UNESCO, 2003), looking at the use and development of digital technologies for the preservation and enhancement of heritage makes it possible to develop ways of accessing even those cultural assets that are difficult to reach or even just to consult, based on the assumption that preserving heritage means documenting, protecting, reconstructing and disseminating (Skublewska-Paszkowska et al., 2022). There has long been talk of increasingly democratic ways of access aimed at an open science, making people increasingly aware of their heritage and thus of the need to safeguard it through participatory processes: *“the application of technology in a democratic manner could refer to access to the technology for all, as well as use of the technology to actually serve democratic purposes. This prompts us [...] to consider whether the user driven approaches to the collection of digital heritage data in some ways represents the Heritage community taken control of the digital agenda”* (Laing, 2020, p. 2). At the present time, the numerous collections of the Archivio Progetti Iuav are catalogued on the web page of the specific section, according to a structure of links through which it is possible to access general information on individual architects, architecture competitions, projects and installations of the Biennale Architettura. Consultation of the individual items listed online leads to brief descriptions summarising the topics, biographies and types of documents indexed, accessible from the web or on request. The dedicated catalogue section allows the document structure to be viewed either by entering keywords or by entering the names of the collections. In both modes, the archival units show the document type, the reference to the specific collection and in some cases, the attached images. The online graphics gallery contains original drawings and often photographs of models not always available for consultation, unless requested directly from the Archivio Progetti. In the light of the current methods of accessing and consulting the material, of the possibilities of visualisation and interaction with the graphic information actually present in the archive for external users, the research described in this paper proposes an in-depth interpretation, digitisation and graphic reconstruction activity through the elaboration of digital models, which can also be explored in immersive mode, providing multiple and unprecedented readings of an unbuilt and imagined Venice. The digital reconstructions, by making known design experiences and lines of research adopted, shed light on the design work of architects, including those coming from different backgrounds and strongly linked to the issues and methods of design within the city’s historical passages, becoming an integral material of the documentary apparatus already present, but with an even more open, consultable and sharable mode of access.

MAIN FOCUS OF THE CHAPTER

Issues, Controversies, Problems

The research project aims to return a digital graphic corpus that recounts the wealth of information contained in the archive by means of additional unpublished images, video tours and explorations in

immersive mode, taking into account the transversal possibilities of innovative techniques and technologies in the field of outcome dissemination.

A further intention is to foster the development of immersive and integrated technologies, extending the thematic sphere to museum dimensions, in response to the issues of the preservation and enhancement of the Italian historical heritage and the cultural, architectural and historical value of Italian-made products, looking at Venice as a catalyst for hi-tech strategies to highlight the Italian way of designing and building the city.

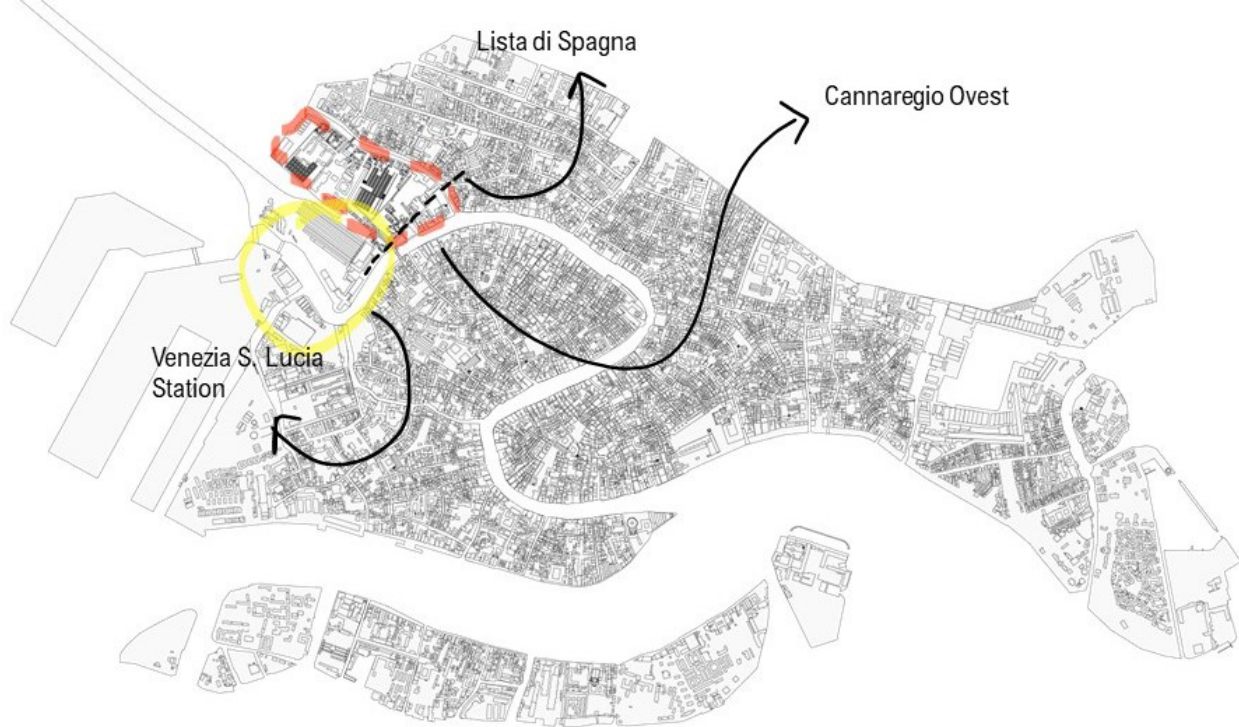


Figure 1. Scheme with the identification of the sestiere of Cannaregio Ovest in Venice, the station and the Lista di Spagna.

Source: S. Vattano 2022.

In virtue of the premises on which the international seminar that took place in the lagoon city in 1978 was configured, the currently available archive documents suffer from a condition of indeterminateness, at times of incompleteness, typical of those project drawings conceived to be further modified, manipulated and altered again. Therefore, the documentary apparatus of the projects interpreted and returned digitally in the research, as well as in the specific case of Luciano Semerani's work, shows numerous incomplete or missing information, the character of which establishes different issues from time to time, on an architectural, urban and landscape scale; issues intimately linked to the cultural sedimentation and design experience of the ten protagonists.

In this sense, in the phase of graphic interpretation and digital elaboration, it was necessary to make integrations between the original drawings and the information deduced from other sources (realised works, portfolios, private archives).

From graphic, compositional and design comparisons it was possible to trace coherent solutions dropped into the digital model, resolving the information missing in the initial drawings. This was a critical reading, a necessary integration of the graphic corpus provided by the Archivio Progetti Iuav. Only from the presence of these graphic and design interferences was it possible to define the becoming of an unbuilt place, such as the possible images for the sestiere of Cannaregio Ovest.

The digital narratives reveal a 'possible Venice', a field of intellectual speculation on several fronts: the project of the dreamed city; the relationship between Venetian memory and contemporary space; the images of an architecture telling its utopias through drawing. The following images, therefore, are to be seen as digital re-elaborations containing, on the one hand, the information captured during the project phase in the competition boards; on the other, as graphic places in which suggestions and quotations have been accumulated, results of the comparison and critical reading of the drawing, and of the project.

Methodology and Digital outcomes

The research on the ten projects presented at the International Seminar was structured with respect to three work phases.

The first part of the research concerned the retrieval of the graphic information and bibliographic sources necessary for digital processing, consultation and subsequent bibliographic organisation. The definition of the case studies was carried out by means of collaboration and ongoing dialogue with the management of the Archivio Progetti Iuav.

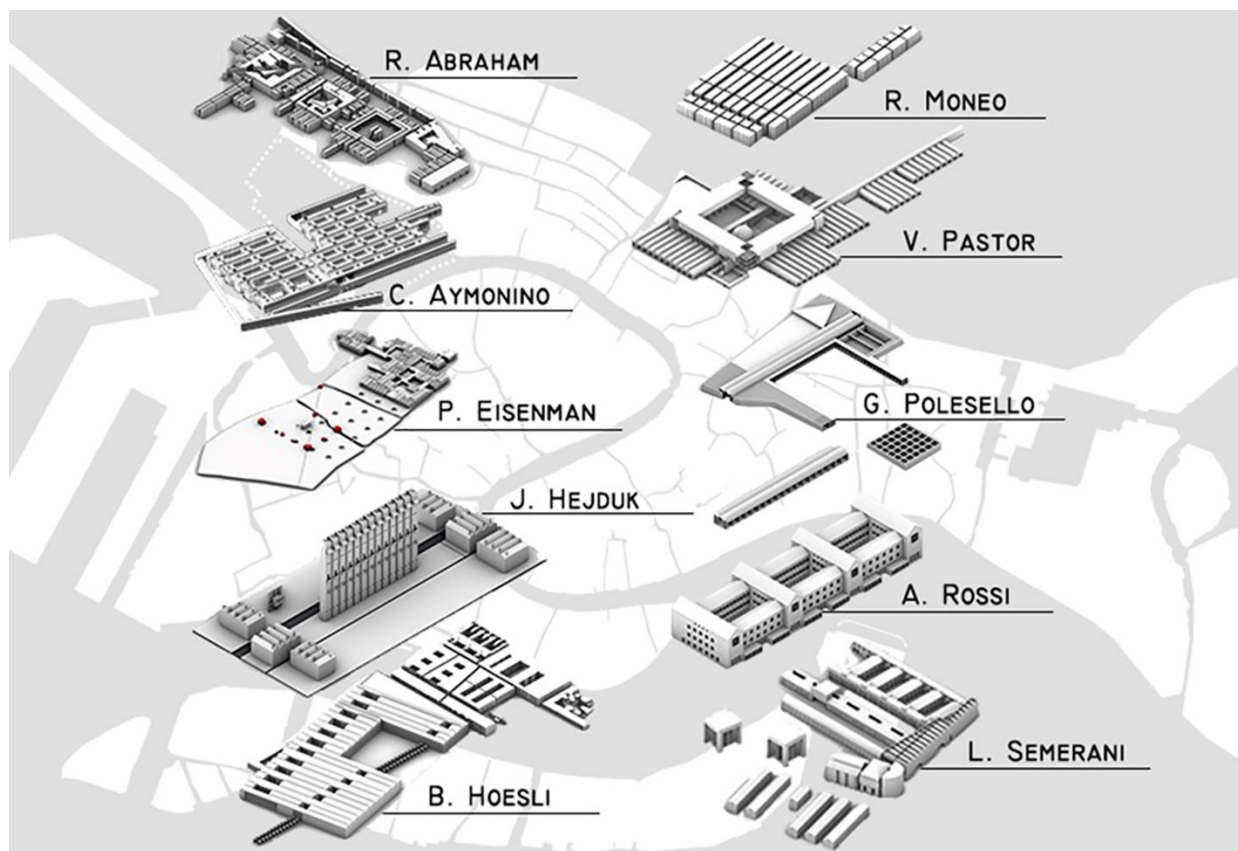


Figure 2. The ten project proposal presented at the international convention for the rethinking of Cannaregio Ovest, 1978.

