

Four kinds of design thinking: From ideating to making, engaging, and criticizing

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Design thinking is spreading extremely rapidly among organizations in terms of interest and practices. Far from being linked to the “form” of products, design thinking is accepted as a formal creative problem-solving method with the intent to foster innovation. However, the spread of design thinking in practice has not been coupled with a similarly rapid and robust diffusion of its theoretical underpinnings. This paper aims to clarify the theoretical contribution of design thinking by identifying the practices that connote different interpretations of the paradigm. Moreover, we investigate the innovation challenges that the adoption of the design thinking paradigm aims to address. From an empirical perspective, through 47 case studies of consulting organizations that provide advisory services based on the design thinking paradigm in Italy, we identify four different interpretations of the paradigm characterized by different practices: creative problem solving, sprint execution, creative confidence, and innovation of meaning.

1 | INTRODUCTION

Scholars and practitioners acknowledge the central role of design as a driver of innovation and change (Brown, 2008; Forrester, 2018; Liedtka, 2015; Martin, 2009; Sheppard, Sarrazin, Kouyoumjian, & Dore, 2018). The importance of design as a source of value creation has been scrutinized for decades (Fournier, 1991; Hirschman, 1986; Peterson, Hoyer, & Wilson, 1986). However, most of these investigations address design as the aesthetic and symbolic dimension of products, i.e., design as “form”, identity and emotions, attributing design only a marginal role in the realm of innovation studies (Capaldo, 2007; Dell'Era & Verganti, 2010; Verganti, 2009, 2017). What has driven the considerable growth in attention to design in the business community is a change in perspective: design not only as an aesthetic driver of innovation, but as a comprehensive innovation management practice, a new set of processes, mindsets, capabilities and organizational settings, practised not only by designers, but by anyone in organizations seeking to innovate. The emergence of new paradigms, such as human-centred design (Buchanan, 2001), participatory design (Sanders & Stappers, 2008), and especially design thinking (Brown, 2008; Martin, 2009), mark this transforming role in innovation studies.

Design thinking, in particular, is making headlines, spreading extremely rapidly in terms of interest and practices. Far from being linked to the form of products, design thinking is accepted as a formal creative problem-solving method fostering innovation (Brown, 2009; Liedtka, King, & Bennett, 2013; Martin, 2009). Design thinking has become a matter of tangible interest in the management and business world. Its creativity and concreteness have also transformed it into one of the preferred methodologies to address seemingly intractable problems that business tools and processes fail to address. The world's increasing complexity has changed the prevailing view of design thinking, now seen as a means of salvation, due to its responsiveness and adaptability in the face of indeterminacy. Another important reason for the success of design thinking is that the thought process is holistic, namely, appropriate to study and effectively interpret the dynamics of complex systems, as organizations are. In facing complexity, design thinking tackles issues by first considering them in their entirety, including the broader context they derive from. This preliminary stepping-back from the clamour of the problem area allows the problems themselves to be considered from an innovative and unexpected point of view, reframing them in ways that make them solvable (Dorst, 2011; Dorst & Cross, 2001).

Design thinking finds its legitimacy in the notion that facing complexity requires making choices, leveraging specific and promising assumptions, a process many businesspeople are not at ease with. The increasing attention of practitioners to design thinking is evident when looking at the recent moves of large strategy and innovation consultancies. The acquisition of Lunar by McKinsey or Fjord by Accenture are just two examples. Accenture, Deloitte, IBM, KPMG and PricewaterhouseCoopers rank among the most aggressive players in acquiring design agencies to renew their offer and revive their innovation services. In the "Design in Tech Report 2017", Maeda (2017) provides a list of more than 70 design agencies acquired by strategic consultant and tech giants from 2004 to 2015. Recent studies such as McKinsey's *The Business Value of Design* (Sheppard et al., 2018) or Forrester's (2018) *The Total Economic Impact™ of IBM's Design Thinking Practice – How IBM Drives Client Value and Measurable Outcomes with its Design Thinking Framework* demonstrate the significant attention that design thinking is receiving from strategic consultants. Design thinking is booming, especially in industries where digital transformation requires new competences and capabilities to develop effective customer experiences. Even software developers and integrators, such as Adobe, Microsoft and Oracle, extensively adopt design thinking practices.

While this rapid spread of design thinking in practice has not been coupled with a similarly rapid and robust diffusion of its theoretical underpinnings, in the past few years, it has started to attract attention among innovation scholars. Initially, a number of publications in academic journals focused on bringing greater theoretical clarity to a concept that appears elusive and ill-defined (Brown & Wyatt, 2010; Johansson-Sköldberg, Woodilla, & Çetinkaya, 2013; Kolko, 2015; Liedtka, 2004; Micheli, Wilner, Bhatti, Mura, & Beverland, 2019; Mozota, 2010; Perks, Cooper, & Jones, 2005; Seidel & Fixson, 2013). However, thus far the results are only partial, as the speed and breadth of the evolution of its applications still escape the efforts of scholars to capture its ontology. Indeed, according to Carlgren, Rauth, and Elmquist (2016), the design thinking literature provides ambiguous or partial definitions. Some focus on the mindset, e.g., as an abductive way of thinking (Leavy, 2011; Martin, 2009), some on its creative dimension (Brown, 2008; Kelley & Littman, 2001), others on its user focus, or the ability to frame problems, visualize and build prototypes (Carlgren et al., 2016). Most contributions are therefore inward oriented, i.e., to better understand what design thinking is. A consequence of this inward focus is that the scientific discourse on design thinking has in a way unfolded in a vacuum, often independently from other theories, and particularly from other innovation theories (Norman & Verganti, 2013; Verganti, 2008, 2009; Verganti & Dell'Era, 2014). How is design thinking positioned in relation to established innovation frameworks, such as lead users (Von Hippel, 1988, 2005), and emerging new practices, such as agile/lean development (Cooper & Sommer, 2016; Ries, 2011) or design sprint (Knapp, Zeratsky, & Kowitz, 2016)? These are central questions, as design thinking often overlaps—in terms of practices—with those related to the above frameworks, for example, the design thinking user-centred perspective and the role of users in the theories of Von Hippel (1988,

2005), or the role of prototyping in design thinking (Knapp et al., 2016; Ries, 2011).

