Evaluating the architecture project

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Abstract

This introductory article aims to organize and connect the complex of the theoretical and problematic elements, the research paths and the design experiences presented at the Conference held in Rome last October 2018 entitled "Evaluating the architecture project" and reported in this issue of Valori e Valutazioni. In order to fully gasp the implications of the role that the evaluation of urban plans and projects is called upon to play, it is necessary to consider the evolution of the role of Project Appraisal discipline, which has increasingly attributed to the quantitative and qualitative connotations of the physical space the ability to contribute to the concrete implementation of ideal and cultural values. The papers included in this issue provide a broad overview of the growing importance attached to design quality, which produces new inputs and imposes more demanding tasks, requiring the activation of a specific branch of evaluation, which is conceived as an operationally pervasive discipline and an essential practice for the preparation of plans and projects. In the presented articles, a significant experimentation of different types of estimation methods and procedures emerges, thus configuring new and stimulating paths of disciplinary development.

1. INTRODUCTION

In October 2018, at the headquarters of the Association of Architects of Rome, a conference entitled "Evaluating the architecture project" was held. Said conference aimed at encouraging a reflection on the theme of evaluation, which the current management believes to be of crucial importance in carrying out all the activities which the profession of architect currently encompasses. In particular, the event also had the purpose of serving as a reference point for setting up and implementing a series of awareness-raising and training initiatives targeted towards the members of the Association, which currently boasts the most registered architects in the entire European Union.

The scientific and disciplinary community revolving around the world of Valuation and Evaluation responded to this initiative with a large number of scientifically and culturally committed participants. Said participation highlighted a contradiction between the persistent reductive understanding of the role of Valuation and the work of architects and an environment largely made up of professionals engaged in the multiple and complex activities that involve the physical space of cities, regions and the works that structure and qualify them. However, such a professional commitment generally converges on the drafting and implementation of maintenance, transformation and development projects. Obviously, these projects may have different prevailing purposes (i.e. economic, social, etc.); therefore, different subjects, whose professional skills will play a role based upon the specific nature and aims of the intervention project, will have to participate in and interact with the development of these projects.

Given this complexity and the importance of high-level exchanges with other experts and professionals, the debate that was held at the headquarters of the Association of Architects of Rome provides us with the opportunity to further focus on the specific role to be played by designers and planners with regard to the complexity of these processes.

First of all, the willingness to play "substitute" roles should be relinquished in favour of the ability to challenge and listen to subjects, whether they be inside or outside the design team, by asking them relevant questions. Above all, one should acquire the ability to interpret the answers obtained and understand their impact on the structure of the concerned physical space, especially that prefigured by the project and the plan. In particular, the specific profession-

al ability/responsibility to translate these answers into morphological, typological and technological choices should be taken into account.

2. THIS ISSUE OF VALORI E VALUTAZIONI

Within the reasonable limits currently imposed on the size of a *Valori e Valutazioni* issue, the editorial staff felt that the publication of this issue could provide an opportunity for further reflection, first and foremost on the part of all those colleagues who have most contributed to the definition of the objectives and themes of the conference and have subsequently guided, encouraged and enhanced the discussion, both in plenary sessions and in the individual working groups into which the event was divided.

We want to use this introductory article as a means for presenting a working hypothesis, namely that the body of theoretical and problematic elements, the chosen research paths and the significant design experiences presented at the Conference could have been organised and conceptually connected and that, on this basis, it could have therefore been possible to outline a new disciplinary sector which, in the context of valuation and evaluation, could distinguish itself for the application of its scientific and disciplinary background to the design and construction processes of the works that structure the physical space, alongside the traditional branches of Property Valuation and Urban Planning Evaluation. We believe that this hypothesis has been substantially confirmed; in any case, we submit it to the attention of our readers.

However, since *Valori e Valutazioni* has dealt with these issues over the years, we have deemed it useful to mention those contributions that, to a certain extent, we can consider fundamental in the shaping of this disciplinary sector (Bentivegna, 2016; Fattinnanzi and Mondini, 2012; Forte, 2012; Fattinnanzi et al., 2018).

3. THE CENTRALITY OF THE QUALITY OF PHYSICAL SPACE IN WESTERN CULTURE

In order to fully grasp the implications of the role that, in the current situation, the evaluations of city plans and projects is called upon to play, it is necessary to consider the evolution of the concept that has emerged since the end of the last century. Said concept, especially in the Western world, and in particular in Europe, has increasingly attributed a decisive ability to contribute to the concrete implementation of the ideal and cultural values that have historically characterised the social and economic culture of Europe to the quantitative and qualitative connotations of the physical urban and territorial space.

