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HOW TO ADOPT STRATEGIC DESIGN INSIDE UNIVERSITIES: TRANSFORMING RESEARCH IN EDUCATIONAL FORMATS

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Abstract

This study reflects on the relevance that Strategic Design can have for companies today. Adopting Strategic Design, gives to companies the possibility to develop new offers that are consistent with the company's philosophy and support its market positioning, reaching a competitive advantage. However, while looking for courses on the subject, there are still very few Masters that have been created on the topic, as very few courses in Master's degrees. Preparing tomorrow's designers to master the key characteristics of Strategic Design is crucial, considering the ever-increasing uncertainty of markets and the need for companies to innovate in the marketplace. By conducting a systematic review of the fundamental characteristics associated with Strategic Design, the research contributes to shedding light on a still debated stream of literature, reflecting on what the main educational formats through which Strategic Design can be taught might be.

Keywords: Design education, strategic design, design teaching, educational formats.

1 INTRODUCTION

To cope with market uncertainty and lean toward an exploration dimension of innovation, one possible strategy that companies can adopt is to embrace Strategic Design. In this panorama, the adoption of Strategic Design - meant as an approach to creating innovative product-service systems that characterize the company, its market positioning and a mindset capable of driving transformative change in organisations and societies [1] – can act as fundamental and decisive. Contemporary society features a rapid evolution and change in demand that require new solutions, different from those created in the last years [2], where Strategic Design can be one of the possible way to answer to those challenges [3]. Designers, with their innate human-centric and, even more necessary, planet-centered mindset, are well-equipped to navigate this complexity [4]. Their future-oriented nature makes them adaptable, while their research approach keeps them responsive, making them suited to facilitate the search for common solutions among diverse groups and perspectives.

Over the years, the contexts where Strategic Design can make a contribution have increased in number as they are no longer limited to a corporate context. Strategic Design can provide support within enterprises, companies, consultancy firms, institutions, governments, territories, and associations [5]. Its intrinsic nature of complexity solver poses this practice at center stage not only to face business issues but large and wicked societal issues which are filled with multilayered complexity and can have a pivotal role in any kind of organization [6].

It has become something that is not just a "nice to have" but is a "must have" to achieve a diverse and competitive offer. Strategic Design can be placed at the intersection of business, technology, and customer needs [7], and this multi-disciplinarity has given big competitive advantages to the organizations that have brought design to the upper levels, embracing its methodologies as core aspects of business strategies. Strategic Design also means striving for innovation with a forward-looking attitude. Designers craft future visions with a long timeframe that forecasts future behaviours and changes in society. These attitudes are well known by large companies and corporations, which constantly seek to identify new changes in people's behaviours to anticipate the market.

Its importance is also emerging in the academic context. The number of publications on the subject is growing more and more, generating a vibrant and active debate. Different studies focus on understanding how its boundaries have expanded over the years.

Indeed, the strategic designer is an increasingly sought-after figure in business, but one that still does not find a clear role within universities. In fact, very few universities have constituted a degree program for it; mainly (but still few in the landscape) small vertical courses have been instituted within existing degree programs. Preparing tomorrow's designers to master the key characteristics of Strategic Design

is crucial, considering the ever-increasing uncertainty of markets and the need for companies to innovate in the marketplace.

This paper traces in the first part what are the main characteristics, extracted from a systematic literature review on the topic, that the strategic designer should possess. In the second part, it reflects on why is important and how it is possible to teach those characteristics to train future Strategic Designers. Finally, the study reflects on which can be the most appropriate educational formats to teach those characteristics, to have future Strategic Designers ready to face the challenges in the marketplace.

2 THEORETICAL BACKGROUND

In recent years, new market regulations have forced changes within companies' strategies and their interactions with consumers. As the market evolves rapidly, so do customer needs, with an increasing demand for solutions that meet the requirements of contemporary society [8]. This shift, coupled with an increasingly competitive and saturated market, has compelled companies to adopt new strategies to navigate this uncertain landscape. In this context, one of the pivotal methodologies enabling companies to innovate and differentiate themselves is Strategic Design.

