

The evaluation discipline in the Schools of Architecture and Engineering

The basic aim of a training course in the Schools of Architecture and Engineering can be identified with the competence of ethically oriented engineers and architects, technically skilled to achieve, through their work, the principle of sustainability in its three dimensions: environmental, economic and social. If we agree with this purpose, then we must be convinced that the interaction between evaluation disciplines in the educational programs and the other disciplines with the same goal is necessary. And that's because – as I have just said – sustainability is a multidimensional concept.

Moreover, the evolution of environmental, urban, economic and social conditions of cities and territories in which architects and engineers work offers opportunities in terms of interdisciplinary cooperation that once did not exist to this extent.

Consider, for example, the energy issue. This question drives evaluation discipline to interact with Building Physics and Architectural Technology in order to reach a double-sided goal: managing the technical information originating from these technical-scientific areas and providing the assessment answers that these sectors require to be completed. The need to carefully supervise the costs of public and private works also involves the extension of cooperative relationship to architectural design and urban planning.

However, the connection between evaluation disciplines, which use codified models and methods for both monetary and multi-criteria assessments, and design disciplines, that do not use formalised evaluation tools by nature, is complicated. Nevertheless, it is worth noticing that the evolution in recent days of the legislation in the public sector about the assignment of services and works has overcome the traditional prerogative of discretionary judgment in designing choices by introducing formalised methodologies, such as the evaluation of the most economically advantageous tender and the pairwise comparison technique.

In the past, the implementation of public projects was only based on the evaluation of intervention costs, that is the estimates of expenditure. On the other hand, the realisation of private projects was based on affordability assessments which take account of the intervention costs and - in the case of works to be placed on the market – of the economic value of land and sales prices. The development of private-public partnership, both in urban planning and in building design, has set transparency and efficiency requirements in the use of public resources. There are also economic feasibility requirements which force design disciplines to interact with the economic-financial evaluation procedures in a

close and often binding way. Consider, for example, development rights and integrated intervention programs in the case of urban planning, and project finance in the case of building and infrastructural design of works that will be realised with at least partially private resources.

Unlike the disciplines that have been discussed, transport disciplines include consolidated assessment tools, particularly with regard to the economic profile of alternative solutions. The disciplines which aim to conceive and organise investment programs in the field of infrastructures and equipment need to interact with evaluation disciplines within a codified procedure, that is the feasibility study, which requires the use of formalised methods both for economic-financial and environmental aspects.

In conclusion, the education of architects and engineers needs to be accomplished in two ways:

- *that regarding the principles, the parameters and the methodologies that characterise the field of study of evaluation discipline. This is the basic education, which represents an essential part of technical knowledge for an architect and an engineer;*
- *that concerning the development of the ability to listen, to interact and to make proposals to the others disciplines and can be exercised in workshops, graduate thesis, PhDs and so on.*

In this latter regard, the emergence of a different atmosphere is perceived in the research evolution, in the evaluation of researchers and professors, in the scientific debate and in the professional activity. Once the knowledge that each researcher or professional had within its specific field was more appreciated. This is a knowledge that today – in the academic sector – we might define “delimited” by the rules of each scientific discipline and – in the professional sector – we might call “sectorial”.

Nowadays, the ability to interact with the colleagues specialised in different disciplines and the capacity to have a broad vision are more important than in the past, in the research field as well as in the professional activity. The disciplinary competence remains essential, but it is not enough: on his own, it implicates the marginalization of the researcher and the professional in the research program and in the planning and design processes.

Thus, by assuming that the general aim of engineering and architecture studies is training a researcher and a professional who takes an active role in understanding and pursuing the principle of sustainability, then the specific aim for the ICAR/22 is giving the technical-scientific ability to intercept and to meet the demand of SSD ICAR/22 competences to this scientific disciplinary sector.

On this matter, the professional market offers wider job opportunities than the basic education in evaluation field in architecture and engineering schools does. In the professional market is still important the core of activities in real estate assessment and several occasions occur of technical and specialised advice. However, there are new questions which deal with the competences in evaluation fields.

As examples:

- *the need to give support to public participation processes within the elaboration of territorial and urban plans and projects by means of evaluation contributions that can bring them to fruitful effects;*
- *the need to improve the capacity of plans and projects that deal with environmental resources and social group to carry out multidimensional assessments;*
- *the need to find an efficient and fair balance between public and private interests in urban redevelopment projects by making transparent the public decisions;*
- *the need to make feasible projects to be developed in conditions of lacking financial resources and in urban fabrics to be improved;*
- *the need to support new financial actors, such as the asset management and consultancy societies, in the assessment of investments in new sectors (social housing, senior housing, etc.) or in the valuation of new issues (not performing loans, bankruptcy, real estate, etc.) linked with the change – maybe irreversible – of Italian housing market.*

This large demand of technical skills is not met by the knowledge learnt from the academic courses of the aforementioned schools, nor the architects and engineers possessing an higher level of education achieved through postgraduate studies are enough.

Prominent professional roles are often covered by graduates in architecture or engineering whose professional skills in evaluation discipline have been acquired in the field, that is in architecture and engineer firms or in advice companies.

In conclusion, on the one hand we can agree that the number of professors and researchers belonging to the scientific disciplinary sector ICAR/22 and the related educational offer in university departments are too limited. On the other hand, in our society the evaluation discipline is requested to make a more extensive and higher level educational contribution than the current university programs do.

Therefore, the scientific disciplinary sector ICAR/22 strategic purpose is to strengthen its presence in Schools of Architecture and Engineering. This is a very hard goal to achieve because of the way decisions are taken in our universities, according to which the most represented disciplines have greater leverage over decisions about future departmental assets. However, the improvement of evaluation discipline presence in university departments is exclusively entrusted to the appreciation that ICAR/22 professors and researchers will be able to gain from their colleagues thanks to the quality of their work.

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While the issue is going to press, our colleague Marina Ciuna passed away. Marina Ciuna was part of the Editorial Board of Valori e Valutazioni and an active member of the scientific community of real estate evaluation and project appraisal.