This approach is the basis for the various legislative and regulatory initiatives that have been taking place for some years now within the governance of the European Union and in several of the Member States. In particular, the concrete qualitative level of a settlement has been found not to be limited to strict compliance with the requirements of the plan, but, to a large extent, to depend on the accumulation and interaction of the qualities and shortcomings of the various works that shape that city and that territory, thereby making it more or less suitable for its inhabitants. However, the quality level of each work testifies to a constant dynamic in which design ideas - no matter the size of the work or their known or anonymous origin - have stratified over time since its construction. It is on the basis of this awareness that, in Europe, public institutions of different levels have considered it necessary to introduce regulatory instruments aimed precisely at controlling the capacity that future projects of any type and size have to create works of good quality, namely works that are able not only to contribute to the improvement of the functional aspects of the settlements, but also to contribute to the enhancement of their image and symbolic value. In this regard, we must be aware that the continuous development of technical regulations and monitoring protocols and procedures is a historical necessity that tends to compensate for the progressive decline of that strict role of guidance and control that, over the centuries, had been exercised by the set of customary rules and art standards. Therefore, a growing number of public institutions, sometimes assisted by private bodies, have considered it appropriate to issue technical standards as well as evaluation and certification criteria to be used in the setting up and carrying out of different types of architecture competitions as well (Campo and Rocca, 2017).

The contributions to the conference by Giovanna Acampa (2019) and Fabiana Forte (2019) and the other contributions included in this issue give us a broad overview of the current importance of the quality of architecture in the old continent. They are existing norms or simple normative projects drawn up at various political-institutional levels that, regardless of their underlying aim, highlight serious conceptual and operational limits, especially as regards the roles that evaluation sciences can and must necessarily play in this framework. On the other hand, given the growing importance attached to design quality, new inputs have been produced, and more demanding tasks have been imposed on all those who work in the drafting and implementation of projects and, obviously, all those who deal with research activities and the training of adequate professional skills. We must therefore declare that the activation of a specific branch of new evaluation is possible and necessary, but that, from important scientific and methodological points of view, this branch is significantly linked to the complex of valuation and evaluation sciences. In this regard, in the plenary session of the conference in Rome, Saverio Mecca, in his capacity as President of the University Conference of Architecture Schools, has effectively intervened by supporting the need to envisage a different role of these disciplines in the training of designers and urban planners (Mecca, 2019).

On the other hand, the contribution presented by Fabiana Forte appropriately highlighted how some of the issues involving the relationship between evaluation and design have been found in the writings of many authors since the

period after World War II. In order to reaffirm the undoubted fundamental importance of the economic approach in the field of valuation and evaluation, it seems appropriate to recall that model which, building upon the theories of Imperfect Competition and Monopolistic Competition, elaborated the market model based on oligopoly, in particular on differentiated oligopoly. Indeed, a concept is introduced whereby in an overall market area comprised of the composition and overlapping of different sub-markets, the value of assets depends essentially on their different spatial location and qualitative differentiation. As the great Sraffa stated, in an oligopolistic regime such as that of real estate, competition in the field of quality tends to outweigh that involving prices. We deem this approach as more capable of explaining the actual functioning of the real estate sector, in which the value of the objects considered depends on multiple qualitative characteristics, both those that characterise the individual object and those inherent to the urban and territorial situation in which it is located. These are all important characteristics that need to be taken into account both as to property valuations and especially here, in the evaluations of the qualitative levels of the physical space that plans and projects contribute to creating (Fattinnanzi, 2014).

4. EVALUATION WITHIN THE STRUCTURE AND THE TRANSFORMATIONS OF THE PHYSICAL SPACE

A part of the contributions and experiences presented in the parallel sessions held on the second day of the conference focused on evaluations substantially carried out ex post and generally aimed at validating projects that had already been either drawn up or carried out; in general, everyone delved into the possibilities offered by the application of some of the methods that the evaluation sciences provide. For the most part, it was a matter of measuring satisfaction levels with criteria generally established by current legislation, often integrated by the promoter of the project or plan. Generally, these experiences have undoubted scientific value and considerable operational potential, and they are certainly to be developed further and disseminated as much as possible. Among other things, they testify to the great potential that evaluation sciences have to control the results of urban planning, design and construction processes.

However, we believe that these experiences, albeit important, are incomplete: indeed, other experiences presented at the conference show that evaluation practices can be positively extended to all the phases in which processes involving interventions on physical space are articulated, from the devising and planning of interventions to the designing of the works and their concrete implementation; sometimes, even the subsequent management phase can be involved.

In this regard, we deem it necessary to affirm the need for the promoter to operate with consistency, continuity and procedural transparency; therefore, during the planning phases and before the editorial process, they should explain the objectives as clearly as possible and indicate which the fundamental economic and qualitative requirements that must characterise the plan or the work are. Above all, they should absolutely state what criteria and evaluation procedures are to be used when judging and, therefore, approving the submitted drafts. We believe it is necessary for the promoter to translate their programme objectives into specific performance evaluation criteria to be used both during the drafting phase and in the subsequent phase when validating, selecting and choosing among alternative proposals. This approach would certainly serve as the basis for more efficient, transparent and ethically acceptable intervention processes.

In any case, we know that, in their work, the designer or planner will have to take into account a series of constraints, requirements and more or less binding monitoring protocols issued by different subjects in addition to those prescribed by the very promoter. In any case, the architect will have to translate all this into the requirement system that the project or plan will have to implement. The objective/system phase involving the requirements is a particularly delicate passage which, at least in its essential connotations, should be carried out by the promoter, in particular when wanting to activate some form of design competition. On this subject, we would like to share some important contributions presented at the conference in Rome.