According to Carlgren et al. (2016), what is lacking is not scholarly and academic research, but a bridge that is able to connect what design thinking is in theory and how it is then applied in practice. Carlgren et al. (2016) affirm that the real problem is the fragmentation of contributions, both scholarly and practical. For example, more and more companies claim they have created their own design thinking approach, or have incorporated design thinking in their own practices (e.g., SAP, Dell, IBM, etc.). This paper aims to provide a comprehensive understanding of the design thinking paradigm considering those factors that lead consulting organizations to interpret and apply the practices differently according to the challenges they face. More precisely, we seek to address the following research question: *How do consulting organizations interpret and adopt design thinking practices differently when providing advisory services?* From an empirical perspective, we rely on 47 case studies of consulting organizations that provide advisory services based on the design thinking paradigm in Italy. We decided to focus on consulting organizations due to their centrality in the innovation processes and the growing attention that these players are gaining in the academic environment (Brooks, Gino, & Schweitzer, 2015; Strike, Michel, & Kammerlander, 2018; Strike & Rerup, 2016).

The article is structured as follows. The next section summarizes the main contributions on design thinking underlying the rapid diffusion of the concept and the main practices characterizing the paradigm. Thereafter, an overview of our research methodology is presented. The subsequent section describes our empirical results. The final section presents some conclusions and future research avenues.

2 | LITERATURE REVIEW

Although the importance of design as a source of value creation had been analysed for decades (Fournier, 1991; Hirschman, 1986; Peterson et al., 1986), a new interpretation of design is flourishing in academic and practitioner communities: design not only as an aesthetic driver of innovation, but as a comprehensive innovation management practice, a new set of processes, mindsets and capabilities. As the 2014 *Design for Growth & Prosperity* report of the European Design Leadership Board underlines, design is a people-centred innovation activity through which desirable and usable products and services are defined and delivered. Accordingly, we divided the literature review in two main sections: the first explains the diffusion of design thinking and the second focuses on the practices related to this growing way of innovating.

2.1 | Diffusion of the design thinking concept

Johansson-Sköldberg et al. (2013) attempt to clarify the design thinking concept by distinguishing its academic development (defined "designerly thinking") from more practical development, particularly in the business realm. These authors argue that design thinking lacks a

robust research foundation, because “managers reflect-in-action, but they seldom reflect on their reflection-in-action”. Johansson-Sköldberg et al. (2013) provide a brief projection of how design thinking became a trend among management scholars: it started to gain attention in the management realm in the 1980s, garnered media attention around 2004, with a subsequent peak in 2009.

Several features distinguish design thinking from other innovation approaches. First, design thinking is a very appropriate thought process and cognitive tool to tackle innovation problems so that these can be solved in original and unexpected ways, to the point that “design thinking can be used to create everything” (Follett, 2016). This paradigm is one of the preferred ways of solving wicked, ill-defined problems, as this approach relies on discovery in advance of issues and needs (Liedtka et al., 2013), expanding both the problem and the solution boundaries (Dorst & Cross, 2001), igniting creativity and confidence in problem solvers (Tripp, 2013). Design thinking as a cognitive model differs substantially from deduction and induction: it is abductive, in the sense that it entails a divergent, broadening phase of unexpected idea gathering, followed by a convergent phase in which the most promising ideas are selected and put into practice (Martin, 2009). It may be described as a visualization-intensive problem-solving mode that heavily exploits the potentialities of drawings, sketches and graphic representations to rapidly anticipate issues that would be undetectable in abstract reasoning. For this reason, visualization is the main sense-making modality in design thinking, and one of its distinguishing features (Rylander, 2009). Design thinking is universally scoped, meaning it can deal with virtually any kind of problem in any domain, because the generative cognitive process does not relate too closely to any specific field. It acts as a knowledge integrator (Bertola & Teixeira, 2003), synthesizing concepts and contributions from different disciplines, transforming previously separate ideas into a unique and holistic proposal. Finally, design thinking is an engagement-driven cognitive process, engaging the problem solver and the recipient of the problem solution. Engagement with users, customers or any targeted individuals has been widely discussed, especially with the emergence of human-centred design (IDEO.org, 2015). Design thinking also engages problem solvers, as it demands imagination and abstraction efforts, as well as training in synthesizing information.

2.2 | Practices characterizing the design thinking concept

As underlined by Micheli et al. (2019), despite compelling calls for the adoption of design thinking (e.g., Luchs, 2016), a generally accepted definition is still lacking, “and even the term itself is a subject of controversy among its practitioners and advocates” (Liedtka, 2015, p. 926); there are substantial differences between promoters and antagonists of design thinking about what it is and what it can do (see, e.g., Beverland, Wilner, & Micheli, 2015; Brown, 2009; Johansson-Sköldberg et al., 2013; Kimbell, 2011; Liedtka, 2015; Martin, 2009). Systematically analysing 104 articles, Micheli et al. (2019) identifies

ten main attributes that connote design thinking. Leveraging on interviews developed in six large organizations, Carlgren et al. (2016) proposed a framework based on five main themes that characterize Design Thinking: User Focus, Problem Framing, Diversity, Experimentation and Visualization (see Table 1).

