Producing Project

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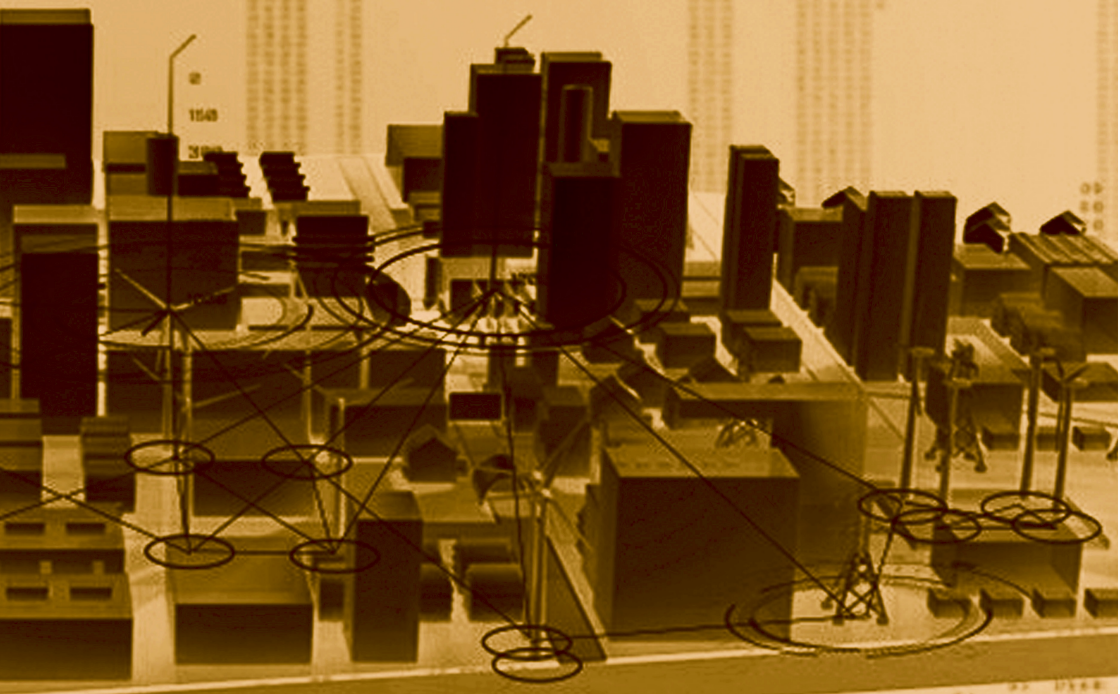

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PART 1.

DEMAND FOR SERVICES, OFFER OF COMPETENCES
VALUES, CONTENTS AND PROJECT ACTORS
IN THE NEW ORGANIZATIONAL MODELS OF THE BUILDING PROCESS

1.1 ARCHITECTS' TRAINING AND PROFESSION: CURRENT STATUS, TRENDS AND PERSPECTIVES

Ernesto Antonini[*], *Pietromaria Davoli*[*], *Massimo Lauria*[*]

Abstract

The context surrounding architectural projects in Italy is heavily influenced by the role and strategies of clients, the legal framework and the dynamics of the building sector. There are furthermore certain peculiarities that define the design market when compared to the European situation: from the number of architects to restricted overall revenues in the construction sector, from the marginal role that is usually given to design to unsolved issues in the organisation of training. The disciplinary debate posits and focuses on several critical topics that are highlighted here through a critical reading of the many contributions that have been collected.

Keywords: Architect, Project, Profession, Market, Training

Architects in Italy

One of the many factors that influence the production of a project in a substantial way is certainly that of the role of designers, main actors in the process. Their professional profile, the conditions within which their work is carried out, their workflow all have relevant effects on the features of the service they provide, namely the project itself, and, even more, the product that is the result of it – architecture. In Italy, an important source of data in regard to this is the Osservatorio "Professione Architetto" *(Observatory Architectural Profession)*, a periodical inquiry by CRESME on behalf of the Consiglio Nazionale degli Architetti, Pianificatori, Paesaggisti, Conservatori *(National Council of Architects, Planners, Landscape architects, Conservationists)* (CNAPPC and CRESME, 2016). It was last updated in 2014 and thus does not give information on the last four years, however it highlights certain tendencies that are surely useful to understand medium-term trends.