Source: S. Vattano, 2022.

Following the collection of the iconographic sources, the interpretation and restitution of the selected projects involved an initial moment of in-depth graphic analysis.

In this phase, the drawings of plans, vertical sections, elevations, perspective and axonometric views were elaborated, useful for the construction of the digital model, including compositive, constructive and spatial information.

The digital models were processed to be managed and explored in different forms.

For this reason, in the last phase, different forms of ‘digital objects’ were produced that were able to provide a level of information that could be consulted from fixed or mobile devices and on open source platforms in different formats and viewing modes, depending on the type of use: images, virtual tours that could be explored in standard and immersive modes, and videos.

The parameters against which the ten projects were read, interpreted and compared, and therefore specifically that of Luciano Semerani proposed here, concern:

- the suggestions that characterised the design principle;
- the design references (literary, cinematographic, aesthetic-philosophical ones);
- the graphic-narrative structure adopted by the designer for its representation, especially by means of the method of representation adopted;
- the structural elements (urban, architectural, landscape) that defined the design matrices;
- the formal and material relationship between the proposed intervention and its immediate surroundings;
- the level of depth (scale and detail) of the project.

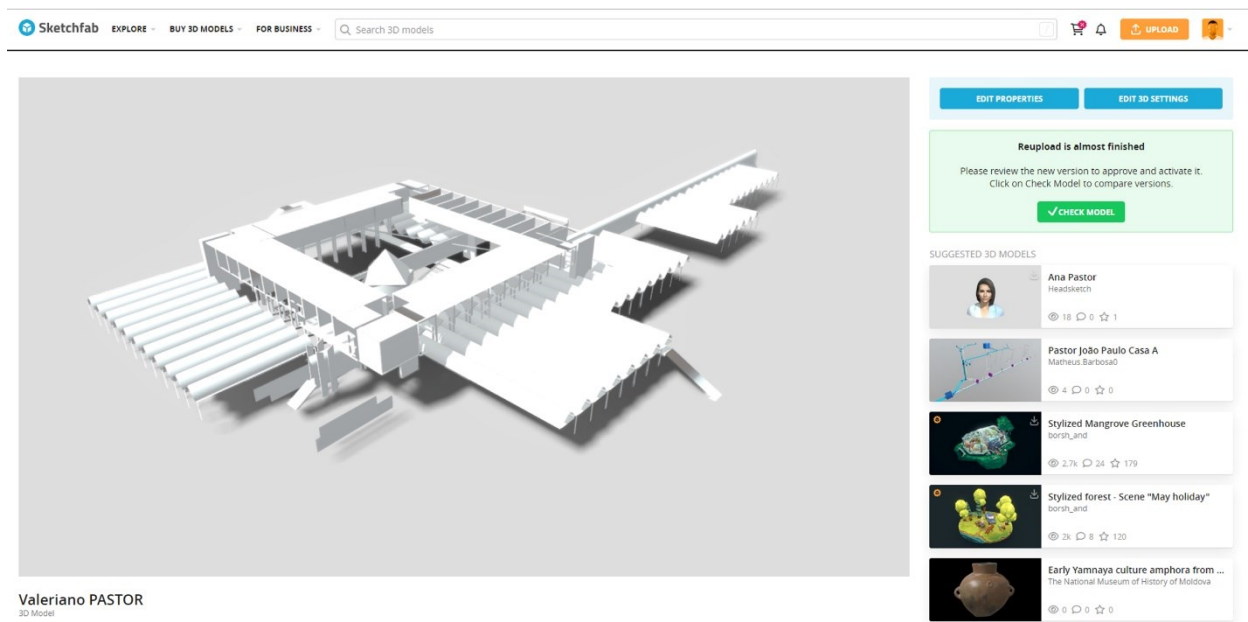


Figure 3. Example of shareable digital model in an open source platform (Sketchfab)

Source: S. Vattano, 2021

This is followed by in-depth studies:

- on the sources for the reconstruction and possible integration with other documents (sources found in other archives, designers biographies, work analysis, possible interviews for a better understanding of the project);

- on the restitution method (choice of viewpoint in rendered views, type of representation chosen, highlighting of the most significant elements);
- on the management of the model (surface treatment, colour management);
- on the critical aspects encountered in the restitution phase (lack of graphic information, incomplete designs, discrepancies between original elaborations).



Figure 4. Example of online and interactive virtual tour visualization (Pano2Vr).
Source: S. Vattano, 2021.

At the end of the brief description, for each individual project reconstructed, the textual apparatus is accompanied by some *ex-post* reflections on the relationship between the archive document, the digital processing and the new images to support the knowledge integrated by the new graphic-narrative information, a trace of which can be consulted on the Archivio Progetti Iuav website².

Representation methods

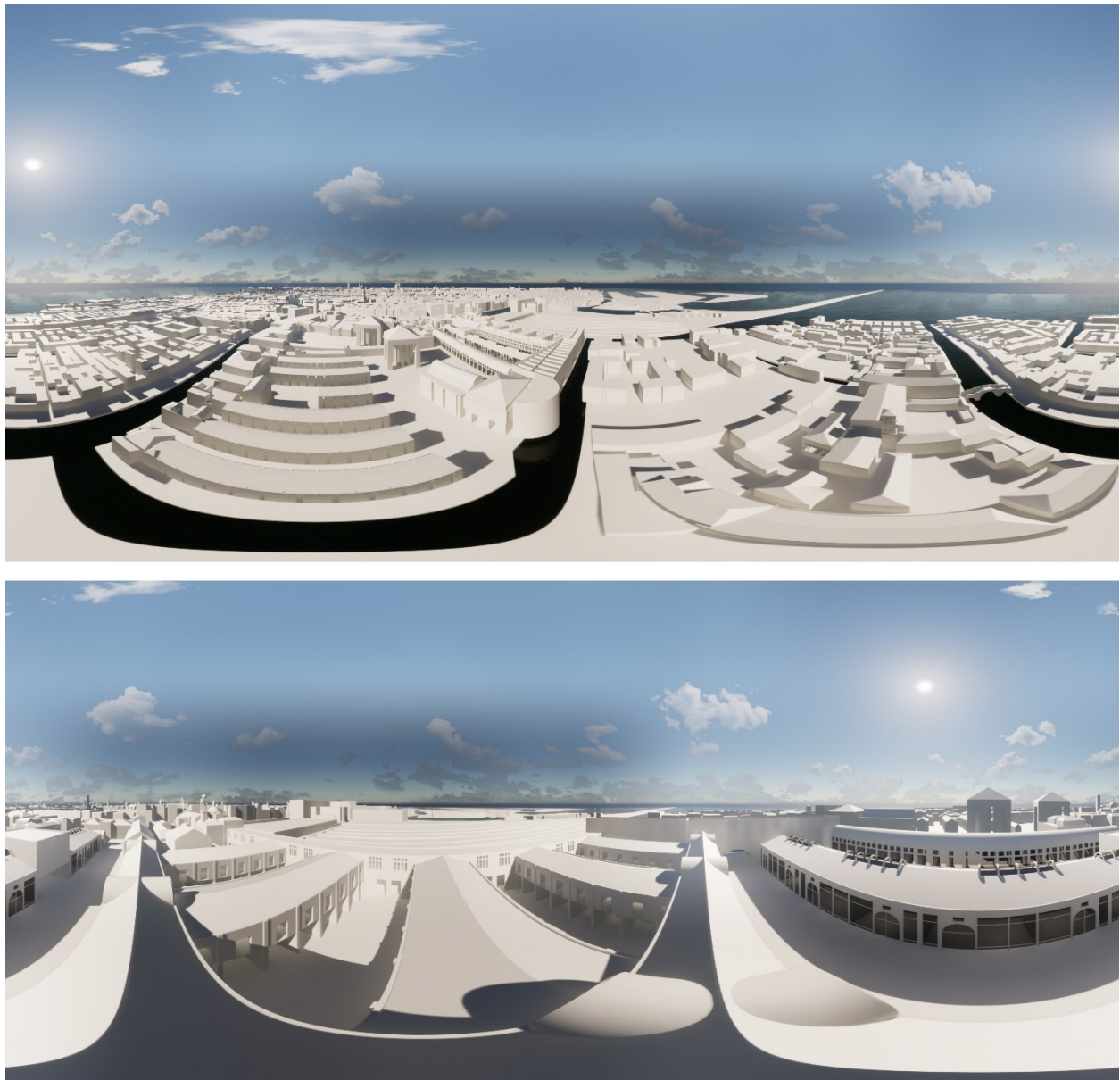
The digitisation, the construction of digital models, the synthesis of compositional principles through the graphic schematisation of case studies defines the basic material for the realisation of video tours, also in immersive visualisation. Some of the elements identified and organised in the descriptive phase of the project concern: the definition of the area of intervention, the functional organisation of the spaces, the internal/external relationship of the architecture, the relationship with the context, the interaction between the original drawings and the digital model. The project narrative is presented through different types of digital products:

- digital models;
- interactive and immersive virtual tours;
- 360° images;
- views obtained from the model (perspectives, axonometric exploded and perspective sections);
- descriptive videos;

- sharable and open digital models published on open-source platforms.

Moreover, as already mentioned, since we are dealing with imagined places and evocative suggestions of concepts oscillating between the abstract and the utopian, the graphic re-elaborations show monochrome digital models, a methodological approach adopted to emphasise the project's condition of incompleteness, understood as a place of theoretical speculation and convergence of spatial visualities.

The digital model, in the absence of chromatic and material definition, maintains the value of the possibility of visualisation that the eye can continue to experience in the attempt to reach the project's completion.



*Figure 5. Example of 360° panoramic views from the digital model of the project of L. Semerani.
Source: S. Vattano, 2021.*

As in the case of the other competition proposals, reading the drawings of Luciano Semerani's project reveals some of the criticalities and/or discrepancies in both the graphics and design of the object of study.