Marta Bottero, Giulia Datola and Roberto Monaco (2019) presented a contribution focusing on the development of an effective ex-ante evaluation process that would take place before the drafting of two different urban "regeneration" programmes, in view of the fact that the purpose of said programmes cannot be limited to the simple drafting of building recovery projects or the verification of important, albeit sectorial protocols. On the contrary, it is a matter of activating complex processes aimed at eliminating "the very roots of physical degradation", promoting "the improvement of the quality of life of inhabitants", ...the enhancement of cultural resources, the protection of the environment" and ... "stimulating their economic development". For this reason, the authors decided to use the Fuzzy Cognitive Maps (FCMs), which were precisely "applied and used for the study and analysis of complex systems, with reference to those domains of knowledge characterised by a high level of uncertainty, such as cities and their transformations". This way, it was possible to test the high potential of this approach in representing and managing the complexity of urban regeneration processes, with a particular focus on the analysis of the dynamic behaviours activated by different design alternatives, in order to reduce uncertainty levels with respect to future impacts and highlight the criticalities of the methodology. First of all, the FCMs were used at the beginning of the process to "understand and predict the effects of operations whose purpose is to determine the simultaneous coexistence and reciprocal influence of physical, economic, social and environmental components. Secondly, they were used to evaluate and choose the best strategy in terms of dynamic evo-

lution and long-term effects, compatibly with the initial objectives of the regeneration programme". The structuring of the decision-making process and the evaluation model was carried out by adopting a suitable multi-methodological approach combining different tools through which the objectives to be pursued were identified and the values qualifying the regeneration process were declared. Criteria and indicators were then established, and the multicriteria analysis allowed for the configuration, evaluation and selection of a certain number of regeneration project strategies.

The article presented by Marta Dell'Ovo and Alessandra Oppio (2019) also proposes a multi-methodological analytical framework based on the Value-Focus and Thinking (VFT) approach in order to guide the decision-maker in all the phases of the planning and design process, from the identification of objectives to the definition of strategies up to the design, comparison and evaluation of alternative projects of urban transformation involving centres located in Portugal and included in the UNESCO world heritage list. In this contribution we also propose an analytical process of a multi-methodological nature, "...used for generating various (eleven) project alternatives able to support the decision-making process... in the conceptual phase of urban design". A scientifically based methodology is then built, to be used for the construction of a set of options or significant design choices. This is an important and qualifying operation in the phase preceding the design process of the individual works, capable of steering the drafting itself and, as we will see below, able to provide a methodologically fundamental and operationally pervasive component of the entire phase of design development, which (although to a lesser extent) may also affect the implementation phase. In this contribution, as in the previous one, we propose evaluation methodologies based on a mix of different tools and existing approaches, carrying out an operation capable of producing important innovations. The same thing happens in the development of most dynamic scientific and technological sectors. Another significant aspect concerns the relationship between knowledge and the development of intervention processes, namely the "generation of intervention strategies and their different combinations". Possible project alternatives can be considered as potential actions, likely to evolve throughout the decision-making process... in which evaluation... plays a leading role, starting from the identification and structuring of objectives... evaluation becomes essential to generate solid project alternatives".

A significant test of an effective functional relationship established between evaluation and design process is contained in the contribution that Laura Gabrielli and Aurora Ruggero presented at the recent conference organized by SIEV in Siracusa[1]. This contribution also addresses a problem that European culture considers as very important when it comes to the policies for the protection and reuse of old town centres, and that, in Italy in particular, is bound to grow further, as the attribution of a historic value broadens to include an ever-increasing number of buildings and urban and suburban environments. The contribution involves a problem of energy efficiency in cases where the evaluation cannot be limited to "the mere estimation of the energy-economic convenience of the interventions", but takes on the task of estimating "the impact that ... it produces on the building", on "the many aspects that must be taken into account, such as respect for the monument, the maintenance of its historical significance and its social role, up to the conservation of materials and architecture texts". As a matter of fact, in view of the fact that "ignoring the paradigms of restoration... may not lead to the identification of the best alternative (design), but may limit the process to a mere partial vision of the problem", the authors raise the question of integrating these aspects into the decision-making process within the intervention project. By adopting a multi-criteria analysis procedure together with the Delphi approach, it was possible to "assess and quantify the compatibility of energy efficiency measures, estimating their level of compatibility ... from an economic, environmental and architectural point of view", enabling " the formulation of a more informed judgement, and therefore the best solution to this problem".

Clearly, by assessing not only the issues related to energy retrofitting but also to the possible assignment of a priority role to it, this methodological approach can be suitably extended to all the other countless requirements and protocols that, albeit with different levels of necessity, must be considered, thereby conditioning the entire creation of the restoration project, but not only.

We believe that the works we have mentioned so far are important contributions tracing methodological and operational paths that, by defining an initial system comprised of criteria and indicators, can serve as the premise for configuring effective performance profiles that will qualify the works that will subsequently physically concretise the urban regeneration scenario chosen. The iterative and flexible nature of the multi-methodological approaches proposed in these studies provides support to the conceptual phase and contributes to steering the evaluations of the performance and economic forecasts involving the works carried out.