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For a comparison at the European scale, the Architects' Council of Europe (ACA-CAE) gathers information from professionals registered to associations in the 26 EU countries and publishes yearly (Architects' Council of Europe, 2019). As elsewhere, in Italy the role and strategies of clients, the legal framework and dynamics of the construction sector heavily influence the context surrounding architectural projects. However, our country presents certain peculiar aspects that differentiate our market for design from other European situations. First of all, the number of architects: there are more than 150,000 registered architects in Italy, that is more or less a quarter of the 600,000 working in the whole European financial zone (EU countries + 5). That means that in Italy the ratio is 2.5 architects/1.000 inhabitants, compared to a continental average of 1 architect/1,000 inhabitants, which falls to 0.8 architects/1,000 inhabitants when considering just the remaining countries, Italy excluded. This spike in the number of Italian architects has occurred in the last thirty years: in 1986, with 40,000 members in the professional register (that is 0.6 architects/1,000 inhabitants), Italy was in line with the average of other European countries. The dramatic increment was registered in the following fifteen years, with a 6% yearly increase rate that led to double the number of members (thus 93,000 in 2000) and an another 50,000 units increment in the fifteen years after, with still positive trends, although less substantial (+3.4% a year in 2005-2010 and +0.8% between 2012-2015).

This dynamic was induced by both a parallel growth in the number of students enrolled in university for architecture training and of the number of architecture graduates which however, after peaks of over 13,000 enrolled per year in 2006/2007, fell by 50% in the following 6 years to 6,000 units/year in 2013/2014 and showed a declining trend in the years after. Such a substantial influx of professionals has had a significant impact on design services, pushing the quota of architects being commissioned up to 15% compared to the average European level, which is below 10%. Despite this supposedly favourable situation, the huge number of operators in the field (over 150,000 individuals and more than 70,000 studios) reduces the average yearly income pro capita to circa 19,000 euros (data 2014), which is 30% lower than the European average (29,000 €/year) and immensely less that the almost 45,000 €/year income of Dutch and German architects. Although the different scanning methodologies do not allow for direct comparisons, the results of the ACE-CAE survey in 2018 point out that there have been changes in the last four-year period: while the number of Italian architects is stable at 160,000 units, studios are little more than 41,000 (55,000 were originally registered in the 2016 ACE-CAE inquiry in 2016), and have an average yearly revenue of 35,000 € which is still however significantly below the European average of 65,000 €/year.

The contraction in total revenues for the building sector, which decreased by 35% in the decade between 2008 and 2018, dramatically exacerbated the phenomenon.

At the same time, a second peculiarly Italian phenomenon must also be taken into account, that is the presence of 200,000 other professionals (engineers, surveyors, building experts) whose roles are confused and, in many cases, largely overlap with that of architects. This leads to a hard, and at times unfair, competitive environment - also due to the absence of adequate normative restrictions in regard to the services that can or cannot be delivered – which takes a toll on the nature of earnings and adds limitations to job opportunities for architects. A coherent new set-up of professional competences in the design sector (the existing one for engineers and architects is regulated by an almost century-old law: the RD2537/1925) that would cure an evident and all-Italian paradox, has been called for many times but never seriously considered by political and institutional bodies.

Since the "Architect's Directive" (85/384/CEE) defines the essential competences needed to practice in the EU, in this contradiction lies an inconsistency between the requirements the Directive imposes on the training courses to be EU-compliant (that is, in Italy, the degree courses within the LM4-class), and what Italian authorities expect individuals without these requirements or training to have in order to carry out almost all the activities specific to architects.

As well as their extremely high numbers and significantly lower income, the profile of Italian architects also shows further important differences compared with European trends: in Italy there are more practicing women (43% as opposed to 39% in the EU) but the average age is higher (the number of over-45-year-old practicing individuals is nearly 60% in Italy as opposed to 54% in the Europe); a quarter of Italian architects work part-time (25% as opposed to 19%) and only 67% full-time (EU average is 77%); almost all are in very small offices (1-2 people: Italy 90%, EU 84%). Given the circumstances, it is hardly surprising that Italian architects have negative expectations in regard to the development of their activity for 2019: according to the ACE-CAE survey, only 25% expect an improvement while another 25% foresee a decrease with the remaining half not expecting any significant change compared to 2018.

These predictions are in opposition to average EU data, with 32% of European architects expecting an improvement of their work volume and only 17% a decrease (mostly in Finland and the Czech Republic).

Project and training

The situation that emerges from this data suggests it is necessary to study further certain issues that have certainly contributed to – and still contribute to – the creation of several critical aspects, which have negatively influenced average architectural quality recently. Above all, the so-called crisis of the architectural project, caught between the ambition to regain centrality within the building process and the marginal role, which it is often forcefully given.

