

# Appraisal Discipline in the context of Industrial Design

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## Abstract

*The article, reconstructing the framework of the most recent developments in the Architect's education and profession, and more generally, in the transformation of the Architect's skills, explores what's happening in the Industrial Design sector, trying to catch, from the experience acquired to date in the courses of "Economic Evaluation of the Products" at the Department of Architecture and Industrial Design – University of Campania "Luigi Vanvitelli"- a series of element of convergence between the Appraisal and Evaluation disciplines and the Industrial Design. Starting from a premise, which further motivates the reasons of the following reflections , the article, after*

*having figured out findings and prospective in the Architecture Sector, is opened to the reflection on the ongoing dynamics in the Industrial Design Sector, both on the side of the university education and on that of the market. Without being exhaustive, but rather to stimulate further elements of reflection and debate, the article try to focus some of the reasons which make the appraisal and evaluation teaching in the Industrial Design degree courses, an opportunity not to be missed. Concludes the article a reference to the Third Mission which, in the interaction between university and territories, see the disciplines of Appraisal and Evaluation called upon to give an essential contribution.*

## 1. PREMISE

The Seminar organised by the SIEV: "Appraisal Discipline in the Schools of Architecture and Engineering" held in Enna, November 22, 2017 was a valuable opportunity to reflect on the role of Appraisal Discipline, particularly in the context of Industrial Design degree courses.

Firstly, it is necessary to point out that the need to focus on this specific segment of the School of Architecture training supply, stems from the teaching experience in the Department of Architecture and Industrial Design at the University of Campania "Luigi Vanvitelli" (Aversa). Here, 3-year degree courses in Industrial Design and Fashion Design have been available since 2007 and from the onset, both courses have made provision in their study plan for the teaching of the scientific discipline of Appraisal and Evaluation (Icar 22) in the third year. The author is responsible for the "Economic Evaluation of the Product" course on the aforementioned degree courses and has therefore felt the need to elaborate upon and, above all, try to share the following reflections.

## 2. ARCHITECTURE: FINDINGS AND PROSPECTIVES

To begin the argument, it is useful to start from the most recent developments in the market and in the Architect's profession, with reference to the table provided by the Cresme in its latest report (2017). To date, there are 154,000 architects in Italy. Within Europe, it is the country with the highest concentration of such professionals. However, at the same time, of late, there has been a gradual decline in enrolments both on the professional register and at universities (apart from some exceptions, such as the Polytechnics of Milan and Turin).

In particular, analyzing the number of enrolments for degree courses in Architecture over the last ten years, it is clear that the decline in numbers has by now become *structural*. Indeed, with reference to data regarding three-year degree courses and master's degree courses from 2007 to 2014, it is already evident that there was a decrease in enrolments of over 50% in just six years.

This decrease is further confirmed by the absolute figures

for more recent years, in which there has also been a widening of the gap between places available and enrolments. In 2013, there were 8,787 places available as opposed to 7,161 enrolments. In 2014 (when there was also a reduction in degree courses), 7,101 out of 7,621 places were filled; and by 2015, this number had dropped to 6,278 out of 7,802. In 2016, places were reduced again to 6,991 (a decrease of about 800). Finally, in the academic year beginning 2017, 6,873 places were made available and there have been fewer enrolments than in the previous year, with a reduction of almost 120 places.

With specific reference to the South of Italy, in particular to the local context (Aversa, Na.) where the author works, the figures for the academic year 2017-2018 relating to the number of enrolments on the single 5-year degree in architecture (*Laurea Magistrale LM4*), confirm this negative trend: a mere 115 out of 152 places were filled. Furthermore, with reference to a longer time span, the decrease proves to be structural (while in 2014, 154 out of 160 places were filled, in 2015, this fell to 149 and by 2016 numbers fell even more to 134 enrolments out of 160 available places).

Within this picture, is a professional market severely affected by the economic crisis, and even more so, by the crisis in the construction industry (in particular new construction and public works). Despite the fact that 2015 was an important year for the Italian economy, according to the Cresme (2015) with the first signs of recovery, also in production and building production rates (mainly in restoration and redevelopment), these were not however sufficient to rise Architects' incomes in Italy, amongst the lowest in Europe.

Against this background, demand is increasingly shifting towards "know-how" and specialist activities, rather than demand for the more traditional skills such as architectural design, which fell by 43% between 2006 and 2015. In accordance to Cresme Observatory (2015): «If in 2010, nearly 60% of Italian architects were dealing with architectural design projects, this figure fell to around 47% in 2015. Public works projects also declined.»