The *human-centred design* approach is the backbone of design thinking. Users are the starting point of this process that ends with the design and development of a tailored solution that fits customer needs. Building deep empathy through observation and ethnography with the recipients of the design aims at solving problems from their perspective (Brown, 2008; Holloway, 2009; Ward, Runcie, & Morris, 2009). Empathizing concerns designers' human-centred ability and willingness to understand and take into account the needs and interests of the final customers (Michlewski, 2008). In addressing problems, design thinkers must go beyond the immediate boundaries to ensure the wider exploration of design situations and ensure they tackle the right questions. While getting started is half the job, *problem framing* is crucial in design thinking (Dorst, 2011). Furthermore, challenging the problem to be addressed is not bound to the initial design thinking phases, but is an ongoing process that lasts until the end of the design thinkers' work (Boland & Collopy, 2004; Drews, 2009). Traditional approaches to problem solving involve only deduction and induction; the former moving from the general to the more specific, the latter from the specific to the general. Design thinkers challenged these ways of reasoning, claiming they are incomplete and not fruitful for the “science of the artificial” (Simon, 1996). Hence, leveraging semiotics studies (Peirce, 1934), Martin (2009) suggested abductive reasoning as an alternative approach that entails imagining what might be, rather than the analysis of what is, to create new knowledge and insights (Fraser, 2009; Kolko, 2010; Lockwood, 2009; Magistretti & Dell'Era, 2019).

A design process naturally deals with ambiguity; an ever-present attribute in addressing wicked problems. Then, a key feature in design thinkers' mentality is being comfortable with ambiguity in their iterative cycles of trial and error experiments. Furthermore, in the willingness to accept ambiguity, failure is not perceived as a negative but as a positive factor. Failing early and often is a chance to learn rapidly and at a lower cost (Boland & Collopy, 2004; Dew, 2007). Innovation lives in the interspace between the technical, business and human dimensions; for this reason, *diversity* represents a fundamental ingredient. Achieving meaningful results from the innovation process requires all these domains to be balanced. Integrative thinking allows generating creative solutions to problems by merging two or more opposing ideas or models (Brown, 2008; Fraser, 2009; Sato, 2009). Holistic thinking is an essential practice for design thinkers to challenge the original problem statement, re-framing it if necessary. In fact, effective design thinking is built on a deep understanding of the problem at hand. This is only possible when addressing different issues, including customer needs (explicit and tacit), the end user environment, social factors and emerging trends. Hence, the adoption of design thinking requires holistic thinking to encompass and analyse every facet of the problem to be solved (Dunne & Martin, 2006; Fraser, 2009; Sato, 2009).

Interdisciplinary collaboration supports the integration of diverse perspectives coming from within and outside the organization. Design thinking requires designers to develop solutions and look at problems in innovative and different ways. Wicked problems can be solved by bringing together people from different disciplines and departments (Beverland, Micheli, & Farrelly, 2016; Luchs, Swan, & Creusen, 2016; Magistretti, Dell'Era, De Massis, & Frattini, 2019). The practice of learning by doing relies on the power of *experimentation*. Turning an abstract idea into something real allows design thinkers to test it, to reveal new opportunities, to effectively share it with others, and obtain their feedback. This occurs in an iterative way that allows exploring different paths to solve the problem, speeding up the learning activities, and making them more effective through the iterative development of prototypes (Boland & Collopy, 2004; Lockwood, 2009; Rylander, 2009). Problems are tackled using a trial and error approach: to achieve innovative solutions, designers experiment with new paths and explore new design situations with end users and other stakeholders (Brown, 2008; Fraser, 2009; Holloway, 2009). To foster creativity, the design thinking process usually involves a divergent phase whose goal is the generation of multiple ideas to reframe the problem and glimpse possible paths towards the solution. Then, in the convergent phase, the alternatives are narrowed down to develop the most promising ones (Boland & Collopy, 2004; Drews, 2009; Sato, Lucente, Meyer, & Mrazek, 2010). Finally, *visualization* is fundamental in design thinking. Making ideas and insights visual and tangible allows the design of new solutions to be more effective and efficient. A visual approach enables understanding abstract and intangible concepts, grasping all the facets hidden in the ambiguity of words alone (Carr, Halliday, King, Liedtka, & Lockwood, 2010; Drews, 2009; Ward et al., 2009).

3 | RESEARCH METHODOLOGY

The aim is to investigate how consulting organizations interpret and adopt the design thinking practices in providing advisory services to cope with different challenges and contextual factors. Thus, an exploratory case study methodology seemed the most appropriate (Eisenhardt, 1989; Yin, 2011), particularly suited to answering "how" questions and investigating complex phenomena (Easton, 1995).

3.1 | Empirical setting

From an empirical perspective, we rely on 47 case studies of consulting organizations in Italy providing advisory services based on the design thinking paradigm. The decision to focus on the advisory service is motivated both empirically and theoretically. Indeed, as stated in the introduction, lots of consulting companies are adopting design thinking as a strategy to support clients in innovating (e.g., Accenture, PwC, Deloitte) so an exploratory investigation on them can shed light on the way they adopt and interpret these phenomena. Concerning the theoretical underpinnings, however, the centrality of advisors in

the sensemaking and innovation process is growing in academic literature giving reliable support to the selection of the consulting organization as a focus of the investigation (Brooks et al., 2015; Strike et al., 2018; Strike & Rerup, 2016). We adopted the following criteria in selecting our sample:

- We identified four different segments of consulting organizations: design studios, digital agencies, strategic consultants and technology developers.
- We constructed the initial list of consulting organizations based on Italian industrial associations and the network of digital innovation observatories.¹
- We excluded micro enterprises.
- Leveraging secondary resources (mainly official websites), we selected organizations providing advisory services explicitly based on design thinking.

Figure 1 shows the 47 organizations including 17 design studios, 6 digital agencies, 13 strategic consultants and 11 technology developers.

3.2 | Data collection

We relied on multiple primary and secondary sources of information in developing the case studies (Siggelkow, 2007). Specifically, we conducted 97 face-to-face interviews (on average two per company) from June to December 2017 discussing the interpretation of the design thinking paradigm mainly with CEOs and senior consultants (see Appendix 1 for the detailed list of interviewees). This gave us access to the most knowledgeable people in the firms. Each interview involving two researchers lasted on average 2 hours. In total, the dataset includes over 200 hours of interviews and 1,000 pages of transcript. All the interviews were taped and transcribed. Wherever possible, we checked or triangulated the data with publicly available sources (websites, press articles, etc.), and applied a robust research protocol structured in three main sections:

- *General information*: The first section aimed at collecting information on the company, the strategy and the experience in adopting the design thinking paradigm at the corporate level, the structure of the organizational unit dedicated to design thinking projects (if present), the competences developed by the organizational unit dedicated to such projects (if present), initiatives aimed at absorbing/diffusing the design thinking paradigm (e.g., acquisitions, training programs, partnerships) (see Appendix 2a).