These moments of knowledge and therefore in-depth examination of the peculiarities, gaps and inevitable conjectural condition of the archive drawings, constitute the nucleus of the reflections involved in the digitisation and construction of the digital model. The synthesis of compositional features, both on an urban and architectural scale, was carried out through the graphic schematisation of the elements that characterise Semerani's proposal. Therefore, in order to delineate and organise the descriptive character of the images produced and their explorative-narrative attribute, some of the aspects inherent to the in-depth study and observation of the project were identified: the definition of the intervention area, the functional organisation of the spaces, the internal/external relationship of the architecture, the relationship with the context, the interaction between the original drawings and the digital model.

Semerani dwells on the urban context as the object of study and takes the city as the system of delimitation and orientation of architecture, opening up the field to a broader vision on the question of building the city.

The complexity provided by the compositional classification shows the dynamic correlation between phenomena and causes, thus introducing the role of the time and technical variable. In this sense, the architect highlights certain aspects, both urban and building, that participate in the definition of his proposal: the connection between the historic and contemporary city; the empty space recalling historical urban episodes; the re-proposition of building typologies recalling the Venetian memory; the suggestion of traditional building techniques and the enhancement of preexistence.

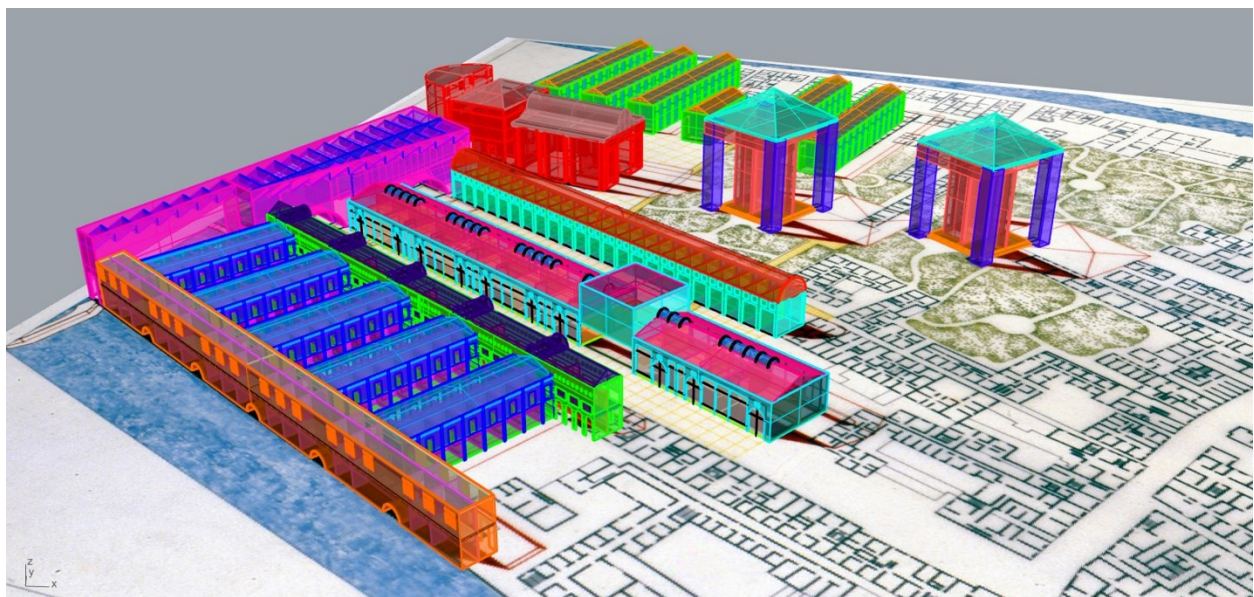


Figure 6. 3D model visualization with the insertion of the archive drawing of the Semerani's project plan.
Source: S. Vattano, 2022.

The choices regarding the methods of representation adopted for the interpretation of the drawings and their graphic restitution were conveyed by the same methods chosen by Semerani, the key elements characterising the imagined places, the viewpoints and spaces represented in the archive drawings, the textual descriptions not always accompanied by the drawings, and again sketches with annotations containing the rapidity and configurative immediacy of the project forms.

The graphic reconfiguration of archive documents has therefore taken shape with the elaboration of views from the model and digital hybridisations, meaning by 'hybridisations', combinations of images,

integrations between the digital model and the archive drawing capable of amplifying the perception of the imagined spatialities and providing an increasingly integrated degree of knowledge.

Explorability and visualisation of the digital model

Digital models were processed to be managed and explored in different forms. Their level of information was deepened on the basis of the type of digital object and the type of communicative use: images, virtual tours that can be explored in standard and immersive mode, and videos.

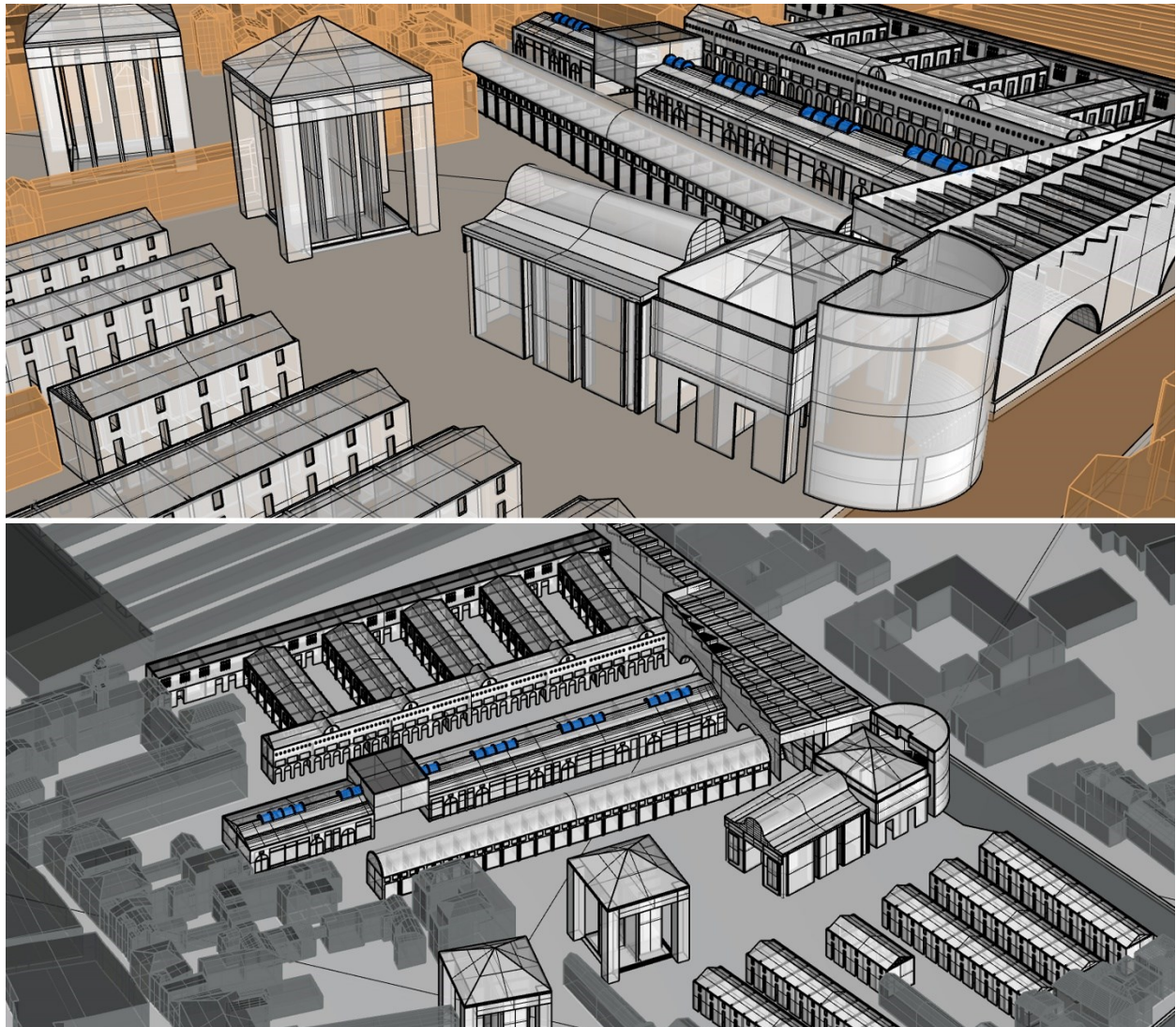


Figure 7. The ghosted view mode of the 3D digital model of the Semerani's hypothesis.

Source: S. Vattano, 2022.

An interactive mapping that collects and synthesises the ten proposals of the competition in Cannaregio is dynamically developed in a video tour, supplemented by 360° panoramic images, explanatory clips extracted from the digital models, historical-constructive and design information on the individual case studies. As in the other cases, also for the study conducted on Semerani the design elements highlighted in the virtual tours and in the 360° images dealt with specific moments of the urban and architectural reflection: the definition of the intervention area, the functional organisation of the spaces, the

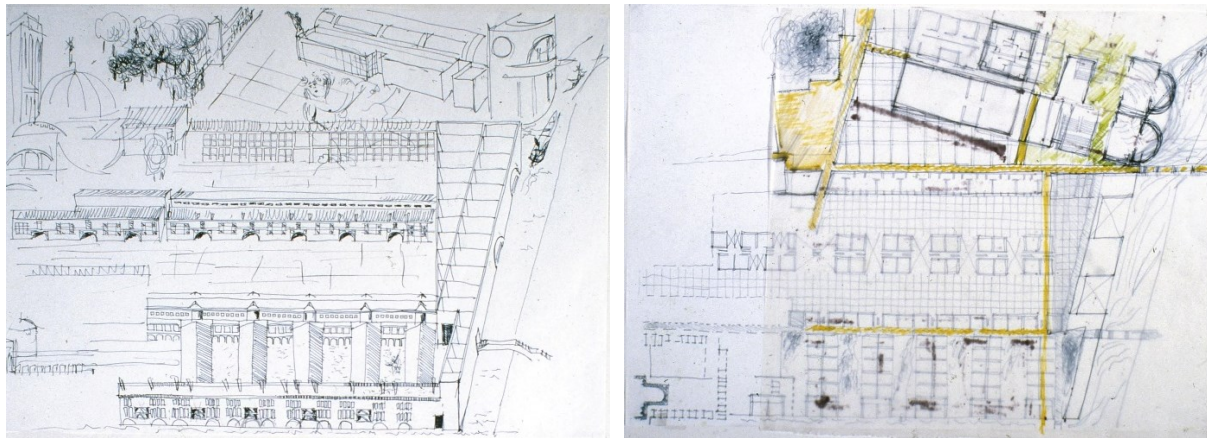
internal/external relationship of the architecture, the relationship with the context, the interaction between the original drawings and the digital model.