This is also due to the fact that the skills required nowadays in order to respond to the various different ways of transforming cities and territories, have changed radically. It is now imperative that construction work is environmentally sustainable, energy-saving, easily maintained, economical, comfortable, innovative, etc. All of these factors particularly regard the redevelopment sector, the most important component of the construction industry (ANCE, 2015).

In this scenario, the job of the Architect as a single professional, is now completely transformed in favor of working in multi-disciplinary *teams*, which necessarily entails interacting with different specialist skills, in order to work out and test all the possible alternatives hypotheses. Therefore, the growth areas with regard to "skills" (EU Directive, 2013) are precisely those that incorporate specialist activities. In this light, the Appraisal and

Evaluation disciplines take on a central role, of great onus, also with regard to the exercising of professional duties (*project management*, feasibility studies, *project validation*, estimate appraisals, GIS information systems, BIM computerized planning, management consultancy services and economic- financial aid, etc.).

With a view to a renewed quality of the architect's training (Pro-Arch Association, 2015) and in the hope of a return to the centrality of the project design experience, (as is also being outlined in the new Procurement Code - Legislative Decree 50/2016), there is no doubt that in the face of the critical issues highlighted above (especially with regard to the decline in enrolments), it is worth considering what is taking place in the "Industrial Design" sector.

By this expression (translation of *Disegno Industriale*, or design projects for industry), is meant "the practice that oversees the design and enhancement of industrial products, culturally integrating the design disciplines (architectural and artistic matrix) with technological ones (of engineering and IT matrix) and management (of economic matrix)".

### 3. INDUSTRIAL DESIGN : THE DYNAMICS IN PROGRESS

At the Ce.SET Conference held in Rome in 2010, entitled: "Appraisal, University Education and the Practice of the Profession", the writer highlighted (albeit with a certain reluctance) the need expressed by her Department to cover the teachings of the Disciplinary Scientific Sector Icar 22-Appraisal, within the three-year degree courses of Industrial Design and Fashion Design. Today, in a changed scenario, the educational and training processes established in recent years, oblige us to focus on some changes that have (inevitably) occurred involving the disciplines of Appraisal and Evaluation. Contrary to what is taking place in the degree course in Architecture, there has been an increase (at times an exponential increase, as in Aversa) in the number of students enrolled on Design courses. This finds a precise response in the market, for a variety of reasons.

In the field of Design, the skills acquired along a range of learning paths enable the training of professionals who are able to respond to emerging needs. Both Symbola (2017) and CUID (2016) focus on different areas of specialization ranging from the product system (*product designer, design manager, etc.*), to space (*interior designer, retail designer, urban landscape design, etc.*) communication (*brand designer, visual merchandiser, etc.*), fashion (*fashion designer*), social and environmental innovation (*social innovation designer*), right though to the more recent digital (*digital designer*) and Service & Strategic specializations (*service designer and management*). According to the Report "Design Economy 2017" by the Symbola Foundation (the Foundation for Italian Quality) at a European level, Design, as part of the Cultural and Creative Industries and long

recognized as a strategic sector both on a European and international level, saw an increasing trend from 2010 to 2015 as the economic Design sector grew by 49.4%. Moreover in Italy too, Design has become a particularly important sector and according to the “Design Economy” report, Italy is in fact the second largest country in Europe in terms of design company economic turnover and is second in terms of design turnover as a proportion of the economy as a whole.

Despite the crisis, between 2011 and 2015, the design sector grew at a higher rate than those of other sectors in the Italian economy, with more than 13.8% of the workforce, compared to -1.5% of the whole economy. In this context, what emerges from the latest Svimez Report on the Southern Italian Economy (2017) is particularly relevant: against a backdrop of overall industrial recovery, the main growth sector is precisely that of manufacturing, making Campania the Italian region – and not only in the south – which recorded the highest growth rate in 2016, at 2.4% of GDP. If we add to this the Industry 4.0 perspective, there is no doubt that Industrial Design is a driving force, especially in the manufacturing sector, as a further opportunity to create corporate identity and added value to the product.

Moving on the educational framework, as reported by the CUID (Italian University Design Conference, 2017) to date, as many as 15 School of Architecture have set up 20 three-year degree courses in Industrial Design (L4) and 20 Master’s Degree courses in Design (LM12) (Fig. 1).

A significant number, for a relatively new degree (the first course of this kind was in 1993, at the Polytechnic of Milan), in an equally young discipline and one which is increasingly oriented towards innovation and user involvement (the “customer” experience”). This trend is becoming fairly homogeneous in all Italian universities, a success confirmed by the numbers of pre-enrollment on courses, almost all double compared to the number of places available.