5. WHAT REQUIREMENTS QUALIFY THE WORKS CARRIED OUT

When drafting any urban or architectural project, only a part of the decisions and choices that are actually made concern the requirements dictated by the regulations in force and those that have been expressed directly or implicitly by the promoter. In reality, the choices made in the drafting phase of a project, especially if this is of architectural nature, concern the meeting of a set of requirements

[1] Convegno SIEV: "Scienza delle valutazioni. Strutture naturali, infrastrutture tecnologiche, sovrastrutture naturali", Siracusa, 11-12 luglio 2019.

that is generally considerably broader and which will then determine the actual quality level of the work carried out.

In his contribution, Vincenzo Bentivegna (2019) defines the requirements for an architectural work as "the set of properties and (social, economic, physical, technical, symbolic, functional, cultural, etc.) features that connect the work with the social actors and specify how it should be carried out in that context". Therefore, the quality that "...must be sought, conceived and achieved... emerges from the interweaving of many factors, so much that the various elements of quality tend to complement each other". Indeed, the success of a project will depend on the set of judgments that, either explicitly or implicitly, will be expressed by all those who, albeit with different frequency, intensity and intentionality, will benefit from that work throughout its life cycles.

In the Conference, interesting contributions pointed out that, in contemporary European culture, this is a life span that will include the succession of different cycles, always expanding in space and time.

So as to organise the reflection on the complex problems indicated above, we believe it is necessary, by using and ordering the contributions that emerged during the various sessions of the conference, to provide a proposal for the classification of the requirements that characterise any structure of physical space.

First of all, we will have to consider the requirements related to functioning and efficiency linked to the practical use of the object. We can assume that the consequent performance levels will have to ensure the achievement of at least the "acceptability threshold", i.e. the satisfaction levels considered as minimum in that particular territorial situation and historical moment. Such a set of requirements consists of an impressive body of recommendations, technical standards, control and verification protocols that generally establish that a given requirement is satisfied when the performance offered by the project is: not less than ..., not greater than ..., between a maximum of ... and a minimum of .... Then, in an increasing number of cases, the same standards have been supplemented by "codes of practice", namely specific control and validation protocols: for instance, protocols relating to safety, hygiene, energy efficiency, etc.

However, these requirements allow for a more or less broad scope of application and, in many cases, a more or less broad scope for interpretation on the part of planners. Using the discretionary spaces outlined by the current regulatory framework while interpreting and integrating the requirements, the planner will develop their own project by configuring its specific, overall performance profile, which must characterise the work carried out. Taking into account the role that the European debate assigns to the specific quality of individual works and, therefore, to the design from which they derive, we can define what we will call "the intrinsic performance profile".

However, it will also be important to assess the impact that the characteristics of the single project can have on the overall quality of the urban and territorial environment in which it is located, configuring "the extrinsic performance profile", or "relational quality", the term used by Bentivenga in his contribution. The importance of this correlation in the European debate is thoroughly documented by the contributions of Acampa and Forte, and we would like to point out that this becomes one of the most qualifying aspects of the models that intend to evaluate regeneration interventions.

5.1. The perceptual and symbolic components of architectural quality

So far, we have talked about performance profiles determined by intrinsic or extrinsic qualities, referring exclusively to practical/functional requirements. The contents of traditional technical standards offer a great deal of material for evaluation. However, in the Rome conference, especially in the report on the current international debate presented by Fabiana Forte, the need emerges for the evaluation of architectural quality to take into account more complex, less considered aspects.

It should first be noted that the use of physical space in general, and of an architectural object in particular, is a complex phenomenon that transcends the mere satisfaction of basic practical and functional needs. It is an ever dynamic and multisensory perception of space in which the concepts of image and visual contemplation are important, albeit not all-encompassing: such a peculiarity clearly distinguishes the perception of architectural space from that typical of visual arts. In any case, in this type of use, great importance is attached to memory and the perception of symbolic meanings.

Obviously, all perceptual and symbolic performance profiles refer not only to the fruition of the single architectural work but also, generally speaking, to the urban and territorial context that hosts it.

However, this is an understanding of architectural space that always interacts with specific practical/functional fruitions, in a sort of "interpenetration" in which the used space acquires meaning and value. Among other things, it is precisely in the interweaving of practical/functional and symbolic/perceptive aspects that the synthesis made in each project interprets the different regulatory constraints and limitations of an economic and productive nature.

Obviously, when configured in this way, this is a historically determined perception. In today's world, there are no natural minimums or maximums; instead, we can speak of historically defined, dynamic, rapidly changing minimums or maximums. However, the city's own history shows us how the set of works created in a given era are both the testimony to and the engine of these transformations.

In his speech, Saverio Mecca stressed that "since the 1984 European directive, the definition of the overall performance profile of one's work has defined the subjective responsibility that the planner has towards his client". How-

ever, "the planner is not to correctly apply the laws in force; rather, they have a responsibility towards society and the author's subjectivity as to the public dimension, which is reflected in the quality of the architecture". Because of the current transformations in the world of professional practice, whether it be carried out by an individual or a regulated association of a few individuals, we are increasingly slipping into a reality characterised by increasingly large and professionally articulated teams in which the planner must play a role of direction, coordination and, above all, responsibility towards the overall performance level that will qualify the work carried out.