The video montage, intended as a dynamic narrative tool, focused on the operations of tracing, isolating and describing the constituent elements of the project in a dynamic manner, for the construction of a hybrid narrative between the digital model and the archive document. The question is linked to another consideration, that of the video as a process of approach, of overcoming absence. Its *eidos*, in the original Platonic sense (= from the Greek “form”, “aspect” from which also derives *εἶδωλον* (*éidolon*) then, in Italian, “idol”, understood according to the meaning of “simulacrum”, “figure”), corresponds to the act in its unfolding, in its simultaneity, in the brevity of the captured image, of the memory, of the evidence. The video narration therefore contains a brief description of the project interpreted graphically and returned digitally, of which the following are summarised: the suggestions that characterised the design principle; the design references; the graphic-narrative structure adopted by Semerani for its restitution, above all by means of the chosen method of representation; the structural elements (urban, architectural, landscape) that defined the project matrixes; the formal and material relationship between the proposed intervention and its immediate surroundings; the level of detail (scale and details) of the project.

LUCIANO SEMERANI, CANNAREGIO OVEST, 1978

Graphic interpretations

The documents provided by the Archivio Progetti Iuav on which the graphic reconstruction was based are: 1 axonometry with the drawing of the ground floor plan, at the base and the elevation; 1 coloured sketch of the complex of buildings proposed, with identification of the paved spaces, internal and external; 1 board with plan and axonometric sketches.



*Figure 8. Original drawings of the Semerani's project proposal for Cannaregio Ovest, 1978.
Source: © Università Iuav di Venezia, Archivio Progetti, fondo La Biennale di Venezia, 2022.*

The points developed in Semerani's project deal with the role of residences and popular structures in urban development; the relationship between waterways and pedestrian streets; the ways of functional structuring of the city; the settlement techniques of construction and the building typology. The architect focuses on the complexity guaranteed by the impossibility of a typological classification that requires a dynamic correlation between phenomena and causes, thus introducing the role of the new time variables. In fact, the theme of historicity, of the monument as a citation, of relational systems or unfinished prototypes are explored in their attitude to «[...] conform according to the particular functional and formal needs of the context» [Rosa 1983, p. 30].

In this sense, the project conceived by Semerani raises three questions: that of the relationship between urban theory and architectural theory; that of the scaling of design themes; that of the meaning of the urban context. Settlement types are organized into mixed-function buildings and serial systems of parallel blocks against party wall, terraced or core blocks around a specific architectural object.

Ultimately, the theme of cultural references intervenes, the object to which architecture refers and the function it performs in the sense of delimiting and orienting the reference [Dal Co, 1980].

Looking at Saverio Muratori's urban theory, Semerani recognizes some specific facts for the city of Venice, including the role of permanence in the body of cultural references. In the case of Cannaregio, he addresses the system of the urban structure of Venice and therefore, on the one hand, the project for the new area of the Tronchetto Novissime, of 1964 and on the other hand, the "heterology" of the city. It is an interpretation that takes into account of the complex interrelation between urban and architectural events, from which theories and techniques of design are connected and verified.



*Figure 9. Archive drawing. Planivolumetric view by L. Semerani for Cannaregio Ovest, 1978.
Source© Università Iuav di Venezia, Archivio Progetti, fondo La Biennale di Venezia, 2022*

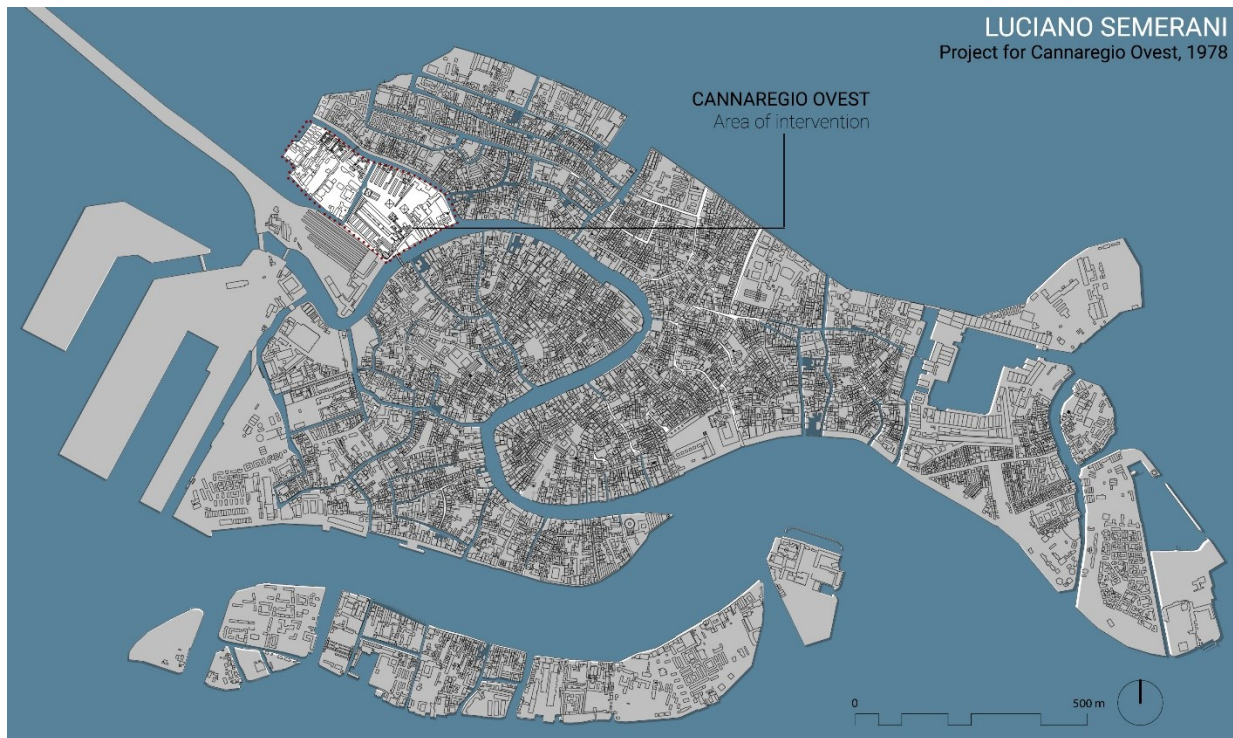


Figure 10. Plan of Venice and identification of the sestiere of Cannaregio Ovest (highlighted in white). Area of intervention.

Source: S. Vattano, 2022.



Figure 11. On the left, the plan of the Semerani's project proposal within the sestiere of Cannaregio Ovest and the identification of monumental buildings and the building typologies. On the right, the 3D digital model of the Semerani's project (highlighted in orange).

Source: S. Vattano, 2022.

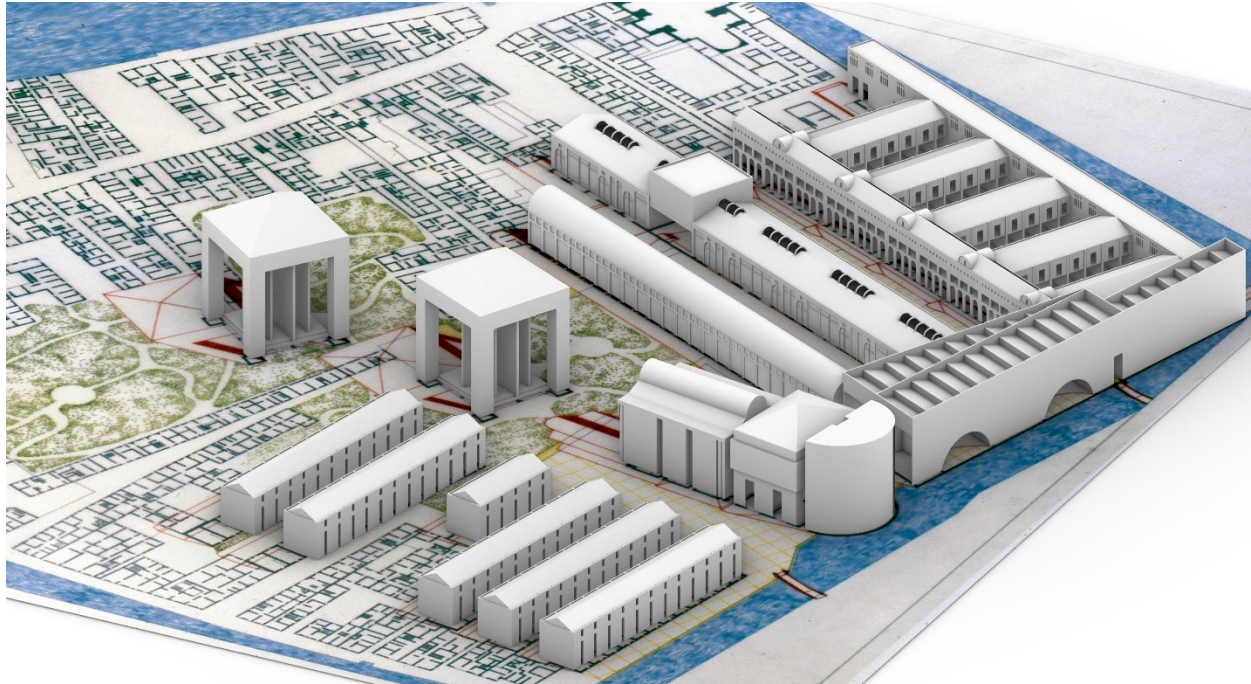


Figure 12. 3D model visualization in rendered mode with the insertion of the archive drawing of the Semerani's project planivolumetric view.

Source: S. Vattano, 2022.

In the place of this modality of observation and perception of the design question on an urban scale, the architect recognizes some architectural “facts”, which are concretized in the citations of the Diocletian's Palace in Spalato and in the hospital of Le Corbusier for Venice of 1963, from which he derives the compactness of the plan; as well as in the revival of the Crystal Palace by Paxton, to which they look for the use of construction techniques and function. Semerani's design reflections take shape in the historical multiplicity, orographic layering, and water furrowed paths, giving room for uncertainty, rethinking, and crisis only in the place and extent of excavation, in the degrees of necessity peculiar to a specific place and no other.