Traditionally, the role of design within companies has been limited to production and manufacturing or, at most, to stylistic and aesthetic interventions [9]. However, over the years, perspectives on the discipline have significantly transformed: design has evolved into a crucial economic and strategic asset [10]. It has been recognized as an essential resource that allows companies to distinguish themselves from competitors in the so-called red ocean [11]. In this landscape, the adoption of Strategic Designunderstood as an approach to creating innovative product-service systems (PSS) that define the company and its market positioning—can be fundamental and decisive. Strategic Design can support enterprises, consultancy firms, institutions, governments, regions, and associations [5]. If companies intend to develop meaningful strategies and achieve a competitive position through design methodologies. Strategic Design is not anymore a "nice to have", but it is now a "must have" [3]. In this way, the strategic designer becomes a multifaceted and complex figure: they must master the traditional skills required in the design profession, but also manage the additional knowledge necessary for defining services and business strategies that complement the basic offer. Strategic Design has assumed importance not only in corporate contexts, but its importance has become central also in the research world. More and more scholars are studying it to understand how its boundaries have expanded over the years and discussing the different benefits that it can bring. If on one side, Strategic Design is becoming very popular in the organizational context, on the other side its role is under discussion inside universities. Moreover, very few institutions have established dedicated academic programs. Small, specialized courses are sometimes offered within existing degree programs, but the number is still quite rare.

In the current academic debate, one of the topics under discussion relates to the characteristics that are associated with Strategic Design. Performing a systematic review of the literature, the following characteristics have been identified.

As already mentioned, Strategic Design is business oriented (1). It aims to identify and give shape to strategies with which an enterprise builds its identity, positions itself on the market, defines its mission in society [12] and guide practices and behaviours that define its organizational culture [7]. To reach this scope, it has a systemic perspective (2): it's oriented to creation of tangible objects integrated with intangible offering like services and experiences [13] and other spatial and communication artefacts to create an organic and coherent set of media [12]. Strategic Design is oriented to identify and guide companies towards not over-competitive markets, where they can explore new types of customer demand [14] [15]. In this perspective, Strategic Design functions primarily as a problem setting (3) framework, rather than just a problem solving (4) resource. It applies some of the principles of traditional design to "big picture" systemic challenges, redefining how problems are approached, even before identifying opportunities and delivering solutions [16]. The goal is interpreting ongoing situations, where problems are open and ill-defined, tasks unclear, processes experimental and where knowledge is something that emerges step by step, by continuous interactions with other players [17]. Considering the different perspectives that it can involve, a strategic design approach must be collaborative (5). The aim is to align the perspectives of the company, customers, and other stakeholders into a unified value co-creation process [18]. To achieve this, strategic designers must be proficient in handling tools, methods, and participative methodologies borrowed from Design Thinking. This requires being multicompetence oriented (6), equipped with a set of soft skills essential for mediating and facilitating cocreation processes, as well as a broad range of horizontal competencies. This positions them as directors of several 'vertical' capabilities, allowing them to manage teamwork effectively and "speak the languages" of both technicians and managers [17]. All the mentioned characteristics illustrate a complex and multi-faceted discipline, whose final goal is to ignite a spark of change. For this reason, Strategic Design can be defined as an innovation enabler (7), that generates breakthroughs that allow a system to evolve and survive [19], triggering organizational transformations [13] and maintaining and developing its own identity [19]. To achieve this level of innovation and efficiently integrate it into the company's production and distribution processes, the strategic approach must necessarily be future oriented (8). This means it must be able to recognize clues of what will happen in the future [20] and interpret them to devise future visions that the company could embrace in order to respond proactively to new changes [3], while aiming at the same time, to reach a preferable scenario [21]. For this reason, another characteristic of strategic designer is to be responsible oriented (9) and pursuit sustainable achievements (both socially and environmentally), guiding companies to embrace more long lasting and resilient solutions for their products and services. This means that Strategic Design must aim to identify and address new customers' demands, developing an integrated system of products, services and communication that is coherent with the medium-long term perspective of sustainability, being, at the same time, economically feasible and socially appreciable today [22].