However, at a time when the decisive contribution that the performance qualities of the physical space make to the standard of living of people and to the concrete realization of their actual status as "citizens" is being highlighted, contemporary European culture also affirms its entitlement to the beauty of the places it inhabits. This is an issue of primary importance that we believe cannot be circumvented by those who are engaged in the search for tools capable of assessing architectural quality.

6. THE AESTHETIC DIMENSION OF ARCHITECTURE

From a conceptual standpoint, the introduction of the concept of beauty in physical space (whether it be a natural or artificial space) requires us to introduce the aesthetic category into our evaluation practices. Such a category refers to objects whose fruition always has a multidimensional nature that subsumes the three Vitruvian attributes by integrating and dilating them.

We have observed that the full fruition of any architectural object always involves an immanent dynamic nature that structurally engages the subject in a dimension comprised of dynamic and multisensory perceptions. The very visual perception of an architectural space is part of a complex experience in which its typological and technological features prompt and shape its practical, static or dynamic behaviour while, at the same time, encouraging its aesthetic use. Such an encouragement can be generated by the fruition of a single object, produced by the perception of an environment resulting from harmonious composition or spurred by the simple juxtaposition of objects of various sizes, uses and styles. These characteristics of architectural objects deeply interact with their users and will result in more or less important changes over time, thereby conditioning the mode of use itself.

In her contribution, meaningfully entitled "Judging the value of beauty: from aesthetics to ethics," philosopher Simona Chiodo (2019) notes that, in the contemporary world, "together with beauty, the most general public usability of aesthetic and ethical values has entered a crisis: the ancient concept according to which a beautiful thing (kalos) is also good (agathos) because it represents, or rather respects, the ideal human dimension, is no longer valid. On the contrary, things are valuable when they continue to preserve their objectifiability, namely a shared and public measurability (which beauty no longer has because of the shrinking sphere of objectivity and its clear division from the sphere of subjectivity)". But "it would be naive to believe that a shared and public kind of measurability does not continue to be based on precise values". It is therefore necessary to reflect on "what values can and must form the basis of the shared and public measurability of natural objects, and above all of the artefacts that surround us".

Chiodo articulated her contribution on two core themes: "the first has to do with the reasons why the beauty of architectural objects in the broadest sense, from landscape to urban space, has an essential value that is, at the same time, aesthetic and ethical, and the second has to do with the reasons why the value of beauty is (and should be, albeit more significantly and more explicitly) a founding criterion when we judge architectural objects ...". Many international forums currently attach great importance to the quality of architecture - especially beauty - and require tools to assess the ability to produce objects that, apart from being functionally satisfactory, must above all be sufficiently shared, as Chiodo writes. In other words, it is necessary to produce architecture that is intrinsically good, beautiful, and functional in relation to its destination, spatial location or physical dimension: therefore, a kind of architecture that is good and beautiful because of its ability to make a positive contribution to the usable and perceptual quality of the urban fabric in which it is located.

In this regard, in the debate that is taking place in Europe and in the current regulatory formulations, many have complained that these crucial issues generally appear to be treated in an approximate and substantially elusive way, thereby confirming the current devaluation effectively denounced by Chiodo.

In the last decades of the 20th century, in order to satisfy the need to make more shared evaluations, various teams (generally of a multidisciplinary nature) established a link between the drafting of the project and the activation of participation processes involving the communities and/or the subjects that, in various ways and to varying degrees, proved to be interested. Moreover, significant experiences in this field, especially in the sphere of residence, were illustrated and cited during the works of the commissions that made part of the conference in Rome (Mangialardo, Micelli, 2019; Fattinnanzi, 2012).

7. DURATION AND LIFE CYCLES OF PHYSICAL SPACE

The understanding of urban space as a common good also prompts reflections on the temporal dimension of the life cycles that articulate the durability of the architectural objects that are part of it. During these cycles, the configuration of the initially planned performance profile will inevitably interact with the transformations of the settlement and socio-economic environment in which it is located. As we have seen before, the ways in which physical

structures are perceived and used inevitably change over time. On this subject, Franco Purini (2019) states that "we must be aware that a project can not only concern the construction of a certain artefact, thereby being limited to this function, but should also envisage the implementation of a space that is active throughout its life, thereby foreseeing its possible modifications, which must be in tune with the genetic code that characterises it and its tectonic essence and form..." therefore "... the project must contain reliable information on the reuse of the construction elements once it has come to an end". Purini also adds "... a project contains not only the beginning of an architectural life, but also its end, which is prophesied, if you will, almost at the beginning of its implementation in the construction site. In an evocative and deep loop, the time frames of the project follow one another and overlap, thereby making the current and prevailing neo-functionalist interpretations of our profession incomplete, ineffective and deceptive; for no reason can we remove its most authentic expressions and its primary aims".

Similarly, S. Mecca says: "the field of project evaluation must therefore set itself the objective of defining and testing tools to evaluate and govern the drafting of projects that will be progressively less closed and deterministic in order to respond to the qualities expected of the project, which will be flexible over time due to the processes of digitisation and data production that will change the entire process of design, construction and fruition".