¹In 1999, the Digital Innovation Observatories of the School of Management, Politecnico di Milano, were set up to raise cultural awareness in all the principal areas of digital innovation. Observatories provide an expert point of reference for digital innovation, integrating work in research, knowledge and communication. The purpose is both to produce and spread knowledge about possible opportunities and the impact of digital technologies in companies, public authorities and society (www.osservatori.net).

TABLE 1 Main practices of design thinking (adapted from Carlgren et al., 2016, and Micheli et al., 2019)

Theme	Practices	Main references
Human-centred design	Involving users Empathizing with humans	Brown, 2008; Michlewski, 2008; Holloway, 2009; Ward et al., 2009; Dell'Era, Magistretti, & Verganti, 2018
Problem framing	Framing and reframing Abductive reasoning Embracing ambiguity	Boland & Collopy, 2004; Dew, 2007; Drews, 2009; Fraser, 2009; Lockwood, 2009; Martin, 2009; Kolko, 2010; Dorst, 2011
Diversity	Integrative thinking Holistic thinking Interdisciplinary collaboration	Dunne & Martin, 2006; Brown, 2008; Fraser, 2009; Sato, 2009; Beverland et al., 2016; Luchs et al., 2016
Experimentation	Learning by doing Failing often and soon Diverging/Converging	Boland & Collopy, 2004; Brown, 2008; Drews, 2009; Fraser, 2009; Holloway, 2009; Sato et al., 2010
Visualization	Making ideas and insights visual and tangible Representing abstract concepts	Carr et al., 2010; Drews, 2009; Ward et al., 2009

- *Offering*: The second section aimed at collecting information on the structure of the offering provided in terms of consulting packages (defined as bundles of services conceived and offered by consulting organizations in order to address specific challenges). More precisely, we initially collected synthetic information in terms of target, value proposition, challenge and scope, percentage of annual revenues (achieved or planned in 2017). We then went through a detailed description of each consulting package to collect both organizational (typical brief, output, team structure) and process data (key performance indicators, frameworks, phases, practices, tools) (see Appendix 2b).
- *Case history*: The third section aimed at collecting information on the application of a consulting package for a specific client, which allowed us to partially overcome the limitation that Carlgren et al. (2016) highlight with regard to the lack of a bridge that connects what design thinking is in theory and how it is applied in practice.

3.3 | Data analysis

At least two researchers analysed each case. Based on the interview transcripts, we examined the factual elements that would allow comparison of the 146 consulting packages provided by the

47 consulting organizations with the aim of identifying different interpretations of the design thinking paradigm. More specifically, we first identified and clustered different categories of consulting packages designed to face similar challenges and scopes. We then searched for regularities and patterns across consulting packages in the same cluster, identifying similarities and differences in terms of practices. As Miles and Huberman (1994) recommend, we iteratively and separately analysed the transcripts, the initial clusters of consulting packages, and the associated practices. Based on the literature and insights from the 47 case studies, we identified four kinds of design thinking that significantly differ according to the challenge faced and the adopted practices:

- Inspired by insights that enable the development of creative and original solutions to meet emerging user needs (76 consulting packages from 38 organizations).
- Accelerate the development process and reduce market uncertainty to quickly and effectively launch new solutions on the market (27 consulting packages from 23 organizations).
- Promote a new innovation mindset to engage employees using a new set of approaches, practices, and methodologies to stimulate innovation and change (25 consulting packages from 16 organizations).
- Create a new vision that is a radical reinterpretation of the strategic direction (18 service packages from 16 organizations).

To increase the robustness of the clusters, we organized a 1-day workshop with ten experts (see Table 2): half employees, the remainder working for companies not part of our sample. More specifically, two teams of five experts each analysed eight consulting packages excluding those developed by companies also involved in the panel of experts. We then randomly selected four consulting packages initially allocated to each cluster. During a seminar, we separately shared with each team of experts the information collected on the eight consulting packages (see Appendix 2b). Thereafter, each team of experts classified the eight consulting packages according to the challenge faced, identifying the associated practices. We then swapped the eight consulting packages between the two teams of experts and asked them to evaluate the classification proposed by the other team. Thereafter, in a plenary session with all ten experts, we refined the proposed clusters and discussed the identified practices. While both teams of experts substantially confirmed the four clusters based on the challenges faced, the associated practices were significantly reframed and enriched by the panel of experts.

Finally, we referred back to all interviewees to validate the classification of all consulting packages with the four kinds of design thinking as described next.

4 | FOUR KINDS OF DESIGN THINKING

The detailed analysis of the 146 consulting packages allowed us to identify and map four different kinds of design thinking. While the