Referring to local data by way of example, the degree course in Design and Communication in the Department of Architecture and Industrial Design at the University of Campania “Luigi Vanvitelli”, received 508 applications in 2017 (Industrial Design and Fashion Design) of which 368 were for the degree in Design and Communication, with an increase of 197% in 7 years (2010-2011). Regarding the Design course, again with reference to previous years, enrolments generally increased (in 2013, there were 99 enrolments, 96 in 2014, 90 in 2015, 138 in 2016 and 150 in 2017).

Within this lively scenario, it should be noted that on the study plan (*Manifesto degli Studi*) of the Degrees in Industrial Design (L04), are the disciplines of Economic and Social Sciences, including the Disciplinary Scientific Sectors: ICAR 22, Appraisal; Ind-Eng 35, Economic and Management Engineering; SECS P-01, Political Economy; SECS P07, Business Economics; SECS P- 08, Business Economics and Management.

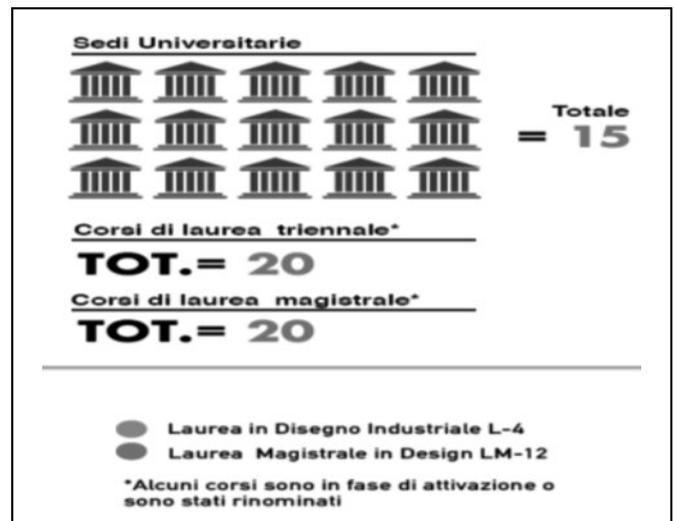


Figure 1 - Degrees in Industrial Design available in Italy 2017 (source CUID, 2017)

Analyzing the geographical distribution of Industrial Design courses, as part of degree programs on offer, the Appraisal Course is offered in Milan, Turin, Ferrara, Bologna, Aversa and Pescara. It takes on different titles, according to the different degree courses: “Economic Evaluation of the Product” (Ferrara, Pescara and Aversa), “Economic Evaluation of the Project” and “Innovation Management” (Polytechnic of Turin), “Cost Analysis” and “Project Management” (Bergamo), “Project Feasibility” and “Strategy and Economics of the Project” (Polytechnic of Milan).

Considering all the other locations where there are degrees in Industrial Design (Genoa, Bolzano, Venice,

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Florence, Rome, Camerino, Bari and Palermo), and taking into account the increase in enrolments, it is worth highlighting a series of elements of “convergence” between the disciplines of Appraisal and Evaluation and Industrial Design.

### 3.1 An opportunity not to be missed

Let's begin with a question in the hope of stimulating further debate in the future: if Appraisal is that “part of economic science that may be defined as the set of logical and methodological principles which regulate and, therefore, provide a motivated, objective and generally valid formulation for assessing the value of economic assets... (Forte, De Rossi, 1978), then should we not also be concerned today with the concept of Design as an “economic asset”, with a high-value content and an elevated intangible component?

A first possible answer is given to us just like by that economist, Francesco Forte, who in the sixties wrote “Essays on Urban Economics” (1964) and some years ago, “Lessons on Fashion Economics” (2005) and “Lessons on Design Economics (2006).

According to Francesco Forte, Design is the “project” of a product or of a service. It is a group of activities: technological; cultural and economic.

It may have its own independent *market value* and become an object of exchange. It only becomes valid if it can be achieved by means of existing technologies (materials and processes) and with *economy*. Economy, in particular, is an essential factor: the designer must know how to bear costs in mind, and thereby the price at which the final project may be sold.

In this perspective, the “feasibility study”, the cornerstone of the Appraisal and Evaluation disciplines, organized according to the structure of the Business Plan, becomes the fundamental tool of the designer to verify *ex ante* the commercial, economic and financial feasibility of the business idea and access to financing and funding.

Referring specifically to the different economic context in which design firms operate today and therefore, referring to the various “economic principles “ which traditionally form part of the teaching of Appraisal (Forte C., De Rossi, B., 1974), what must be considered is the new entrepreneurial culture of *Innovative Startups* and all the related benefits associated with them, in which the Business Plan, as a decision-making tool, plays a decisive role.