3 METHODOLOGY

After providing a systematic review about the most important characteristics that a strategic designer should manage, the aim of this paper is to support a reflection on how the previously mentioned characteristics can and should be taught to foster the development of this professional figure. The final goal is to discuss how these characteristics can be integrated into educational formats to prepare future designers to face marketplace challenges effectively.

Given the vibrant and ongoing debate around the topic of Strategic Design, the most useful method of trying to state what Strategic Design characteristics are, was a systematic literature review.

Systematic reviews (SRs) aim to incorporate all published data on a topic and evaluate the quality of that evidence, providing a clear and repeatable method of synthesizing scientific evidence to address a specific research question. By relying on explicit, systematic methods, the aim is to reduce bias in the selection and inclusion of sources. SR gives the possibility to assess the quality of the included studies, and to summarise them objectively. Doing so, SR approach aims to decrease the risk of bias and increase transparency at every stage of the review process [23] [24]. The techniques employed to find studies for inclusion in systematic reviews are especially designed to include also the studies that could be published in conference proceedings or low-impact journals and are not indexed in bibliographic databases. It is important to include also those sources because they could counterbalance the findings of the easier to find studies [25]. There are three primary reasons for conducting SRs in design research. First of all, SRs offer an organised approach that helps in addressing crucial questions. SRs can assist in finding and synthesising case studies, compiling a summary of all the theories investigated and conclusions drawn, as well as pointing out any gaps in the investigation. Seeking input with a clear methodology will only strengthen the results. Second, SRs can assist researchers in monitoring and comprehending community research practices more effectively. SRs offer a mechanism to track research activity by evaluating the use of research methodologies on particular subjects and utilizing defined frameworks to evaluate the quality of included studies. SRs can be used to monitor research trends and offer valuable information about the methodological quality of the work [26]. Third, SRs have the potential to go beyond the research community and cross disciplinary boundaries. According to Cash [27], academics from psychology, management, and other fields have been investigating research topics related to the design discipline, and as a result, design research has been growing lately even outside of the "traditional" design societies and departments. Applying SRs can give the possibility to include different points of view from the different fields.

In order to conduct an appropriate literature review for the purposes of this article, the following databases were used: ISI Web of Science (Reference Database) and Scopus (Reference Database). Here, the research of sources was performed using "Strategic Design" as a keyword inside titles. To select a sample of results, those with the highest number of citations were included from Scopus, while those with higher relevance were included from WoS. The search produced 1206 results on Scopus and 1036 results on Web of Science. Other than that, the sample was enlarged through a snowball analysis (SBA) that was conducted on some of the papers searched. On the obtained final sample, the final selection was performed through the following phases: first reading the title and excluding non-relevant papers by topic; then keywords and abstracts of the relevant papers were read and, if that was not sufficient for exclusion, also the introduction and conclusion were read.

The result of this process was the codification of the main characteristics associated with Strategic Design, described in the previous section. Subsequently, the authors of this article discussed the educational and professional implications of the emerged characteristics, highlighting the most appropriate possible teaching formats for conveying them. The result was also discussed with two external researchers to reduce the problem of possible bias.

4 RESULTS

Based on the findings from the systematic literature review, Strategic Design can be defined as a comprehensive, business-oriented approach that integrates tangible and intangible elements to shape company identity and market positioning through strategic decision-making. By bringing together business strategy with design principles, it aims to create innovative and sustainable solutions and position companies competitively in the market, ultimately addressing complex, ill-defined problems through collaboration, multi-disciplinary expertise, and a focus on long-term, sustainable solutions.

All these characteristics make this discipline extremely relevant in today's business context, thus suggesting the importance of including it in the educational curriculum of future designers who will most likely need to be able to perform their activities in an increasingly variable and unpredictable organizational environment. Despite this, as of today the educational offerings that provide specific and in-depth training on Strategic Design are still extremely scarce, with only a few offerings represented for example by the Master in Strategic Design organized by Politecnico di Milano and the Master's degree in Strategic Product Design offered by the Delft University of Technology or small curricular courses in Master of Science / Master of Art. Thus, it becomes evident the necessity to enhance the presence of Strategic Design courses within university curricula at a global level. The design of such educational pathways should include one or more specialized courses on the topic, aimed not only at helping students learn the theoretical notions necessary for understanding this discipline, but also to develop those skills essential for its effective application.