8. THE PROBLEMS OF ARCHITECTURAL LANGUAGES

In searching for effective evaluations instruments to be used in the design processes documented in the pages of this issue of *Valori e Valutazioni*, there was a keen interest in this dilemma.

Following this rationale, Fabiana Forte recaptures the Umberto Eco's distinction between "denotation, the main meaning… and the potentially infinite series of additional meanings that the sign assumes. Just like written and verbal languages, even the meanings that characterise the architectural object change over time". Faced with the change and the possible obsolescence of architecture's life cycles, Forte, using Eco, adopts a definition according to which "...the architect's task would consist essentially in designing variable first functions and open second functions". Taking into account the importance that European culture attributes to the existing heritage and, in particular, to the continuous extension of the "historicity", Forte points out that already in 1969 Gildo Dorfles affirmed that there is the possibility that architectural languages can be decoded "based on a code that can be completely lost, but based on a type of symbolic message – or rather sign (since it is not based on a convention) – that manages to overcome the times, or rather, to be 'timeless', but synchronic, as happens for many forms of ritual, myth, symbolic, and metaphorical expressions…".

As part of this problem area, Salvatore Giuffrida (2019) explained the application of an interesting model. The model uses categories developed in the analysis of verbal languages and, starting from such a conceptual approach, identifies a methodology that uses urban fabrics that configure "territorial units characterised mainly by the urban fabric, the form of urban capital in which the greater share of the social value accumulated by the settled community is immobilised, and that is stratified in the complex of artefacts, in the ways and forms that the institutions appointed to give to this material organisation and perspectives have directed" for the formation of requalification programs of dense and structured historical. Based on this observation, Giuffrida identified the possibility of intervention on individual architectural units (AU) that, based on the role they play in the settlement, they present identities that "…can be simple or very complex in regard to their attributes and the relationships they have with other objects, facts or functions, and which can therefore assume a different weight in the economy of the relationship between deep structures (of the settlement) and the intervention strategies". Interestingly, the model presented by Giuffrida is structured in a process that is both cognitive and evaluative in the first place; based on its attributes, each one is assigned the value of sign, symbol and icon with a growing strategic importance in the urban fabric. Therefore, based on this connotation, it is possible to place each AU in one or more of the different intervention strategies, constructed by combining the intentionality (more conservative or transformative) and identity (set of characteristics) of the AU.

Now, after having briefly summarised the most interesting contributions to the scientific rigor and operational capabilities, we feel that we can make working assumptions that allow us to configure theoretical assumptions, methodological approaches, and operational tools that research into the interaction between valuations and process of formation of architectural projects that concern any type of intervention on the physical space, from the settlement level to that of the architectural object.

Obviously we will tackle this task by referring to articles that have provided the most useful and stimulating contributions. We will start by summarising some of the issues that have emerged so far.

A first issue concerns the specific characteristics of the relationship that is created between cognitive process and development of the project. Clearly, upstream of the activation of the process, information is acquired that will allow us to know the reality on which we are about to intervene, but the most interesting aspect that emerged in the conference is the observation that a conscious design urges in all phases of the its development a further acquisition of knowledge. It also promotes greater organisation and critical interpretation of the data acquired. Besides, by investigating the potential interventions, the inherent design of a given reality gives a deeper understanding since it sheds light on aspects that are not immediately perceptible of a given reality produces a deeper knowledge because it high-

lights less immediately perceptible aspects (Mondini, 2009).

Another important aspect concerns the importance that the interactions between practical-functional characters and those of a perceptive symbolic nature assume which characterize the overall identity of the urban or natural physical space and those that characterize the individual architectural units. Units that, with their typological and technological conformation, but also with their hierarchy and stylistic characterization, build and qualify the urban or natural physical space. The issue rightly emerged during the conference mainly in relation to interventions of recovery and transformation of the existing heritage, in particular of historical value, but which must also have to constitute an important approach both to the effective regeneration processes of more recent settlements, and in the planning and design of new settlements.

However, the intellectual tension and the operational interaction that should always be established between the decisions concerning what must be accomplished, their location and physical dimension (competence of the political/administrative decision-maker and of the urban and territorial planner) and the work of the architect designer who has the primary task of defining how those things can be physically created are of great importance. The planned work may need to be redimensioned or, to say the least, may betray the objectives established at the planning stage or, on the contrary, confirms them or even enhances them substantially. To give substance to these statements, attention is given to the very well-known case of the Guggenheim Museum in Bilbao that Fabiana Forte investigated in *Valori e Valutazioni* (Forte, 2009).

Anyone who has had the opportunity to visit that city has been able to see how this very particular object, moreover created with a great economic, planning and technological commitment, has played a promotional, qualifying, and highly structuring role in the overall restructuring and qualification of the functional centre of Bilbao and, ultimately of the entire city. In fact, it can be seen that the museum has constituted an economic, functional and symbolic perceptive polarity; a pole that has positively influenced all the interventions that were subsequently carried out around it, but also qualified the physical and functional regeneration of the existing buildings.