This crisis – whether it be real or only perceived, or the result of deep transformations taking place – is confronted with several factors, both external and internal, that are evidently closely connected with the role that the designer is assigned in the context of the contemporary project production process of the project. Such factors include:

- the extensively structured, unstable and ever-changing normative framework, a growing (as of today, the CNA estimates this percentage is 5% of total commissions) but yet not so common use of architectural competitions as a tool to commission projects;
- the inadequate technical capacities of clients who need to control complex processes such as the construction of demand, project validation, and manage realisation;
- the presence of powerful production companies who do not usually share their knowledge and know-how regarding the developed project, thus transferring a share of the decision process outside the architectural studio.

If the project is going through a crisis, it is also because the architect himself is living a radical change of working responsibilities. This fracture is clearly deeper than positive statistical reports reveal regarding the current professional condition. According to AlmaLaurea 2018's report, 87,3% of graduates from five-year Master courses in Architecture and in Construction engineering and Architecture are employed within 5 years of graduation, with the first job coming after 5.8 months, compared to the 7.0 month-average expected for any second-level graduate to find a job (AlmaLaurea, 2018).

These changes are related not only to statistics regarding occupation but also to fields of interest and skills. The previously mentioned Osservatorio Professione Architetto that the CNAPPC instituted with the technical collaboration of CRESME, highlights that aside from traditional activities (drafting of technical-financial reports, cost estimation documents, engineering tests, cadastres, consultancies for court authorities, occupational safety and health, fire prevention work, ease-of-access in regard to physical barriers, administrative activities, etc) innovative aspects of the job are growing, such as feasibility studies and design, project financing, facility management, design of energy technologies, energy performance certification, GIS and BIM systems, and 3D modelling. The workflow has also changed. The digital revolution as well as management and control systems have determined a radical break from traditional approaches, to the great disappointment of great architects of the twentieth century. At the same time the parallel introduction in architecture offices of finance-related and managerial work have both turned studios into service-providing companies, in line with an ever-growing tendency to consider professionals as service providers rather than for their intellectual labour. However, the provision of services implies a standardisation of processes, which, for a professional activity such as that of the designer, would seem in the opinion of many to conflict with the civic and social role that should define the profession.

Moreover, it all too frequently appears to lead to a type of competition based on the lowest bid. According to the Associazione delle Organizzazioni di Ingegneria e Consulenza Tecnico-economica (Engineering and Technical-financial Organisations' Council), in 2017 the average decline in payments for intellectual services in the public sector was around 40.7%. How hard this hits the appeal of the architect as a professional figure is hard to say. To give an idea, a first indication is the number of enrolled students on degree courses in Architecture in 2018, that showed a further decrease in comparison to the total 7,211 places available in Italian universities. Of 7,986 enrolled, only 6,779 actually took the admission test. Of these only 5,720, that is 84.38% of the total, made it to the national ranking list, as opposed to 97.95% in 2017 and 96.83% in 2016. From these statistics, it would seem there is a need for renewal, starting from the rethinking of the didactic offer. The training of an architect at a national scale, as much in 3+2 courses (L17 Architectural Sciences + LM4 Architecture) as in the 5 year-cycle (LM4 Architecture), has mostly focused on maintaining the last ten years' didactic approach toward an all-around preparation. It has left out of learning programmes the knowledge and disciplines that are necessary to train specific profiles to be ready for of working environments. The issue here cannot be oversimplified with an antithesis between specific and general knowledge. Architectural training has been deeply influenced by this dichotomy and has thus become a measure (and perhaps also a reason) for this generalised crisis in the profession's vocation. The skills mastered by graduates are seen by AlmaLaurea as insufficient. In fact, 71.6% of graduates carry on education with postgraduate training, in particular by starting voluntary collaboration with professors, experts, professionals, etc (34.5%), work placement in companies (27.3%), internships (21.6%) but also professional training courses (17.3%). In this context, the state exam for architects rightly seems to be one of the issues that should be reconsidered. An initial analysis of the offer of the educational system/expected competences and requirements/professional activities and approaches brings up several critical topics that deserve further investigation. This should also be carried out through a critical analysis of the main topics in contemporary disciplinary debate, which the many contributions collected here allow for.

Demand for services, competences supply and new professional skills: a few answers from the Technological Area

When a debate is initiated around specific topics within a scientific community, the contributions lead to a series of results that can trace a reliable and strategic sample of thought regarding the current trends and an exemplary, although certainly not thorough, showcase of the state and focal points of interest in disciplinary discussion and its reactions to the specific theme.

Such insights outline a synthetic overview of certain dynamics that can possibly be identified between the market and training in the field of project production.