Based on the findings emerged from the literature review previously carried out concerning Strategic Design, the core aspects that such courses should focus on include:

- A business-oriented focus: Literature describes Strategic Design as a discipline aiming to support organisations in the development of their identity in the marketplace by defining values, beliefs and tools that enable them to evolve and confront the external environment [19]. Indeed, even though recent research developments see the application of Strategic Design even outside of the corporate world to fields such as non-governmental organizations or government policymaking [19] [16] [28] [29], the most common setting for Strategic Design implementation remains the organizational one, where this discipline can be leveraged to address systemic and long-term initiatives that typically require significant organisational commitment and investment [30], taking in consideration existing trends, systems of values and market opportunities to gain a competitive advantage on the marketplace. It is, therefore, essential for future strategic designers to be familiar not only with the principles, methodologies and tools of design, but also with those typical of the corporate and management world, so that they can easily navigate the context and organizational culture in which they operate and positively influence decision-making processes to proactively deliver complete, coherent and resilient solutions and achieve competitive edge [7].
- Problem setting and problem solving capabilities: As revealed by the literature review, the main focus of Strategic Design consists in supporting companies in the definition and implementation of their business strategies, with the ultimate goal of devising comprehensive, sustainable and resilient solutions to the challenges posed by today's complex and uncertain environment [5]. However, the analysis of the literature also revealed how Strategic Design places significant emphasis on a preliminary and in-depth analysis of the environment in which it operates, usually characterised by a dense network of relationships between different and interdependent actors, a specific cultural context, an unsteady supply-demand system and so on. This problem-setting activity is essential for the successful outcome of any project, as it allows for the early identification of real problems and related business objectives, paving the way for the subsequent problem-solving activity aimed at the definition of possible strategies for achieving the identified goals [19]. It is, therefore, imperative that future strategic designers acquire not only problem-solving skills such as critical thinking, creativity and information processing, which are necessary to develop the most appropriate solution, but also problem-setting skills, to be able to lay the groundwork and frame the brief correctly to ensure a streamlined process.