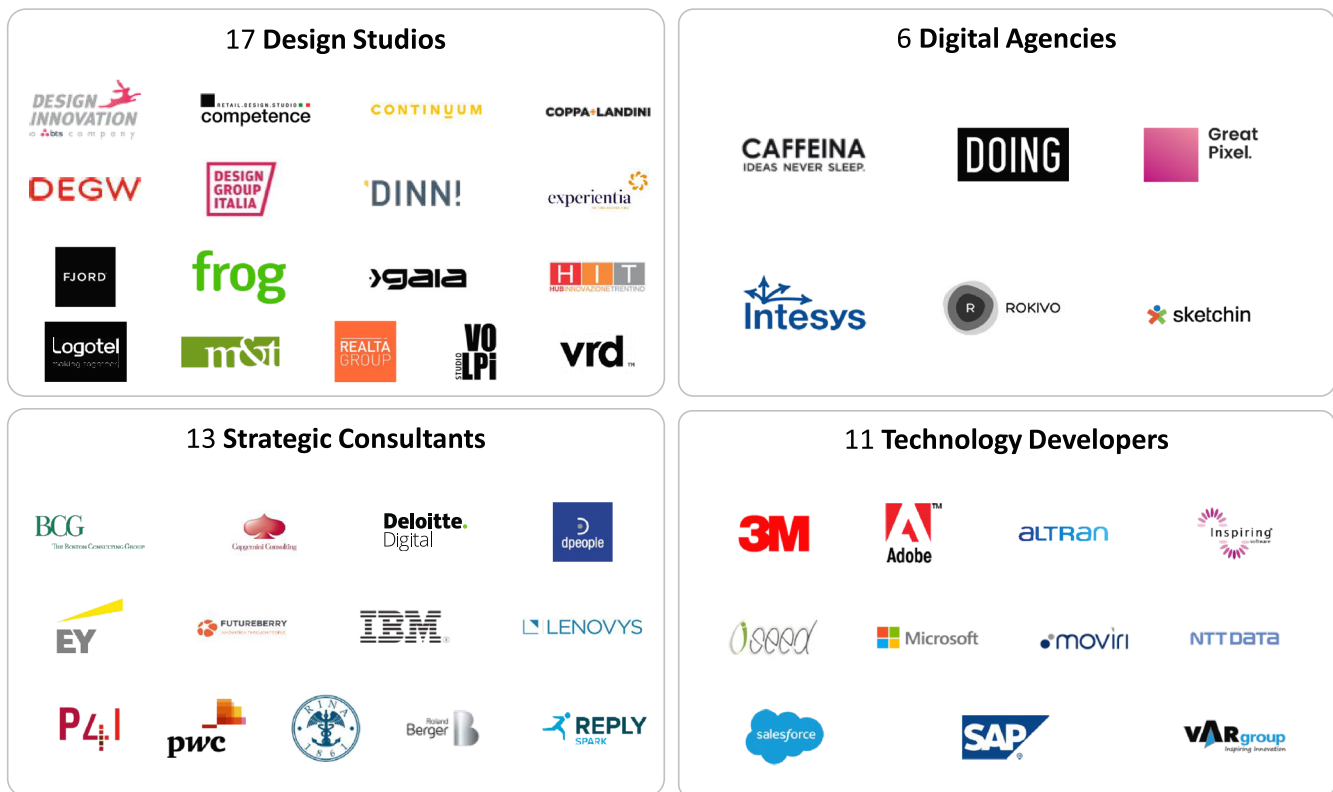


FIGURE 1 The 47 consulting organizations providing advisory services based on the design thinking paradigm in Italy [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1111/sum.12553)]

empirical results are largely in line with the practices described in the literature review section, they also show that consulting organizations differently interpret and adopt few of them according to specific drivers such as the challenge they face or other specific contextual factors. More specifically, the case studies results highlight four different kinds of design thinking that emerged both from the data

gathered and the interpretation of them in light of the design thinking literature.

- *Creative Problem Solving:* Solving wicked problems by adopting both analytical and intuitive thinking (Brown, 2009; Martin, 2009).
- *Sprint Execution:* Delivering and testing viable products to learn from customers and improve the solution (Knapp et al., 2016; Ries, 2011).
- *Creative Confidence:* Engaging people to make them more confident with creative processes (Kelley & Kelley, 2013).
- *Innovation of Meaning:* Envisioning new directions that aim at proposing meaningful experiences to people (Verganti, 2009, 2017).

TABLE 2 Panel of experts

Name	Company	Job Position
Luciano Attolico	Lenovys	CEO & Founder
Pietro Curtolillo	Generali	Customer Experience Design Manager
Monica Dalla Riva	3M	Head of Design – Europe
Alexandre de Souza Carvalho	Tetra Pak	Global Director, Marketing Services
Gianpiero Di Gianvittorio	PwC Italy	Experience Centre Leader
Antonio Iannitti	Sisal	Strategy Manager
Beatrice Maestri	Electrolux	Open Innovation Project Manager
Peter Newbould	Design Group Italia	Partner
Alessandro Piana Bianco	Deloitte Digital	Design Director
Luca Pronzati	MSC Cruises	Chief Business Innovation Officer

4.1 | Design thinking as Creative Problem Solving

As mentioned, the first cluster of consulting packages mainly sought inspiration and insights to foster the development of creative and original solutions to meet emerging user needs. The main aim of this kind of design thinking is to solve problems leveraging creativity, assuming that users have a need, a problem, a desire, searching for the best solution (Brown, 2009; Martin, 2009). This approach implies that organizations innovate by deeply understanding user needs and desires, then creating ideas to better solve these problems (Patnaik & Becker, 1999; Sutton, 2001). The increasing complexity and dynamism of user behaviours on the one hand, and the growing demand for more sophisticated and

personalized solutions on the other, have determined a rapid diffusion of this approach.

The data clearly show that this is significantly adopted in all four categories: 38 out of 47 organizations provide at least one consulting package based on the *Creative Problem Solving* approach (see Table 3). Undoubtedly, this kind of design thinking is the dominant paradigm in the design studio category, to the point that 94% adopt this approach. Twenty-two consulting organizations derived more than 50% of their annual revenues from focusing on the *Creative Problem Solving* approach, while nine technology developers on average derived 75.6% of their annual revenues from applying this approach.

In this first kind of design thinking, human-centred design is based on deep understanding of users' needs and desires through observation and ethnographic research with the aim of solving problems from their perspective (Brown, 2008; Buchanan, 1992). In other words, *Creative Problem Solving* is based on the outside-in approach: it starts from going out and observing how users use existing products, then interpreting these observations to inspire original solutions, seeing "with a fresh set of eyes" through empathy (Rosenthal & Capper, 2006; Whitney & Kumar, 2003). As Mark Vanderbeeken, CEO at Experientia, underlined:

To obtain a good solution, it is fundamental to involve the end user as soon as possible in the design process; deeply understanding not only their needs, but also their life context, behaviors, and attitudes.