In regard to the demand for design services, the first topic being the analysis of priorities, strategies, instruments, approaches and subsequent effects, there is growing interest concerning the opportunities of participated projects in the transformation of the built environment. This is a well-known approach, that today shows new features due to new models of associating specific and developed competences in order to confront specifications of feasibility and enhance the proactive dimension of the process.

A much-needed regeneration process in terms of implications and efficiency of design competitions should be aimed at creating a more effective tool in order to generate demand for services, an improved understanding of the needs of the client and to stress the relevance of competition procedures, thus seen as an undeniable element in the decision-making process and a privileged research instrument in regard to fully satisfying the needs of the community. In Italy this operative tool is struggling and constantly looking for new formulas to overcome administrative hurdles in the public sector where winning, after the hard work of those who participated, does not mean building.

With the global construction market as a context, a second topic is a further analysis of how the organisation of supply and production of projects has evolved in terms of size, layout, and competences of design organisations. It is evident from such an analysis that there is an urgent need to balance an overwhelming and often distracting focus on technical tools that runs parallel to the design process as well as a call to give new added value to intangible resources (coordination, collaboration, workflow between involved actors, etc). The result is an increased interest towards the demand and supply of rating-system competences that can produce through guided procedures new directions for multidisciplinary sustainability. As tools required by clients for general assessment, such systems are now also more efficient supporting structures to control the complexities of the project. They allow us to imagine promising achievements such as, above all, performance-based protocols that introduce requirements in terms of resilience and climatic mitigation at different scales.

The European policies encouraging Public Administrations towards Green Public Procurements, as well as the Italian norms regarding *Minimal environmental criteria* in the matter of design services and tendering of public works, open up new important scenarios.

Life Cycle Assessment, embodied energy, circular economy, products containing recycled materials, environmental certificates for products and so on, all entail a significantly specialised training of technicians-designers to speed up the promotion and checking processes that are needed to meet such requirements. The integrated and holistic supply of professional skills in the growing field of green design and green building is still totally inadequate.

The same can be said for resilient and adaptive urban design in the context of the sudden strains, as well as for long-term mitigation actions against climate changes.

Besides, the issue concerning the elaboration of projects inside Universities is still under debate. With the goal of a more incisive so-called *third mission*, many hope that academia will also be able to put its resources back into action and apply the potentials of scientific research to architectural projects, thus contributing to cultural, social and financial development through a more direct and productive link to the country and its operators.

It is therefore necessary to interrupt the current practice of university project services being offered to public institutions via anomalous, almost undercover, forms of consultancy.

The necessity to encourage the creation of a two-way technological transfer is related to this issue, given the rather weak model of collaboration in our Country. Which requires an intensified bond between second-level university education offer and both industrial production and corporate sectors. This is intended to establish systemic connections for education and work aimed at training researchers and, specifically, at the production dynamics of architectural projects.

Another aspect, regarding new professional figures, should take a relevant position: the role of the "Responsabile Unico del Procedimento", i.e. the principal manager of a procedure, for public tenders. From a merely administrative figure, as it was originally, it today must be seen as a versatile project manager, who can tackle the complexities of the actors and competences involved. This individual's role must have decision-making power in planning and in managing the development of the project and processes as a whole, through the lens of multidisciplinary management techniques.

The explosion in the number of expert BIM-system modelling and management professionals undeniably leads to a few considerations. Beside the important regulations, new fast-developing opportunities are emerging especially in the management of complex processes such as those of sanitary structures, in the reuse and regeneration of the existing heritage, and in the strategies and content of energy and environmental assessment for a project. BIM as a tool to support designs and a way to upgrade the critical decision-making skills of architects, does, instead, ring like an alarm when it is reduced to a mere instrument and ultra-specialist technical tool for informatics management.

In regard to a third topic, that of encouraging the study of the demand for new professional skills with which to feed the project process, the priority is to generate an extended and interdisciplinary sphere of competences, as has very rarely happened in the past. As most of the technical aspects can be brilliantly solved, the most interesting challenges will be at the level of transformations of organisational models that are able to influence and control the building process in new ways.

It is evident that not all the critical issues of the digitalisation process can be solved with the competences of the BIM Manager or of the BIM Coordinator, however undeniable and innovative they may be. The theme is more complex and yet to be thoroughly investigated. In particular, that of the BIM approach to design in connection to other enabling technologies, as well as that of the production of the Programmed Maintenance project 4.0 which adopts, with the goal of improving predictive capacities, the opportunities given by Big Data, by a constant sharing of information and by the Internet of Things.