- A systemic perspective: As unanimously highlighted by scholars, Strategic Design's aim to devise new offerings with a strategic impact on companies' businesses requires the adoption of a broad and comprehensive perspective that takes into consideration all the aspects and actors involved in the implementation of such offerings [16] [31] [32] [30]. This typically results in the design of PSS, i.e. the integration of products, services, communication and people into a cohesive solution designed to meet specific customer needs and contexts [5] [19]. By shifting the focus from individual product or service innovation to an integrated design, PSSs provide tailored and comprehensive solutions to address complex and dynamic societal demands. In order to embrace this systemic perspective, future strategic designers therefore need to acquire the ability to approach any challenge from both a punctual and vertical point of view, thus considering the peculiarities of the specific problem, and from a broader and more articulated perspective, identifying all the different elements that make up the intricate network underlying any system.
- A multi-competence oriented approach: The complexity and uncertainty typical of today's organisational contexts require not only a systemic approach, but also a professional figure capable of directing the efforts of all actors towards the same goal, so that the objective is efficiently achieved. The figure of the strategic designer fits well into this context. As reported by several authors, in fact, one of the tasks of strategic designers is to act as a bridge between the different stakeholders involved in the project [33] [34]. This means that their background should include a variety of competences and support them in the development of both vertical and horizontal skills derived design and related disciplines, so as to act as a "translator" of the languages spoken by each stakeholder into one common language that can be understood by all participants [17].
- Collaborative methodologies: The emphasis placed by scholars on multidisciplinarity and multicollaborative aspects also highlights the collaborative nature of Strategic Design, a key aspect that professionals must be able to embrace and orchestrate. Since Strategic Design requires the engagement of many stakeholders to be able to get a comprehensive perspective on the system and ecosystem within which the project is taking place, strategic designers play a crucial role in facilitating the creation of a network connecting and bringing together different actors [35]. This can be achieved through co-design and participatory activities typical of design approaches, as they are effective ways to bring together different perspectives to create a shared language and common goals. To be able to smoothly facilitate interactions between very different stakeholders such as private firms, public institutions and end users. Strategic designer must also demonstrate to possess soft skills, such as emotional and social intelligence, empathy and humility, as these skills allow for effective relationships building and smooth communication, which are critical conditions for the creation of innovative solutions [13] [36]. It is therefore crucial for academic courses aiming to train strategic designers to include in their educational programmes both theoretical aspects on the design and facilitation of participative sessions, as well as "active" moments during which students can experience these activities and develop the aforementioned soft skills.
- A future oriented approach: As previously mentioned, one of the key factors driving intentional innovation and sustainable growth is the proactive response to environmental changes [3]. According to research findings, to enable such flexibility and responsiveness to change, Strategic Design relies on future visioning activities, which engage different stakeholders in the co-creation of shared future scenarios. Indeed, through the imagination and creation of shared and desired scenarios, the strategic designer supports the company not only in anticipating emerging trends, but also in aligning stakeholders' aspirations with strategic objectives [5] [19] [37] [34]. This proactive attitude towards the future catalyses radical and intentional innovation efforts, propelling organisations towards new horizons of growth and resilience. It is therefore important for future strategic designer to learn not only how to engage in future visioning themselves, but also to acquire experience in guiding such activity, which often requires interventions to bring divergent perspectives and interests to converge towards a common goal.
- Enabling innovation: The findings of the literature review underscored a strong connection between Strategic Design and innovation. Indeed, many authors emphasized the importance for Strategic Design solutions to be highly innovative and generate strong impact both for the company and for the environment. As stated by Meroni [19], "We have a strategic design action when it results in a breakthrough which causes a system (a company, an enterprise or a social body) to evolve, rather than simply develop". The consideration proposed by Meroni, supported by the academic community, places a strong emphasis on radical innovation, rejecting incrementalism in favour of transformative innovations that push systems forward. This dedication

to radical innovation is complemented by a parallel focus on continuous improvement, reflecting the effort to effectively navigate an evolving landscape. Strategic designers, therefore, serve as enablers for companies seeking to explore new directions, as they not only support organizations in the creation of innovative, forward-looking solutions, but also impact company culture through the diffusion and embedding of Strategic Design approaches within the company's processes and operations [38] [39] [40] [13]. To effectively fill this role, academic programs should provide students with a structured approach to support them in proactively recognizing opportunities and creating coherent and sustainable strategies that drive business decisions.

An orientation towards responsibility: Although the main area of application of Strategic Design is still the corporate setting, the impact of the innovations it fosters affects a broader landscape, encompassing both the environmental and socio-cultural spheres. Indeed, the radical and disruptive innovations fostered by Strategic Design often bring about changes both in the way people act to achieve goals and in organizational structures [19]. According to Manzini, social innovation is promoted by Strategic Design when it connects "concrete local activities with farreaching visions that ultimately bring people together, awakening the best in them by articulating a common meaning in the great and small things that each of them are able to do" [41]. Concerning environmental sustainability, on the other hand, authors such as Vezzoli et al. [42] and Ceschin [43] introduce the concept of eco-efficient PSSs, defined as "an offer model providing an integrated mix of products and services that are together able to fulfil a particular customer demand based on innovative interactions between the stakeholders of the value production system, where the economic and competitive interest of the providers continuously seeks environmentally beneficial new solutions" [42]. Strategic designers play a crucial role in assisting businesses, organizations, or networks in the process of bringing such eco-efficient SPSS concepts into society, supporting their integration into social norms and guiding the process of inclusion toward these goals. As social and environmental issues become more important and governments introduce increasingly stringent policies to meet contemporary challenges, it becomes crucial for strategic designers to learn to navigate the business environment considering the long-term effects of proposed solutions, using their knowledge and skills to support sustainable economic, social, and environmental changes.