Introduced by the Italian Decree Law 179/2012 on “Further urgent measures for Italy's economic growth”, the Startup is a new enterprise whose social objective is clearly linked to innovation, or to the development, production and marketing of innovative products or services of high technological value (the Design).

The Startup must, among other things, employ highly qualified personnel (PhD Graduates, Ph.D. students or researchers with a Master's degree), be the holder of at

least one patent or registered software and must incur R & D expenses in excess of 15% of the higher value between cost and total value of production.

Among successful cases of Innovative Startups ([www.invitalia.it](http://www.invitalia.it), Stories) are those operating in the Industrial Design sector, characterized by a high technological content, operating in the digital economy and enhancing the results of research (research spin-off). And it is always with reference to this new type of enterprise that several Italian universities have already been active in directing students towards entrepreneurship, to support and encourage the growth of start-ups and spin-offs deriving from university research.

Similarly, on the production front, Industrial Design, characterized by manufacturing sectors with a high “innovation” level, becomes ripe for experimentation, regarding the building production process as well (“hybridization of construction and manufacturing”, in Micelli, Mangialardo, 2017).

It is a sad fact that in Italy this sector has been in profound crisis for years, being one of the most backward, where there is more waste and lower productivity (according to Rebuild 2017 «while the manufacturing sector today is able to use 85% of its time worked productively, this percentage drops to 45% in the construction sector”).

And although it is a *site-specific* activity, of unique non-renewable products in which the optimization of the production processes carried out in other sectors (especially manufacturing), has not been possible until now, the new frontiers of “industrial construction” open up areas of great interest.

This is an innovative design system that aims to drastically reduce production *times* and *costs*. For example, the IKEA-Marriott experience is a case in point with the production of low-cost hotels, where *off-site* construction requires most of the components to be produced at the factory and then transported to the site (Rebuild, 2017). It is exactly the same case in the field of the objects of Industrial Design, where, as regards components, manufacturers embarked on a path of “innovation” long before builders, and have often benefited from the effects of technological transfer.

According to the official definition of Industrial Design, coined in 2015 by the World Design Organization, Industrial Design “ is a strategic *problem solving process* that drives *innovation*, creates company success and leads to a better *quality* of life through products, systems, services and innovative experiences “.

From this same definition emerges a field which has been explored for some time within the disciplines of Appraisal and Evaluation, that of *problem solving*, or *decision making* and tools to support decision making in the design process, on different levels (environmental, urban, architectural).

In this context, the International Conference organised by the SIEV Journal has its place: “Multi-criteria Analysis

between Evaluation and Decision” (Fattinanzi E., Mondini G., 2015) where, among others, the speech by Prof. Alexis Tsoukias (SIEV, 2014) highlighted the new challenges posed by the “design of alternatives” in the conceptual phase of the project idea.

The wealth of skills gained from the disciplines of Appraisal and Evaluation in the field of multi-criteria analysis and statistical analysis, represents a valuable resource that may be put to excellent use in the industrial design sector. And it is not just a passage of scale (“from the spoon to the town”).

Indeed, in this sector too, one of the fundamental aspects for an effective and efficient design process (able to identify the needs of the consumer and transfer them to a feasible product/service) lies precisely in identifying the various alternatives, above all in the initial conceptual phase of the idea. In this phase, similar to the phase of the architectural project, the evaluation and selection of alternatives (decision) play a crucial role (Forte, 2015). Likewise, consider, for example, the “*Conjoint Analysis*”, carried out in the context of the enhancement of environmental and cultural resources (see, among others, Bravi, Giaccaria 2006; Oppio, Bottero, Ferretti, 2017; Massiani, Rosato, 2008) and widely used in the field of Design to measure consumer preferences towards alternative products and services, linking them to the individual utilities associated with each feature (or attribute) of the product.

Again, from this point of view, the characteristic “avant-garde” condition must be highlighted, which has always constituted the culture of *Design* in terms of the ability to grasp both the technological opportunities and those related to the “meaning of the product”. With reference to the latter, consider, for example, the whole system of symbolic and perceptual values towards which a segment of our discipline has been turning its attention for some time, specifically referring to the relationship between evaluation and perception of architectural quality (Fattinanzi *et. al.*, 2000; Forte, Fusco Girard 2009). Especially in the current phase “the continuous change of production and consumption models is increasingly entrusting importance to features and intangible assets capable of conferring *value* on the product”. (Penati A., 2003).