9. EVALUATION IN THE DESIGN PHASE: THE NEED FOR A MORE EFFECTIVE APPROACH

Taking into account the structurally complex and multidimensional nature of the physical space, we can better understand how, by introducing the evaluation in the drafting methods, it is possible to create project proposals that prove to be based on a more reliable forecast of the performance levels that the implemented intervention can offer for the same resources used. Developing the drafting phase, the designer's attention initially starts from the assimilation, even critical, of the notion of what he or she was commissioned to design, and then shifts his or her attention on how to design it. During this phase, the adoption of valuation methods plays an essential role in determining the chances of success of the interventions. It is therefore necessary to identify and profitably follow new scientific and disciplinary development paths of the evaluation sciences; paths that are not entirely new, of which many of the contributions during the Rome conference highlighted complexity and difficulty.

Aware of these difficulties and complexities, we propose addressing the question by "turning the starting point (adopted up to now) upside down". Instead of starting from the offer, or rather, from the inventory of the methods and the operational tools that, currently, the Estimates and Evaluation disciplines are able to offer to the designers, we take into consideration the specific nature of the questions that, implicitly or explicitly, the designers ask the disciplinary sector: let's start from a careful analysis of the drafting processes and check if they make it possible to identify and explain the existence of significant evaluative implications. By adopting this approach, some structurally pervasive characteristics are immediately highlighted: first of all, we can see how in each of its development phases, the drafting of an architectural or urbanistic project, of any type and size, takes the form of a decision-making process, based on the selection, evaluation and choice of alternative solutions.

In the vast majority of cases, in all the phases of this activity, we can see how the procedure adopted (it does not matter whether knowingly or not) follows a substantially identical operative structure: after a more or less accurate focus of the nature of the problem to be solved, and of the more or less binding constraints to be respected, the team configures a basket and places in this basket options that, in the specific intervention situation, the team considers possible to implement. First of all, of course, the basket will be built on the overall professional experience of the team; then those that are believed to be actually available, in that particular intervention, will be added to these. On the one hand, these solutions will be taken into consideration and selected in light of the greater or less compatibility of each option with regulatory and economic/productive constraints. On the other hand, it will be evaluated how each of the alternatives included in the basket of choices, can contribute to the creation and verification of the generating ideas, namely those theoretical hypotheses and intuitive character of spatial structures that, again, any designer preliminarily configures, considering them to be able to satisfy the overall requirements that have motivated the intervention. This is the base for the drafting process in which the various subsequent decisions will physically materialise the initially expected spatial structure, defining the definitive image in terms of linguistic coherence. But, at the same time, they will determine the overall level of the desired performance profile and, ultimately, they will also verify the feasibility and validity of the generating ideas initially considered.

If we substantially agree on this overall configuration of

the formation process of each type of project or plan, we must agree that the evaluation constitutes an intellectually qualifying and operationally pervasive aspect. Secondly, it is clear that the quality of the project results from the interaction of the set of decisions taken during the entire formation process. Consequentially, the essential task of evaluation cannot be considered external to the drafting process but, on the contrary, it must qualify in the search for methodologies and operational tools that are inserted as essential components of the overall design process methodology. We believe that during each stage of developing the design decisions and during the drafting of the drawings and other plans produced, it is essential for these methods and tools to make it possible to measure the contribution that each of the decisions confers to the achievement of performance targets and economic factors that characterise that intervention.

In the theoretical contributions and in those pertinent experiences explained during the Rome conference, the broad phenomenology of drafting processes results in a significant experimentation of the different types of support that the rich patrimony of estimation and evaluation methods and procedures can offer to designers. New and stimulating pathways to disciplinary development have been configured that, first of all, as we have already seen, can derive from a different conformation of the evaluation methods and procedures currently available. Excellent results are due to the testing of new multi-methodological mixes used in various urban regeneration programs. Finally, it will be possible to stimulate the invention of substantially innovative tools, conceived in a close and interactive methodological and operational connection with the development of the design processes. In particular, in the redevelopment of a historical centre, as in the model presented by Giuffrida or as concretely experimented in the design of various localization and consistency interventions, as in the experiences achieved with the SISCo patent in the recovery and construction of dwellings.

10. THE NEED FOR EVALUATIONS INTEGRATED IN THE ARCHITECTURAL DESIGN

When we highlight the problems related to the quality control of architectural projects it becomes important to adopt a methodology that makes an overall system of integrated controls and valuations, capable of effectively supporting all the decisions that articulate the development of the project's creation process possible. We believe it is important that these evaluation methods are adopted at the conception of the generating ideas so that they can be inserted throughout the development of the drafting process, in concrete terms (it seems appropriate to repeat it), as the design documents that actualise the project are produced. We cited the positive experimentation of a mix of methodologies and procedures that made it possible to verify the pursuit of different objectives, for example, considering those relating to energy, environmental protection and preservation, accessibility, the socio-economic impact on the populations and subjects of various types of interest, etc. Generally, the research and the use of these tools was aimed at validating an urban plan, in particular the choices related to the physical size and configuration of a distribution and spatial organisation of activities, measuring - in a scientifically disputable way – at what levels the complex set objectives were pursued. Then the plan will be concretely implemented through the creation of a set of interventions on the physical space that can be of various nature and entity, but each of which will contribute either positively or negatively and in different measure to those same prefixed objectives. Consequently, the evaluation process used in the design of these interventions cannot be limited to the performance effects of the choices related to the morphological, typological and technological aspects, but will also have to evaluate to what extent these choices will contribute to the pursuit of those objectives. Therefore, in essence, this means making an integrated valuation of the projects, in particular those of architectural value. It is also clear that the deepening of this aspect consists of the contribution of the evaluation disciplines, both in terms of theoretical insights and in terms of preparation of operational methodologies.