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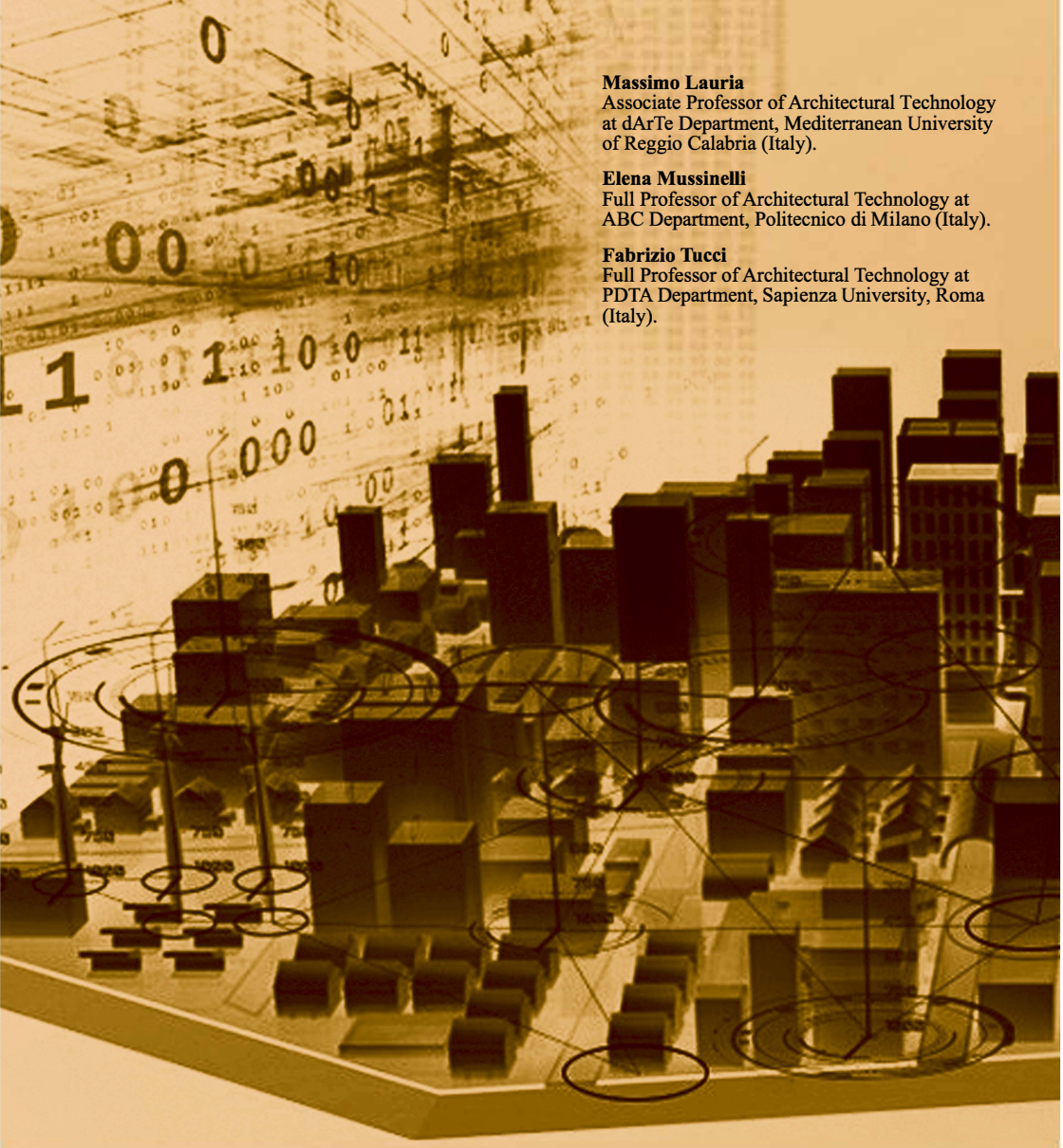

The transformations created about the design activity by the several challenges started by the economic crisis, climate change and environmental emergencies, together with the impact of the Web and ICT on social and productive systems, highlight many critical issues, but also significant prospects for updating concerning places, forms, contents and operating methods of "making architecture", at all levels and scales.
In this context, the cultural tradition and disciplinary identity of Architectural Technology provide visions and effective operating practices characterized by new ways of managing and controlling the process with the definition of roles, skills and contents related to the production chains of the circular economy/green and to real and virtual performance simulations.
The volume collects the results of the remarks and research and experimentation work of members of SITdA - Italian Society of Architectural Technology, outlining scenarios of change useful for orienting the future of research concerning the raising of the quality of the project and of the construction.