While solving problems is the main aim of this kind of design thinking, creative ideating is the core practice to iteratively frame and reframe the problem. The assumption is that the greater the number of ideas generated, the greater the chance of finding a good one. Ideating is about sharing insights with the team, making sense of a vast amount of data, and identifying opportunities for new solutions. *Creative Problem Solving* is not about coming up with the "right" idea, but generating the widest range of ideas. Creative ideating suggests exploring broad landscapes in terms of concepts and opportunities (Dorst, 2011; Dorst & Cross, 2001), providing both the fuel and the raw materials that enable getting innovative solutions into the hands of users. It allows crossing the bridge between identifying the problem and creating the solution through the combination of understanding the problem and the team's imagination to generate solutions (Carr et al., 2010; Drews, 2009). Creative ideating describes designers' propensity to look laterally at reality, explore unconventional alternatives, and perceive situations from innovative perspectives (Casakin, 2007).

Creative thinking is a key element in design problem solving, as it allows the designer and his/her innovation team to transcend conventional knowledge domains and to jointly discover opportunities that might lead to innovative solutions (Brown, 2009; Martin, 2009). As Gianpiero Di Gianvittorio, Director at PwC Italy Experience Centre Leader, highlighted:

Ideas are not just the first attempt to solve the problem, they are a powerful tool to properly understand and redefine the problem itself. Ideating allows clarifying the boundaries and nature of the problem.

The *Creative Problem Solving* approach relies on combining the conscious and unconscious mind, rational thought and imagination. Leveraging on naïve minded people allows addressing problems from a fresh and lateral perspective. Innovation teams adopting the *Creative Problem Solving* seek inspiration in unexpected places; the involvement of people with a naïve mind can contribute to looking at the problem from alternative angles (Brown, 2009; Kao, 2011; Stefik & Stefik, 2005). This perspective has proven to be effective in the "problem solving" innovation paradigm (Sutton, 2007). Indeed, looking at problems without pre-conceptions may enable searching in previously unexplored areas. If the existing solution is "inside a box", beginners, who do not know where the box is, are more likely to search "outside the box" (Kelley & Littman, 2001).

Transforming innovative ideas into tangible (even if rough) prototypes allows interacting with users, obtaining feedback and learning from failures. A prototype can be anything that a user can interact with. Turning an abstract idea into something real allows design thinkers to test it, reveal new opportunities, share it with others, obtain their feedback in an iterative way that allows exploring different paths to solve the problem, speeding up learning activities, and making them more effective (Boland & Collopy, 2004; Lockwood, 2009; Rylander, 2009). In the *Creative Problem Solving* approach the experimentation is so fundamental that prototypes can be developed not only during the solution phase in order to validate or confirm previous reflections and hypotheses, but also during the early phase in order to explore and frame the problem. In other words, the problem prototyping aims at faking it before making it. The possibility to partially mock up the intended product or service in minutes, hours or days allows the prototype development to change its aim: stimulating discussion and looking at the problem from different angles. For this reason, prototypes can be developed even when the problem is not yet properly defined.

TABLE 3 Adoption of the *Creative Problem Solving* approach

	Design studios [17]	Digital agencies [6]	Strategic consultants [13]	Technology developers [11]	All [47]
No. of consulting organizations	16	4	9	9	38
No. of consulting organizations adopting <i>Creativity Problem Solving</i> as CORE	10	2	4	6	22
Average % of annual revenues	66.3%	61.3%	56.1%	75.6%	65.5%

4.2 | Design thinking as *Sprint Execution*

The second cluster of consulting packages aimed mainly at accelerating the development process and reducing market uncertainty to quickly and effectively launch new solutions on the market. *Sprint Execution* emerges from the hybridization of the original *Creative Problem Solving* and the Lean/Agile movement (Knapp et al., 2016; Ries, 2011). In particular, in the *Sprint Execution* approach, creativity is crucial to boosting innovation. Similarly to the lean startup approach (Ries, 2011) and the Agile–Stage–Gate hybrid model (Cooper & Sommer, 2016), *Sprint Execution* stresses the crucial role of time constraints and iterations on the effectiveness of the process. As Govindarajan and Trimble (2010) highlight, companies cannot survive without innovating, but most place far more emphasis on generating big ideas than on executing them because ideating is energizing and glamorous while execution seems humdrum. The execution challenge is becoming even harsher due to the opportunities that digital technologies provide. On the one hand, crowdsourcing and idea management platforms greatly support the development of new concepts and access to ideas generated by someone else, to the point that conceiving is no longer the real challenge companies face in the innovation arena. On the other hand, the opportunities provided by this incredible amount of ideas frequently do not correspond to effective results due to the associated execution issues. The market is more fluid and subject to rapid changes than in the past; people are eager to try new products and solutions, and are not willing to wait. New technologies enable reducing the time between the generation and execution of an idea (Boon, Moors, Kuhlmann, & Smits, 2008), supporting and speeding up the development process.

Almost half the 47 organizations adopted the *Sprint Execution* approach (see Table 4). Undoubtedly, this kind of design thinking is the dominant paradigm in the digital agency category to the point that all adopt this approach (100%). It is also particularly widespread among strategic consultants and technology developers, while about a third of design studios adopt this approach. Six organizations derived more than 50% of their annual revenues from consulting packages based on the *Sprint Execution* approach, while three strategic consultants on average derived 60% of their annual revenues from applying this approach.

In the *Sprint Execution* approach users have a fundamental role, but are interpreted differently than in the *Creative Problem Solving* approach. They are fundamental stakeholders to interact with and collect their feedback and reactions, but are not considered the main source of inspiration at the start of the design process. In other words,

the direction the *Sprint Execution* approach pursues is inside-out: the product is initially conceived by the team that then brings the product to users to be tested and to obtain feedback. This does not mean that organizations adopting this approach do not consider knowledge of the market they address as fundamental, but they strongly believe that the knowledge they need can only be obtained through interacting with products. As Davide Marazita, Founder and CEO at Rokivo, underlined:

User research is very important ... we are experts in specific fields and have progressively realized that users can provide a fundamental contribution especially at the end of the design sprint sessions to preliminary test our hypotheses and learn potential improvements.