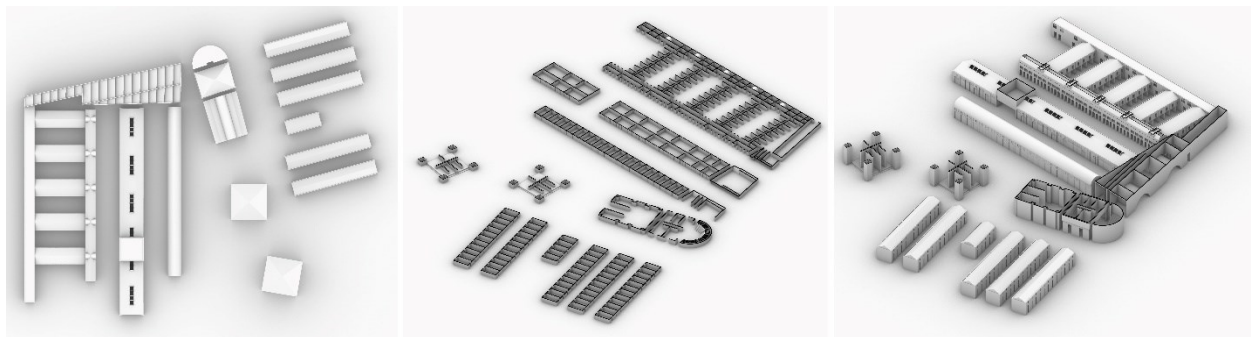


Figure 13. Top view and axonometric cross sections from the 3D digital model of the Semerani's project.

Source: S. Vattano, 2022.

As is the case in his proposal for Cannaregio Ovest, in later projects his solutions will shape the past. As occurs for the port of Trieste, in 1990, in which the large building, pierced and curved, refers back to Adolf Loos' Babylon; or again, the insertion of the basilica type, included in an earlier project, in 1982,

for the Catena fair, in Mantua, of which Semerani will repropose the planimetric layout: the scanning of two spaces with a rectangular base, with a stepped apse.

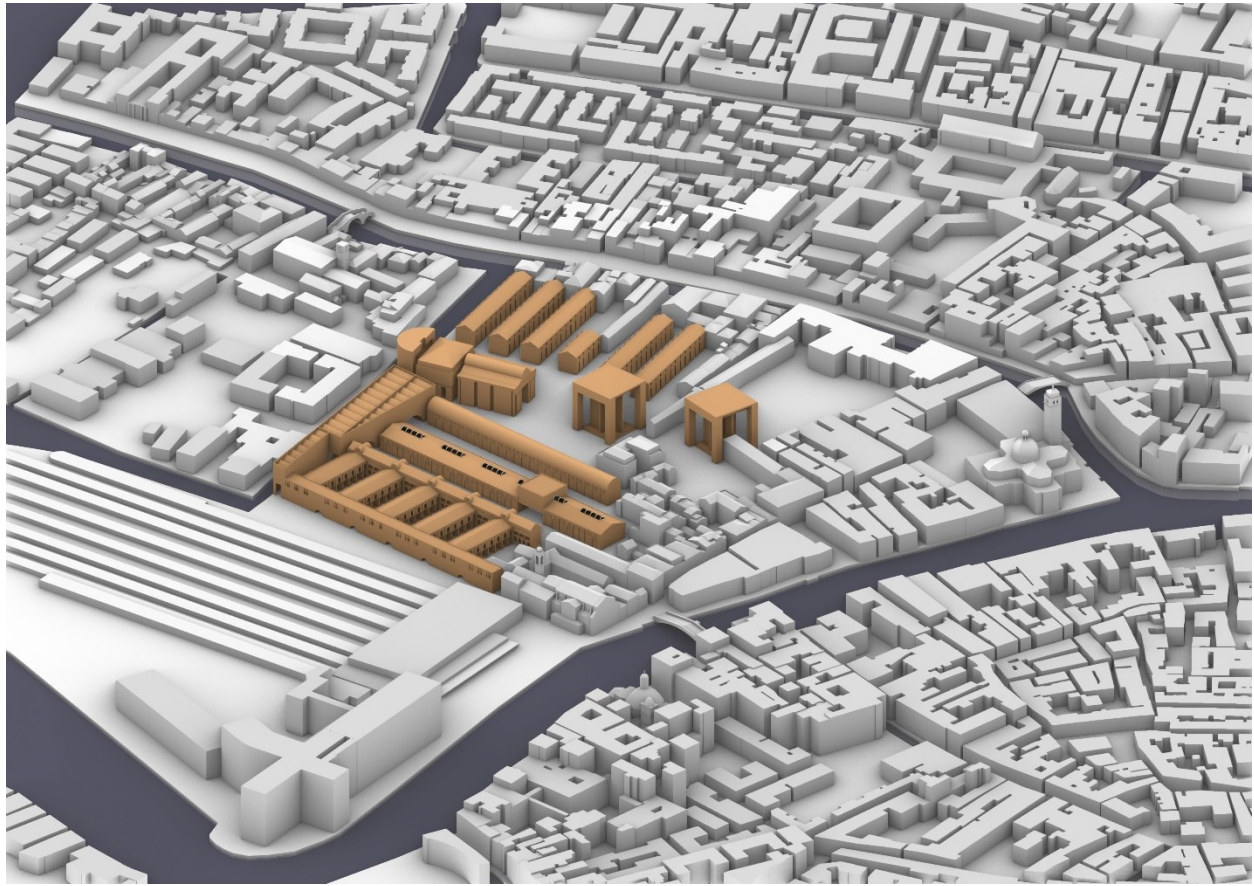


Figure 14. Axonometric view from the 3D digital model of the Semerani's proposal within the Venice model.

Source: S. Vattano, 2022.

From the 1965-83 Cattinara Hospital, Semerani takes up the shed roofing of the block arranged with the long front on Rio della Crea; in the hypothesis for Cannaregio, however, he will not recall to the portico system, but to a solid façade, open only at two arches. Again, in the Town Hall of Osoppo, which followed the international convention in Cannaregio by a year, the building will be found covered by a large ribbed vault that will recall the basilica-theater overlooking Rio della Crea.

The elements identified are some monumental buildings that recall previous projects and building types attested on Rio di Cannaregio and Rio de la Crea, the two pavilions with a quadrilateral plan, arranged on the same axis that contains the basilica-theater. The latter, arranged with an apse terminal on the canal, seems to configure the solution of the large exedra designed for the Parco Urbano di Bologna of 1984 or probably the rectangular-based pavilion of the Osoppo Town Hall of 1979, covered by a ribbed vault, as a citation to the Basilica of Vicenza [Semerani 1990, p. 58]. In an off-scale, a trapezoidal-plan building closes the courtyard, in-line, and terraced building types; the water entrances take up the model of a council house that is also an archetype (the Marinaressa) [Semerani 1990]; the roof is the shed roof of the Cattinara hospital, which returns, above, the porticoed scansion of the courtyard types. The Venetian canal system responds to the building types and their diversification. Thus, the specificities of the Venetian fabric and quotations from the past contribute to the restitution of a new order to the islands: *“thus on the canal that separates the island of San Giobbe from the railway station are located courtyard*

houses, on the inner salizzata an in-line house with Palladian internal stairs; on the campo that is reinvented terraced houses. This is a general response to be explored, to the problem, in the Venetian context, of the monuments-residence relationship” [Semerani 1990, p. 64].

The code built for the urban analogy (the Pesaro Cemetery), in 1979, establishes a cross-reference to the operation proposed by Semerani in Cannaregio, in the citation of some cultural references, as in the case of the “*wise disposition of bodies on the land fills, typical of Hellenistic cities*” [Semerani 2000, p. 54]. A year after the proposal for Cannaregio, in the Pesaro Cemetery, the isolated monument with a quadrilateral base and the basilica-theater are found again.

Once again, as in the Osoppo Town Hall, Semerani will make present the architectural patterns proper to the public buildings of the Friulian-Venetian city: the Palazzo della Ragione in Padua, the Basilica in Vicenza, and the Municipal Palace in Udine. To the juxtaposition of autonomous figures, Semerani follows up a real montage by parts that define, in the operations of translation and rotation with respect to the boundary paths of the urban mesh, the unity of the whole.

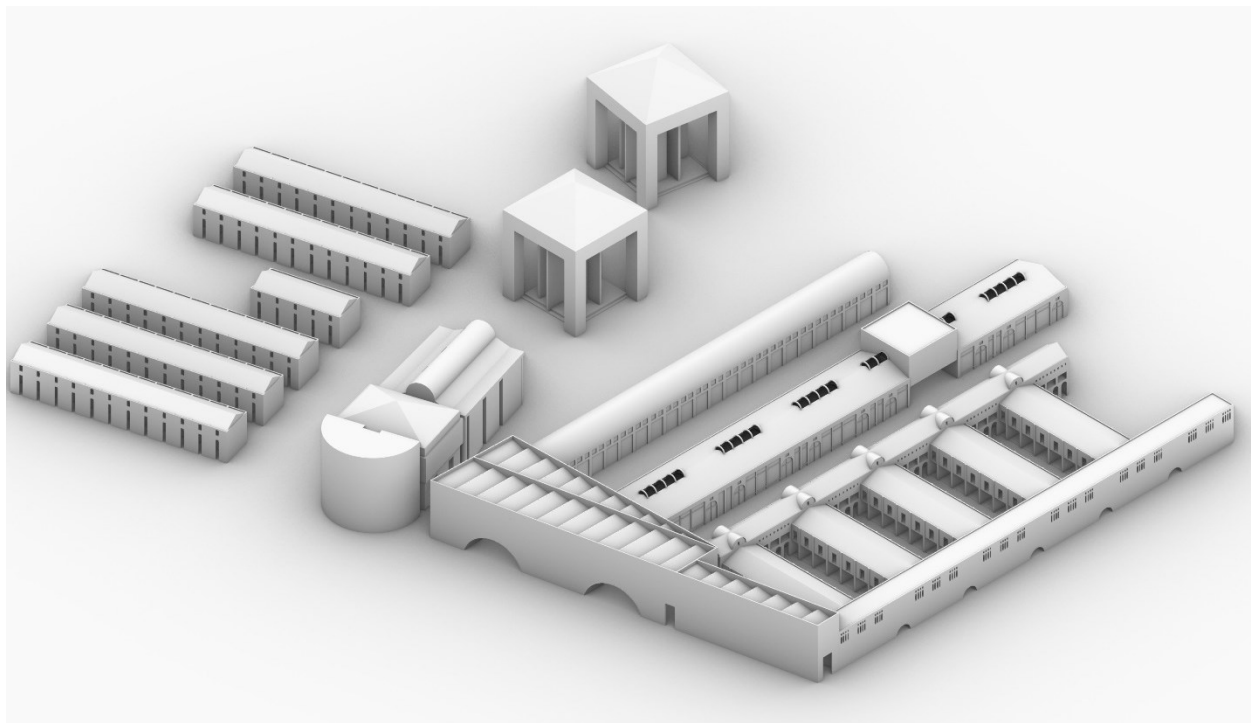


Figure 15. Axonometric view from the 3D digital model of the Semerani's proposal.