5 CONCLUSIONS AND DISCUSSION

This article aims to contribute to the stream of literature dedicated to Design Education by zooming in on Strategic Design and outlining the founding characteristics of this design approach necessary for the education of future strategic designers. Firstly, it is possible to highlight how the eight emerged characteristics represent a further advancement in the discourse related to Strategic Design, constituting a new piece of knowledge and integrating and comparing the discipline with other more recent design approaches, among others, Systemic Design and Design for Social Innovation.

From these characteristics, it is possible to highlight a deeper and more holistic understanding of Strategic Design(er). Thanks to their role as a mediator between different actors, roles and knowledge within a project or an organisation, the strategic designer who masters these characteristics can assume a central function as a facilitator of innovation, change and transition [44]. From this perspective, Strategic Design is strongly based on collaborative design methodologies, the cornerstone of any multi-stakeholder activity. Therefore, it becomes of fundamental importance to provide future designers with a set of hard skills, such as templates and frameworks to be used and adapted to needs, as well as relational soft skills. A direct consequence is the multi-competence orientation, where the designer must learn to understand and translate the language of figures with different backgrounds and competencies. These two characteristics become the solid base for a future designer to guide the different personalities that make up a system, understood as an organisation or set of stakeholders, towards valuable solutions.

These are complemented by characteristics such as business orientation, setting and creative problem-solving, connecting and understanding actors and elements of a system in unique ways, and finally, acting responsibly and taking care of human and non-human actors. Together, these characteristics become necessary conditions for the central role of the strategic designer to develop successful solutions.

There are internal relationships between the emerged characteristics. Besides collaborative methodologies and a multi-competence orientation - which, as indicated, can be considered central to successful action and necessary in various situations and contexts - the remaining characteristics can interlink, reinforce and become necessary for each other. This is the case of future orientation, an enabling factor for innovative and responsible solutions. Or a systemic perspective that allows to

observe contexts and issues holistically, facilitating problem setting and solving, but also achieving responsible solutions. At the same time, the business-oriented approach allows Strategic Design(er) to take a pragmatic approach, focusing on problems and identifying innovative and economically sustainable solutions. This is a complex framework where the individual characteristics are meaningful and necessary individually to make sense of the discipline, but which combined have the potential to generate a multifaceted design approach, capable of adapting to different contexts and complex, everchanging situations.

Although outside the scope of this article - which aims to identify the characterising factors of Strategic Design to be conveyed to future strategic designers - it should be emphasised from an educational perspective that these characteristics can be associated with skills and competencies. For example, collaborative methodologies can be related to communication skills, negotiation skills or multidisciplinary collaboration capabilities [45] [46]. The latter can also be associated with multi-competence orientation, which in turn requires the ability to translate and connect knowledge [46] [5]. Future orientation and systemic perspective can also be associated, respectively, with future thinking and systems thinking [47] [48]. Problem setting and solving, as mentioned, could be associated with critical thinking, the ability to see and make novel connections, and business- orientation instead with organisational and uncertainty management skills [7] [49], among others. Also in this case, the overlapping and necessary interconnection of skills and competencies emerges.

The possibilities of transferring the complexity of Strategic Design to future practitioners are different. Considering the need to absorb and master the features mentioned in this study, formats that mix theory concepts with practical approaches are the most useful. For this reason, the Project-Based Learning approach can be particularly effective [50] [51]. Through this established pedagogical approach, it is possible to put the learner at the centre and create a learning context based on authentic questions and problems from the practice world [52]. The project in this case becomes a means of knowledge integration, to explore concepts and methods and to apply what has been learnt before and after the project experience. This teaching format is based on learning-by-doing [53], is rooted in the tradition of design education [54], and is consistent with how students are used to learn the design profession. Among the various characteristics that make this approach suitable, it is worth mentioning that not only can students be confronted with a real problem, which can stimulate them and pose a challenge, but it also leads them to collaborate and dialogue, stimulating characteristics of Strategic Design such as collaborative methodologies and multi-competence orientation. The PBL can and should be complemented with face-to-face teaching formats, through the transfer of knowledge and tools, which can be linked to practical experiences.

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