The need to quickly create products able to bring value to users requires design teams composed of experts (usually internal stakeholders) able to deal with different categories of constraints and opportunities from different business units within the firm. In this way, they can propose a different vision and support the iterative convergence and divergence processes (Zeratsky, 2016), a key element in *Sprint Execution*. To speed up the process, the team's external network is exploited for knowledge that resides outside the company, coherently with the growing belief that more knowledge resides outside than within the firm's boundaries (Sakkab, 2002).

The aim of the *Sprint Execution* approach is not merely designing a product concept or an innovative idea, but making products ready to be launched on the market in line with user needs. The product is the principal vehicle to capture the value and learn from the reactions of the market. The *Sprint Execution* approach addresses the acceleration required by the digital transformation through *making*. Everything that is thought in the initial phase has to be delivered at the end of the process in realistic and working products. The experimentation in the *Sprint Execution* approach significantly leverages the contributions of minimum viable products (MVP), defined as a product with just enough features to satisfy early customers, to obtain feedback for future developments. In particular, the role of MVPs is not only to create a physical embodiment of the idea, similarly to the *Creative Problem Solving*, but a means of learning by doing. While prototypes are non-committal and mainly aim at exploring problems and concepts, understanding relevance of functionalities, getting stakeholders on board, MVPs are used to gain insights from early adopters of a product and to explore market viability. Prototypes help to understand the feasibility of an idea, where MVPs are more about validated

TABLE 4 Adoption of the *Sprint Execution* approach

	Design studios [17]	Digital agencies [6]	Strategic consultants [13]	Technology developers [11]	All [47]
No. of consulting organizations	6	6	6	5	23
No. of consulting organizations adopting <i>Sprint Execution</i> as CORE	1	1	3	1	6
Average % of annual revenues	33.3%	45.8%	60.0%	52.0%	47.6%

learning (Knapp et al., 2016; Ries, 2011). Indeed, the MVP in *Sprint Execution* is the object that allows jumping from the ideation to the learning phase without going through the traditional steps of building and launching the solution (Lapr e & Van Wassenhove, 2001), thus avoiding the typical new product development phases (Cooper, 2006). MVPs are not the final product, but the means to learn the reaction of potential users earlier in the development process (Ries, 2017). As Luca Mascaro, CEO and Head of Design at Sketchin, stated:

In a world that is becoming more and more digital, products must evolve along their lifecycles ... contemporarily deliver value and collect data able to guide future developments.

4.3 | Design thinking as *Creative Confidence*

Leveraging the core features of *Creative Problem Solving* and fine-tuning the complementary traits, the *Creative Confidence* approach aims at promoting a new innovation mindset to engage employees with a new set of approaches, practices and methodologies able to foster innovation and change. Design thinking is increasingly adopted to reshape the organizational culture and enable digital transformation (Gloppen, 2009; Kelley & Kelley, 2013; Sato et al., 2010). As Marcello Coppola, CEO at Coppa+Landini, stated:

We usually deal with the building blocks of any organization: people (and their motivations), technologies, and business models ... people's attitudes and mindsets contemporarily represent the engines or the inertias of all transformations.

Organizations face new and significant challenges in engaging and keeping their employees motivated. On the one hand, the digital revolution has enabled incredible entrepreneurial opportunities for individuals and small businesses. Technological developments in the last few decades have undeniably reshaped our economy. The past ten years have seen a number of young start-ups develop into billion-dollar businesses. In this new era of entrepreneurship, such businesses will no longer be the exception. On the other hand, people give more and more importance to work-life balance or the possibility to discover a personal and intimate purpose in their job. According to Forbes,² as employees continue to log more hours and stay connected with work well after they leave the office, the need for work-life balance is changing to the point that some prefer "work-life integration" or "work-life flexibility".

Compared to *Sprint Execution* and especially *Creative Problem Solving*, the *Creative Confidence* approach is adopted less (see Table 5), probably because it is still in an embryonic phase. This kind of design thinking is rapidly spreading around leveraging specific features of the

design thinking paradigm: human-centredness and deep empathy. These are even more relevant in projects aimed at changing the organizational culture and mentality (Elsbach & Stigliani, 2018). Furthermore, they are becoming fundamental in supporting intrapreneurship to the point that the strategic consultants category adopts it the most. Four organizations derived more than 50% of their annual revenues from providing consulting packages based on the *Creative Confidence* approach, while two strategic consultants on average derived 40.7% of annual revenues from applying this approach.

While entrepreneurs create an organizational culture and mindset using a bottom-up approach, intrapreneurs challenge established and shared beliefs, assumptions and practices through a top-down approach. As a consequence, the interpretation of the human-centred design in the *Creative Confidence* approach is based on co-designing a shared sense of purpose that inspires action across employees (Buehring & Liedtka, 2018). The main aim of this approach is to enable employees to feel confident in facing organizational changes and innovation challenges, allowing them to propose (design) and realize (develop) the change according to their beliefs and attitudes.

The *Creative Confidence* approach focuses especially on people in the hope of transforming the organization as a whole. Engaging key stakeholders in feeling confident with new perspectives and horizons stimulates proactive behaviours and creates the appropriate premises to deal with innovation challenges (Kelley & Kelley, 2013). In an environment where people can express themselves, and in processes designed to foster creativity, the production blocking effect is reduced, one of the main issues faced in creative processes (Paulus & Yang, 2000), and even more significant when the focus is on people engagement. As Ermacorra, iX Manager at IBM, stated:

In the collaboration with engineers and more in general technical people, engagement is the core ingredient. It is becoming more and more challenging to motivate people in supporting and promoting change.