Source: S. Vattano, 2022.

SOLUTIONS AND RECOMMENDATIONS

The chromatic expression that characterizes some of the project drawings, both in double projection and axonometry, intervenes in the accentuation of a “determined will”³, to emphasize the definition of architecture which, according to Semerani, is never the development of an image, but sedimentation of successive images. Thus, in the alternation between the different techniques and methods of representation, the imaginative process embodies the combined role of dematerializing solidity, clarity in the constructive layout and the definition of a language.

Semerani notes that «the significance of a project lies at once in the object to which it referred and in the function that the project performs in the sense of delimiting and orienting the reference. Therefore, if the techniques of design, the problems of composing are in themselves neutral, agnostic, the significance of a project lies entirely in distinguishing a spoon from a city, a city from a city» [Dal Co 1980, p. 154].

To describe his proposal, Semerani makes a model characterized by three perspex planes, each one showing: the models of the new intervention; the axonometry of the pre-existing buildings; and finally, the plan of Diocletian's palace in Spalato and the Crystal Palace, of 1851.

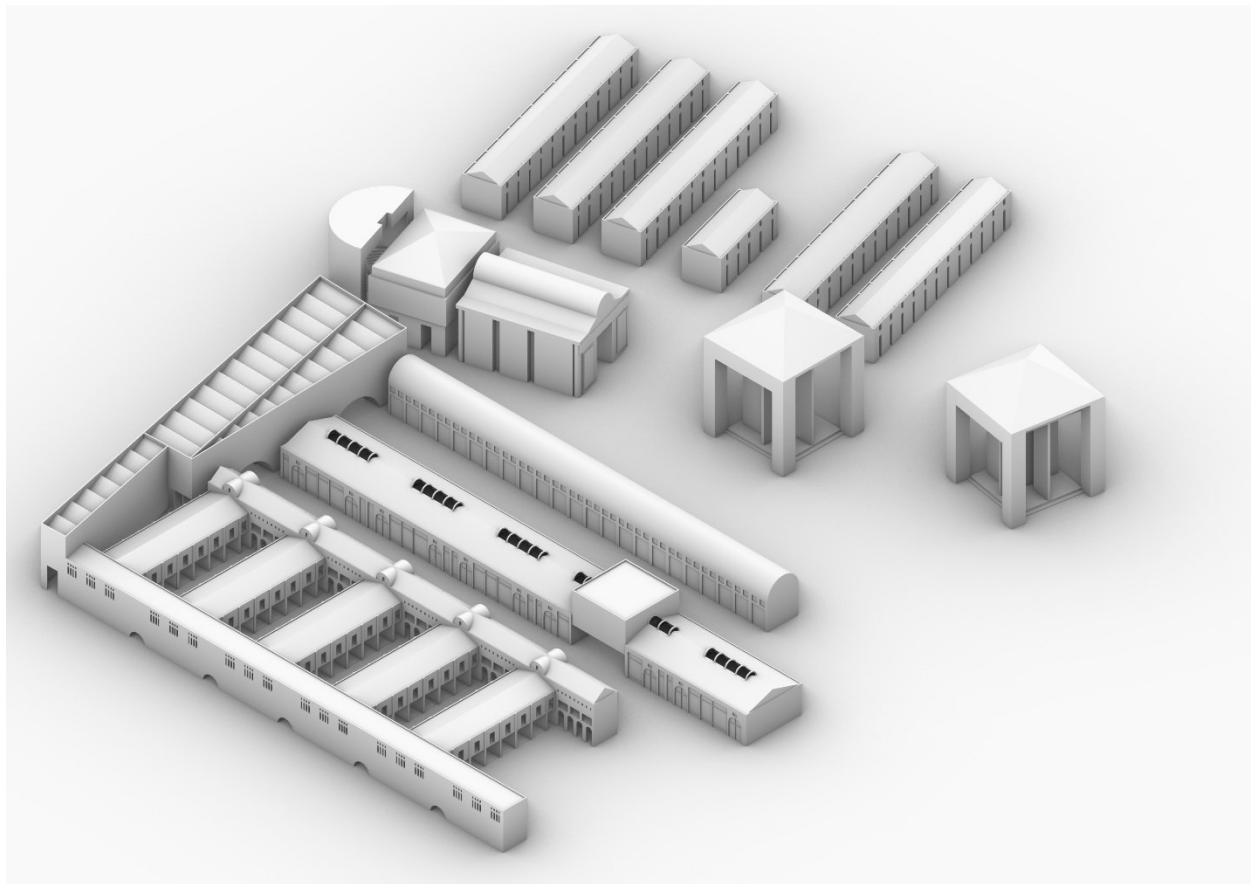


Figure 16. Axonometric view from the 3D digital model of the Semerani's proposal.
Source: S. Vattano, 2022.

In this montage of represented architecture, it seems to read a Semerani who two decades later, recalling one of his walks on the scaffolding of the crowning of the Torre Velasca, wrote: «[...] I felt so clearly that the *machine* built by the architect was at once the appearance of a character, the unveiling of a symbol, the montage of a representation, the realization of an image.

Reflection, mirroring, echoing, not copying, not reproduction, perhaps imitation, but, precisely, like the son on the father, like the marble on the fossil shell, concretion, metamorphosis, continuation in short or long times of the process" [Semerani 1990, p. 10].

By the possibilities offered within the field of hypothesis, such as that which could constitute an international design competition in Venice, Semerani thought it important to test both the significance and the "scope of typological knowledge" inevitably linked to the sphere of abstraction on which the competition drew, proposing to develop three issues «[...] that of the relationship between urban theory and theory of architecture, that of the scalarity of design themes, and that of the significance, for architectural design, of the assumption of the urban context» [Dal Co 1980, p. 154].

The graphic elaborations proposed by Semerani illustrate these reflections by grafting, to the design theme, cultural references. The first quotation given with a diagram on the urban structure of Venice is that of the Novissima project, at the conclusion of the Canal Grande, in the area of Piazzale Roma and

Tronchetto. It adds that of the hospital designed by Le Corbusier, in 1963, which becomes an integral part of the proposed layout for Cannaregio.

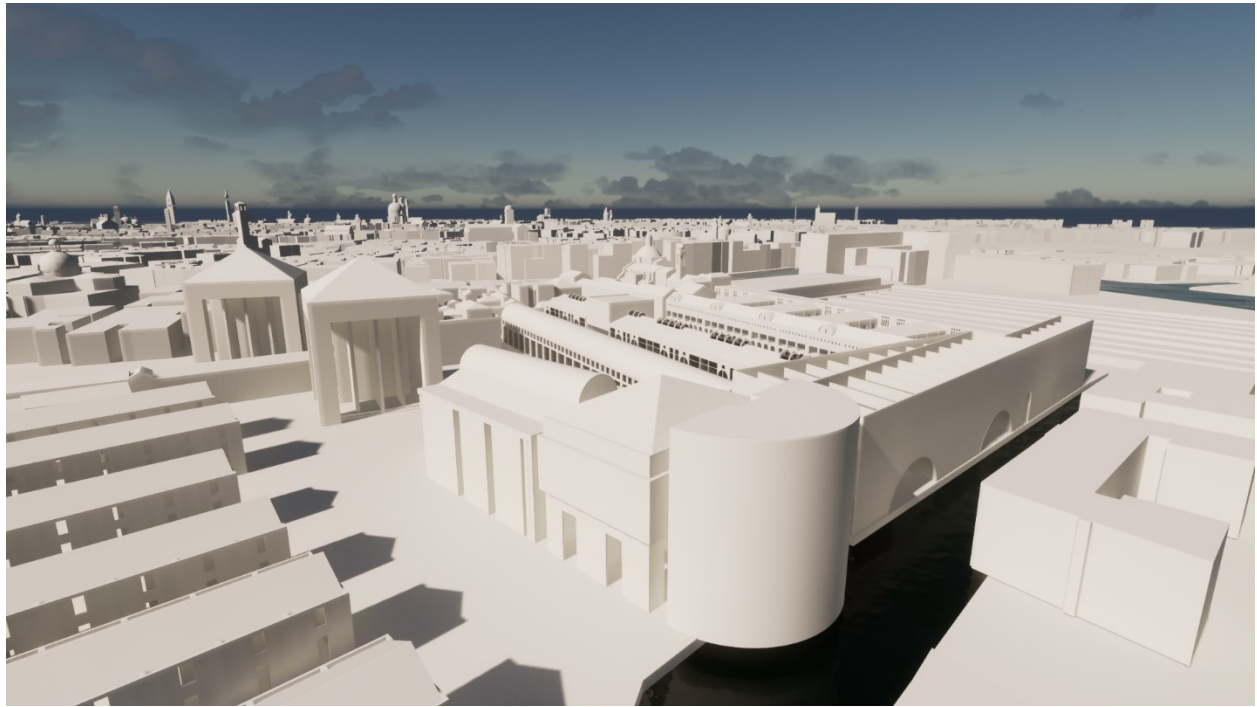


Figure 17. Perspective rendered view from the 3D digital model of the Semerani's proposal.
Source: S. Vattano, 2022.

A number of annotations organized by areas are made on the notes on the design choices: 1) the canal system; 2) the pedestrian system; and 3) settlement types. The reflection on the first aspect concerns the identification of a new perimeter crossing of the lagoon viability, starting from the connection between the station and the San Geremia area; the characters of the settlement types depend on the different hierarchical organization of the canals. This reflection is accompanied by a diagram in which Le Corbusier's hospital is related to Rio della Crea, Rio di Cannaregio and Rio di San Giobbe. Relative to the second issue, the pedestrian system, Semerani shift the focus from the canal system by virtue of proceeding inward into the sestiere, from the "island-manufatto-attributes" of the urban scale to the structures arranged on Lista di Spagna, the urban commercial axis. The identification of the three project cornerstones (the areas of S. Giobbe and S. Geremia and the ponte degli Scalzi) constitutes the first stage in understanding the reordering needs of S. Giobbe, in which the main places of relationship at the scale of Cannaregio are arranged.