Might it not be an issue of intangibles, of values “independent of use”, of “symbolic functions” etc. which have always been explored in the context of Appraisal and Evaluation disciplines with reference to the architectural object? Umberto Eco taught us back in 1968 that, above all in architecture, perception is entrusted not only to the practical function, but also to the symbolic function of the object, to its communicative identity and not only to its physical and functional nature.

Finally, to stay in the sphere of *Cultural Heritage*, it becomes extremely stimulating to widen the field of evaluative investigation to all those activities connected with the enhancement, promotion and communication of Cultural Heritage (Forte F., 2018), including *cultural*

*merchandising* (the “Additional Services” mentioned in the Code of Cultural Heritage and Landscape, Italian Legislative Decree n. 42/2004).

This is a particularly important element of Industrial Design, which, if strengthened, may have extraordinarily positive effects (as demonstrated by the performances of numerous cultural institutions in the world). This aspect is closely related to places: it is possible to note that every university which offers design courses tends to enhance local resources, creating a particular intertwining with the local cultural and productive heritage (Forte F., Formisano R., 2015).

Finally, it is opportune to conclude by specifying that there may be several other points of “convergence” between the disciplines of Appraisal and Evaluation and Industrial Design. It is hoped that this discussion, while by no means exhaustive, may have at least stimulated further debate on this topic.

#### 4. TO CONCLUDE: ON THE THIRD MISSION

In Italy the so-called “Third Mission” has by now become recognized as an institutional mission on the part of the universities. It indicates “the set of activities with which the universities enter into direct interaction with society, alongside the traditional teaching and research missions”. (ANVUR Report, 2013).

The Third Mission therefore recognizes the “entrepreneurial” and proactive role of universities, in a more dynamic link with the key players in the economy, particularly in the territories. In turn, industry is called upon to share its know-how, contextualizing research and aiding interaction between the university and the territory (Balsamo, 2014). There are several Third Mission activities: in effect, it is possible to identify those of “technology transfer and knowledge”, including the establishment of academic spin-offs and innovative startups and the protection of intellectual property, etc. (trademarks, patents and designs) (Del Giudice *et al.*, 2016).

Alongside these activities, the “cultural and social” Third Mission also concerns the production of public goods that increase the overall level of welfare in society, having socio-cultural educational content and developing civil awareness. And there is no doubt that also for the purposes of the various activities that characterize the Third Mission the disciplines of Appraisal and Evaluation are called on to make an essential contribution (as is proving to be in several experiences).

With specific reference to the “third cultural and social mission” and to the local context of the writer, in 2017 the Department of Architecture and Industrial Design at the University of Campania “Luigi Vanvitelli” signed a Memorandum of Understanding with the 8<sup>th</sup> Municipality of the Metropolitan City of Naples, in order to develop “Educational and training activities and research in the field of *architecture* and *design* for the promotion of issues of protection of the tangible and intangible

environment, as well as of urban regeneration in the perspective of social innovation”.

Among the districts that make up the 8th Municipality (Piscinola, Marianella, Chiaiano and Scampia), in the last few years the district of Scampia – as well as being the subject of a recent urban regeneration project by Naples City Council (“Restart Scampia”), and in spite of the infamous reputation it acquired through the film and TV series *Gomorra* – has above all become a breeding ground of innovation, in particular, of “social innovation”.

Consistent with the European objectives of Horizon 2020 (whose core is *social innovation*), the urban / territorial policy approach must support the development of “social enterprise” projects which, especially for the regeneration of suburban neighborhoods, are proving to be an effective and valid alternative to traditional forms of territorial government.

As part of the aforementioned Memorandum of Understanding, the contribution of the discipline of Appraisal and Evaluation comes into its own in relation to

the different “demands” expressed by the Municipality in the Municipality (analysis of the socio-economic dynamics underway in Scampia in terms of social innovation; census of areas and disused public buildings that have been abandoned and/or confiscated from organized crime; verification of the feasibility of recovery and regeneration projects managed by Third Sector bodies; social finance to cope with the issue of resources, etc.).

In this regard, the “Assessment of the social impact” required by the European Commission since 2011, as well as by Law 16/2016 of the reform of the Third Sector, is particularly relevant. Social impact assessment refers to “qualitative and quantitative assessment, in the short, medium and long term, of the effects of the activities carried out on the community of reference with respect to the identified objective” (Zamagni *et al.*, 2015).

As Professor Stefano Zamagni advocated in his communication on the Encyclical “Laudato si” given at the SIEV Seminar organized by the SIEV (Rome, 2016), these horizons also open new challenges for the disciplines of Appraisal and Evaluation.

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