The availability of instruments able to carry out this function is an increasingly pressing need perceived by more knowledgeable and professionally and culturally equipped design teams. The very difficult task of preparing them and specifying them according to their uses during various planning can only be carried out by specialized members belonging to the team of evaluators, and this has essentially been brought up by the Roman Order of Architects.

11. THE STRATEGIC ROLE OF NEW IT TOOLS

The modern world places new responsibilities on designers and the very introduction of evaluation procedures in the drafting of projects makes it more complex and expensive in terms of time, human resources and tools to be used. But the contemporary development of scientific research and technological innovation offer powerful tools capable of configuring new, more effective and efficient design processes.

In this regard, in various interventions, in particular the work session coordinated by G. Acampa showed the decisive need to adopt valuation procedures (especially integrated valuations), which are supported by tools that prefigure and organise the entire planning process in the most effective way by defining the succession, the time schedule, the characteristics of the various drafting operations, but also establishing the mutual interactions and their order in a defined hierarchical system.

The use of PM (Project Management) techniques possibly supplemented by the use of the PERT (Program Evaluation and Review Technique), have shown great potential to make the design process more efficient in terms of time and costs and more effective with regard to the control of project results. In any case, since the drafting process is articulat-

ed in a non-linear way and is characterised by frequent feedback, whatever the set of tools adopted, it will have to be flexible and fluent, adapting to the requirements posed by the progressive definition of the project. However, we have experienced how the PM becomes essential not only to establish the times and methods of use of the resources offered by the design team, but also to mark the times and procedures that govern the relations with the institutionally competent external subjects or with those that it deems useful or necessary to involve. For example, the Contract experience with the District of Crotone (Fattinnanzi, 2013; 2012) as explained in one of its parallel sessions how the positive results achieved in the interaction between the planning process, valuation methods, and participation processes was fully governed by a suitable PM.

Furthermore, it was possible to see that the results achieved through the use of PM and PERT can be further enhanced and extended by making them interact with the BIM (Building Information Model), an IT tool that is becoming increasingly disseminated.

Acampa et.al. (2019) presented an accurate national and international inventory that explained the current offer of methods, evaluation procedures, and control protocols that, however, are currently limited due to the generally sectorial aspects of projects. There are also cases in which the operation of these instruments has been strengthened by the introduction of the BIM.

The important orientation of the legislation to draw up any category of public works project using three-dimensional modelling which, irrespective of political contingents, has now irreversibly conquered the audience of designers, cannot be limited to being considered a means capable of conferring accounting transparency, but it produces the availability of a powerful mine of information, offering a valuable opportunity to activate effective forms of project control. In his contribution, Franco Purini stated that "the use of the computer (by the architect) ... has had very important but still evolving results. Some architects, such as Bruno Zevi, believed that the digital world opened new cognitive and inventive spaces, on the other hand, others, with whom I agree, consider it a crucial tool but that is not, however, a preferential area for architectural discoveries".

In the Rome conference interesting reflections emerged not only on the strategic role that the current dissemination of BIM can play in a perspective in which valuation methods qualify the entire design process, but come to affirm that the use of IT tools is destined to increasingly influence the conception of the designed object. Ultimately, in agreement with the opinion that W. Benjamin expressed in his key text "The Work of Art in the Age of Its Technological Reproducibility" (1966).

On the support that digitalisation offers, we can see that, as project documents are developed using three-dimensional modelling in their entirety, an imposing amount of information that relates to the physical conformation of the project is potentially available. This information, appropriately processed and (if necessary) integrated, is available and can therefore be easily acquired and used online in an integrated valuation process and, from a methodological point of view, strictly based on the drafting process configured in the specific Project Management for which the team should always draw up the characteristics of the object to be designed. Obviously, the complexity and articulation of the PM will depend on the type, size and functional destinations of the project.

The experiences presented in Rome have shown that the use of the currently available programming tools, if adequately supported by computer science, offer the concrete possibility of verifying, during construction, the individual choices made by the design staff concerning the overall performance qualities associated with the typological and, possibly, morphological structure and the technological and productive implications as well as the total cost of the planned work. But also, to estimate the level of coherence, to the limit their compatibility, with the general objectives and constraints that have been placed upstream of the design process. In conclusion, the work of the conference and the insights that have emerged from this, have allowed us to define the intensity and characteristics of the demand inherent to the drafting process, and by introducing the need for integrated valuations and indicating the methodologies to implement them, allows designers to develop a greater awareness of the cultural, social and economic role played by the design of architectural works.

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