Among the elements graphically isolated in the descriptive scheme of the third question posed by the two architects, that on settlement types, once again Le Corbusier's hospital polarizes, along with the railway station, the portion of land affected by the project. Under the heading "the island-manufacture" some reflections on the vocation of artifacts with different functions are given. One category: multifunctionality. The areas of the station and that of the former slaughterhouse leave space for references: "*the iron-and-glass architecture of the great world expositions, Le Corbusier's hospital compacted like Diocletian's palace in Spalato*" [Dal Co 1980, p. 158].

Concluding the reasoning, as we read from the annotations made on the sketches, the equipment system is the device that defines the convergence of architecture and island, also admitting that the limits of the site and those of the architectures become a single element. Other schemes, in the speed of their fulfillment, take up, on the one hand, the question of the structure of the routes on the Canal Grande and Lista di

Spagna, with mixed-function buildings; on the other one, the serial systems of parallel blocks against party wall and terraced, long courtyard, and buildings with central courtyard.



Figure 18. Perspective rendered view from the 3D digital model of the Semerani's proposal.
Source: S. Vattano, 2022.

The first solution develops two blocks tilted with respect to the axis of the project layout that define two urban park areas arranged outward. In the second solution, long and open courtyard systems fit between the station and S. Geremia area, arranged parallel to the parallel blocks against party walls systems along Lista di Spagna. Two orthogonal axes determine the layout of the system with respect to the parallel to the parallel blocks against party walls building and according to the development of the Rio di Cannaregio. In this solution, the architectures are organized “around a rectangular field (or a basilica)”, as stated in the project annotations.

The graphic material produced by Semerani for the settlement modules, as well as for the other architectural facts of the project “*can only be generic because only a dialectical reading of the context can bring those deformations that shape the settlement module*” [Rosa 1983, p. 30].

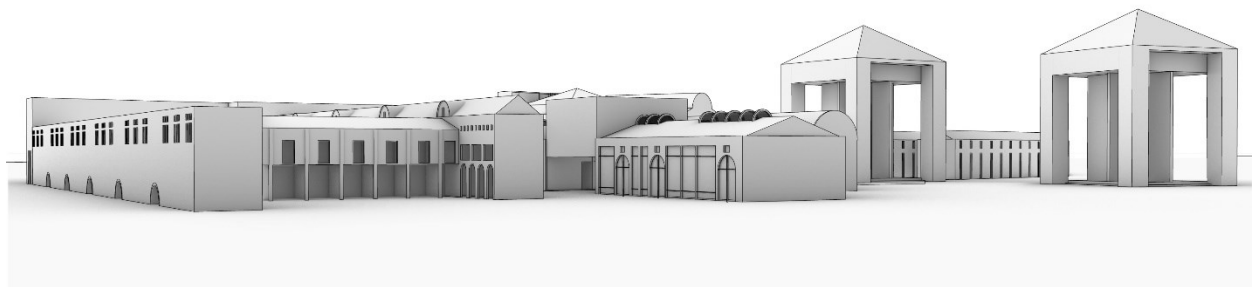


Figure 19. Perspective view from the 3D digital model of the Semerani's proposal.
Source: S. Vattano, 2021.

All these reflections, together with the theoretical assumptions promote a physical structuring of figuration of the relations between places, in which the dimension of collective cultural spaces dialogues with that of the space-theater and the space to be inhabited.

FUTURE RESEARCH DIRECTIONS

Considering the research experience carried out, the reading of the drawings kept in the Archivio Progetti Iuav, the digitization and subsequent processing of the digital models give access to unpublished images that describe, at different scales, multiple issues related to urban texture, form, functions, metaphorical meanings and the relationship of the city with the modern.

The digital models, by making known design experiences and adopted lines of research, shed light on the design making of architects from different backgrounds and strongly connected to the issues and methods of design within the historical pieces of the city, establishing a rich relationship of reciprocity between the archival drawings and the digital model and opening the field to a broader research on the Italian question of building the city.

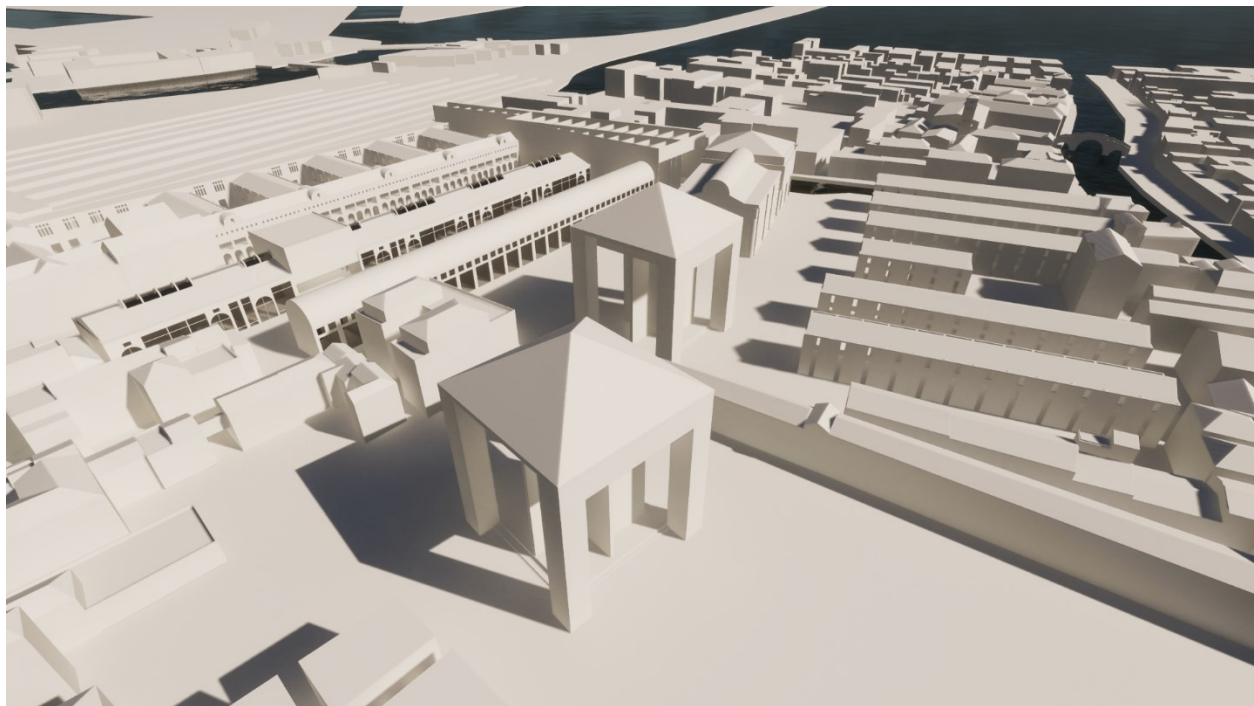


Figure 20. Perspective rendered view from the 3D digital model of the Semerani's proposal.

Source: S. Vattano, 2022.

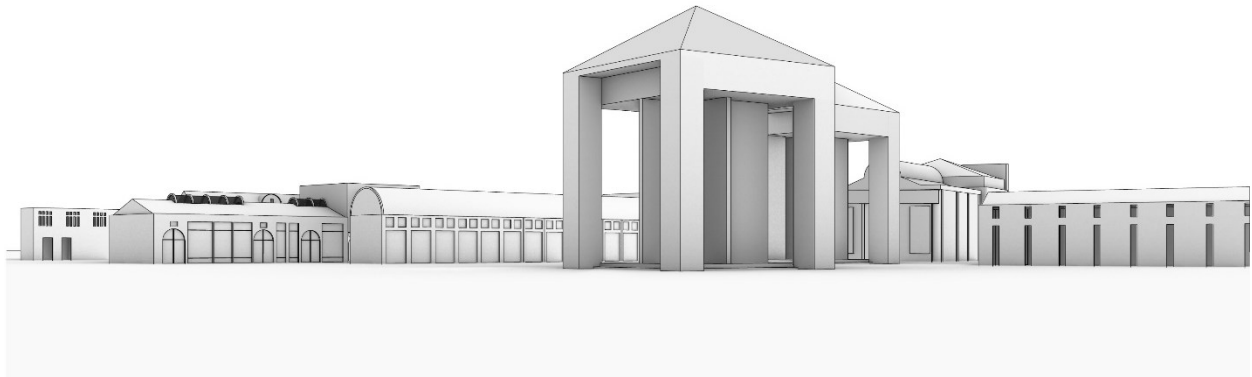
On the track of the research initiated in collaboration with the direction of the Archivio Progetti, the research is developing by still looking at the vast documentary heritage held in the Archives on the unbuilt architecture in Venice. The theme can be located in the context of the 1985 Biennale and in some of the most significant competitions on the track of the Canal Grande, dwelling in particular on project proposals defining a mapping of otherwise unexplored architectural events of Venetian memory (the ponte dell'Accademia, Ca' Venier dei Leoni, the Padiglione Italia, and Piazzale Roma).

With the aim of implementing the current modes of access and consultation of the material, of visualization and interaction with the graphic information in the archive for external users, the research project is conducting in-depth interpretation, digitization, and graphic reconstruction through the elaboration of digital models, which can also be explored in immersive mode, that provide multiple and unseen readings of an imagined and unbuilt Venice.

CONCLUSION

Reading once again through new images the unbuilt architectural project produces visual solutions that, while investigating the reality of the urban context, also call into question the cultural and functional alterations occurred over time. The possibility of observing the drawing/model from viewpoints that can be explored by means of the technological and visual opportunities offered by digital technology is offered to third-party observers by attributing further meanings and figurations to the documentary and graphic material preserved at the Archivio Progetti Iuav.

In this sense, the in-depth case studies, thanks to the digital tools employed and the ways in which the reconstructed models can be visualized, including in immersive mode, have been the subject of various forms of exploration. The creation of virtual tours, obtained with 360° images and generated by rendering software, provided direct and interactive access to digital environments in which it is possible to consult in-depth texts, short videos of the models or links to websites to also consolidate the integration between the archival document and the digital product. The possibility of using open-access platforms, for the publication of reconstructed models, also responds to the need for a solid connection between new generations and cultural heritage, a topic also put in place by the EU, with the launch of the European Year of Cultural Heritage already in 2018.



*Figure 21. Perspective view from the 3D digital model of the Semerani's proposal.
Source: S. Vattano, 2022.*

New digital products redefine how cultural heritage, whether urban, architectural or graphic-documentary, can be accessed, returning it in an open form available for digital media use. Some of the results of the research developed here, including videos of digital environments, renderings of models, in-depth report boards, have been published on the web pages of the Iuav Project Archive, as part of the collections and research contained therein⁴.

Semerani's investigated project, redrawn and elaborated in digital forms that are easily usable and accessible, is identified within a mapping of the lagoon city that constitutes the starting point and at the same time the identification of the themes addressed, urban dynamics and lived spaces. Interactive virtual tours make it possible to trace paths of knowledge by the user who comes into contact with the places of the Venetian project, through immersive experiences of an unexplored reality. The development of this kind of research activity opens up new questions about the richness of the nourished themes present in the archival collection, in parallel addressed to further transversal disciplinary articulations: landscape, architectural design, communication.

Reconstructing memory through the valorization of archival drawings represents an analytical way of bringing to light the cultural, theoretical and technical quality of building the Italian city, starting from Venice, understood as a case study and starting point for the rethinking of new imaginaries, new ways of

telling and building the spaces of history within the contemporary city; in this sense, a new reflection on the images of Venice, provides multiple keys to the interpretation of an emblem of made in Italy. From the perspective of an increasingly shared and accessible enjoyment of cultural heritage, graphic interpretations of an unbuilt and little-known Venice inevitably confront the question of the time-and-space location of the project, *“a given representation of an architectural environment, executed under particular time-space conditions and the result of a specific attitude of thought [...] is subject to being studied over time by different observers each of whom ascribes to each sign meanings that are a function of his/her knowledge, his/her aspirations, and his/her own judgment of the representational techniques used”* (De Rubertis 2010, p. 121).

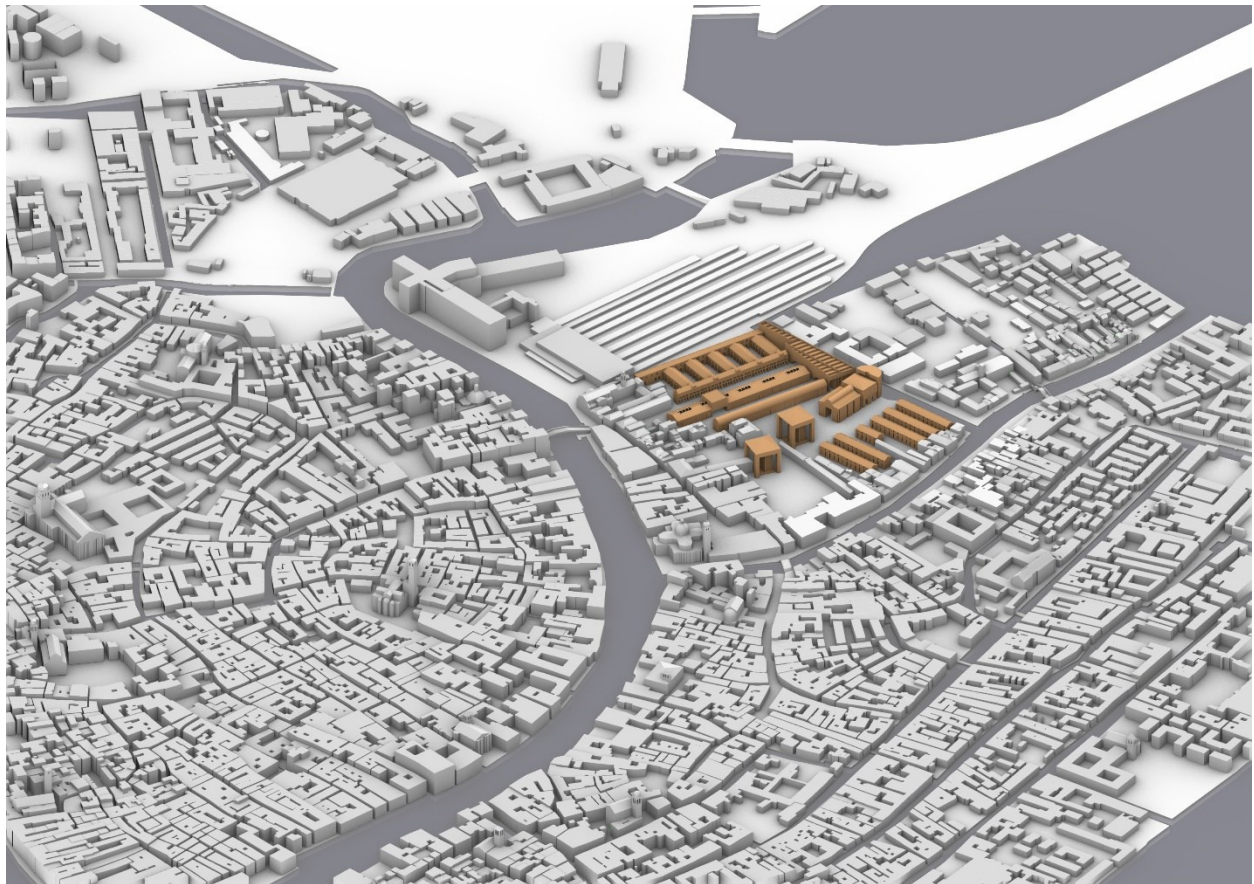


Figure 22. Axonometric view from the 3D digital model of the Semerani's proposal within Venice model. Source: S. Vattano, 2022.

Therefore, it is a matter of constructing a narrative through images about some moments of Venetian architecture, of the possible memory that in the contemporary digital transition establishes a hybrid form of heritage reading: on the one hand, the archival document, in its meaning as a source of knowledge; on the other hand, the explorable and immersive digital dimension that amplifies the perception of space by offering itself in its evidence quality to users.

RESEARCH RESULTS

- Video of the models available on the Archivio Progetti Iuav web page and available at the following link: <http://www5.iuav.it/homepage/webgraphics/IUAV-PAGINE.INTERNE/IUAV-MOSTREONLINE/video.htm>, Retrieved April 13, 2022.

- Vattano S. (cur.) (2022), 10 immagini per Venezia, disponibile al seguente link: https://www.youtube.com/embed/FED4r4rFb_A, Retrieved April 13, 2022.
- Vattano S. (cur.) (2022), 10 immagini per Venezia. Narrare il non costruito nelle esplorazioni digitali dei 10 progetti per Cannaregio Ovest, 1978, Petit Tour disponibile al seguente link: <http://www5.iuav.it/homepage/webgraphics/IUAV-PAGINE.INTERNE/IUAV-MOSTREONLINE/10IMMAGINI/10immagini.htm>, Retrieved April 9, 2022.

ACKNOWLEDGMENT

We thank the Archivio Progetti Iuav (<http://www.iuav.it/ARCHIVIO-P/>) for the kind permission of the documentary sources provided during the research and included in the digital models of the following images: 6, 8, 9, 12.

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KEY TERMS AND DEFINITIONS

Digital Exploration: the valorisation and online dissemination of the graphic heritage preserved in the archives aims at the construction of memory by means of digital interpretations and elaborations telling new places and imaginaries.

Digital hybridisations: combinations of images, integrations between the digital model and the archive drawing capable of amplifying the perception of the imagined spatialities and providing an increasingly integrated degree of knowledge.

Archive drawing digitisation: reading and integration of the missing information by means of models elaborated with an information level suited to their exploratory possibilities and to be published on online and open source platforms enhancing the accessibility of the range of users.

Digital knowledge: increasingly massive way of collecting data able of bringing into its domain not only groupings of digital information not only belonging to specific institutions or entities, but also their interoperability to create a dissemination of knowledge based on shared and networked exploration.

Unbuilt project views: a given representation of an architectural environment, executed under particular time-space conditions, a result of a specific attitude of thought that is subject to being studied over time by different observers who can ascribes to each sign meanings as a function of own knowledge, aspirations, and judgment on the representational techniques used.

Typological knowledge: linked to the sphere of abstraction, this kind of knowloedge develop three issues: the relationship between urban theory and theory of architecture; the scalarity of design themes; the significance of the assumption of the urban context, for architectural project.

Digital objects: items produced to provide a level of information that can be consulted from fixed or mobile devices and on open source platforms in different formats and viewing modes, depending on the type of use: images, virtual tours, explorable in standard and immersive modes, and videos.

ENDNOTES

¹ Ten groups of architects participated in the convention, which were headed by: Raimund Abraham, Carlo Aymonino, Peter Eisenman, John Hejduk, Bernhard Hoesli, Rafael Moneo, Valeriano Pastor, Gianugo Polesello, Aldo Rossi, and Luciano Semerani.

² Vattano S. (cur.), *10 immagini per Venezia. Narrare il non costruito nelle esplorazioni digitali dei 10 progetti per Cannaregio Ovest, 1978*, in Petit Tour, © Archivio Progetti Iuav. Disponibile al link: <http://www5.iuav.it/homepage/webgraphics/IUAV-PAGINE.INTERNE/IUAV-MOSTREONLINE/10IMMAGINI/10immagini.htm>, Retrieved April 4, 2022.

³ In an interview Giovanni Fraziano did with Gigetta Tamaro about the design method adopted in her work with Luciano Semerani, the architect responds to the question, “Many times, the realization of the diversity between the two characters in front of me has been cleared by Semerani with a precise but sibylline phrase: Gigetta comes from sculpture... I, on the other hand, from painting. What does this coming explicitly from sculpture and painting mean more explicitly?”, Gigetta Tamaro replied, “Luciano always says that it is also necessary to use color... because color in his opinion helps to accentuate a certain will” (Semerani, 2000, p. 68). For the full interview, please refer to the text: Semerani, L. (2000). *Tamaro G., Luciano Semerani e Gigetta Tamaro: Architetture e progetti*. Milano, Italy: Skira, 67-71.

⁴ For more information, see the Archivio Progetti Iuav web pages available at the following links: <http://www5.iuav.it/homepage/webgraphics/IUAV-PAGINE.INTERNE/IUAV-MOSTREONLINE/video.htm>, Retrieved April 1, 2022; “10 immagini per Venezia”: https://www.youtube.com/embed/FED4r4rFb_A, Retrieved April 4, 2022; “10 immagini per Venezia. Narrare il non costruito nelle esplorazioni digitali dei 10 progetti per Cannaregio Ovest, 1978”: <http://www5.iuav.it/homepage/webgraphics/IUAV-PAGINE.INTERNE/IUAV-MOSTREONLINE/10IMMAGINI/10immagini.htm>, Retrieved April 4, 2022.