The adoption of the *Creative Confidence* approach is based on the early and intense involvement of all those key stakeholders (usually internal) who can support the change. Digital transformation projects must involve all those stakeholders that can contribute to the design phase and then support its realization. They are the key to the success of a *Creative Confidence* project because team variety is the most crucial element of fostering creativity, as evident when considering the nominal group technique (Gallagher, Hares, Spencer, Bradshaw, & Webb, 1993), six hats methodologies (De Bono, 2017), or similar brainstorming approaches.

4.4 | Design thinking as *Innovation of Meaning*

The fourth cluster of consulting packages is labelled *Innovation of Meaning*; it mainly aims at creating innovative visions that support new strategic directions pursued by the business clients. While the *Creative Problem Solving* approach mainly supports the development

<https://www.forbes.com/sites/alankohll/2018/07/10/what-employees-really-want-at-work/#25c1f74c5ad3>

TABLE 5 Adoption of the *Creative Confidence* approach

	Design studios [17]	Digital agencies [6]	Strategic consultants [13]	Technology developers [11]	All [47]
No. of consulting organizations	6	0	7	3	16
No. of consulting organizations adopting <i>Creative Confidence</i> as CORE	1	NA	2	1	4
Average % of annual revenues	22.5%	NA	40.7%	46.7%	35.0%

of better ideas able to solve established problems, the *Innovation of Meaning* approach allows identifying a novel purpose that redefines the problems worth addressing (Verganti, 2009). In other words, a creative solution may provide incremental or even radical improvements, but usually in the same direction; an innovative meaning instead is about a novel purpose, not only a new how, but especially a new why, a new interpretation of what is meaningful to people (Verganti, 2017).

Similarly to the *Creative Confidence* approach, the *Innovation of Meaning* approach is adopted in a limited way (34%, see Table 6). Design studios and strategic consultants show higher adoption, respectively seven and six adopters. Four organizations derived more than 50% of their annual revenues based on the *Innovation of Meaning* approach, while three design studios on average derived 43.6% of their annual revenues from applying this approach.

The *Innovation of Meaning* approach is based on a peculiar interpretation of the human-centred design, especially in comparison with the *Creative Problem Solving* one: users represent a valuable source of inspiration for new solutions, while their contribution is less effective in supporting the development of new meanings. As noted by Verganti and Dell'Era (2014), usually new meanings are not required by the market, but they are gifted from organizations that are responsible in interpreting what is good and what is bad. People will never love a product that is not loved by its designers and developers; if they do not love it, the market recognizes the weak relationship (Verganti, 2017). According to the *Innovation of Meaning* approach, organizations envision scenarios to support the search for a new meaning and to make people fall in love. According to Alessandro Vassallo, CEO and Managing Director at VRD Research:

Every product or service implies a relationship with people. For this reason, a clear and positive meaning is fundamental to support its interpretation and create a strong bond ... meanings are not decorative assets, but the catalysts to align brand values and human behaviors.

Differently from the *Creative Problem Solving* approach based on creative ideating, the *Innovation of Meaning* approach is based on *curious criticizing*. The purpose is to create a vision that is powerful, robust and meaningful. In a world where options are abundant, without a shared purpose, companies fall into the paradox of ideas: the more ideas they create, the more they move in different directions, the less innovation happens. In this vein quantity can increase confusion and entropy. The way to obtain a novel meaningful interpretation is by going deeper with a few perspectives, contrasting them, fusing them. Curious criticism strives to unveil what lies beneath the surface to develop a richer and more robust interpretation (Verganti, 2016, 2017). As noted by Verganti and Norman (2019), one of the most popular mantras for innovation is “avoid criticism” because the underlying assumption is that criticism kills the enthusiasm of a team; in brainstorming sessions one of the first common rules to adopt is “defer judgement”. According to Verganti and Norman (2019), it encourages design by committee and infuses a superficial sense of collaboration that leads to compromises and weakens ideas. Nemeth (2018) shows that debate and criticism do not inhibit ideas; rather, they stimulate them because progress requires clashing and fusing different perspectives and leveraging on curiosity. As Gianandrea Giacomini, Design Research Director at Design Group Italia, underlined:

The development of future scenarios based on radically-new experiences requires a different kind of reflection. The uncertainty about the future is so high that we start from what we personally love and then go through almost infinite discussions about what will be valuable to people.

Interpreters are defined as experts from far-flung fields who address the same strategic context, but from different perspectives. They help reflect deeper on the implications of the emerging vision. Every company is surrounded by numerous agents (firms in other industries targeting the same users, new technology suppliers, researchers,

TABLE 6 Adoption of the *Innovation of Meaning* approach

	Design studios [17]	Digital agencies [6]	Strategic consultants [13]	Technology developers [11]	All [47]
No. of consulting organizations	7	2	6	1	16
No. of consulting organizations adopting <i>Innovation of Meaning</i> as CORE	3	1	0	0	4
Average % of annual revenues	43.6%	40.0%	25.0%	20.0%	34.7%

designers, artists, etc.) sharing the same interest. Although they address different markets, they look at the same person in the same context, and how that person could give meaning to things, acting as interpreters (Verganti, 2009, 2017; Verganti & Dell'Era, 2014). Continuous debate with interpreters allows companies to exchange information and then test the robustness of their assumptions in a collective research laboratory where interpreters make their own investigations and engage in continuous dialogue (Verganti, 2009, 2017).

The *Innovation of Meaning* approach significantly relies on metaphors, the most powerful way to represent concepts and emotions, especially when these are new and abstract, such as a new meaning. A metaphor is a way of "understanding and experiencing one kind of thing in terms of another" (Lakoff & Johnson, 1980). According to Lakoff and Johnson (1980), "Metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally

metaphorical in nature". They provide common ground and allow expanding to novel spaces (Lakoff & Johnson, 1980).

5 | DISCUSSION AND CONCLUSIONS

This paper investigates how consulting organizations interpret and adopt the design thinking practices in providing advisory services. Table 7 reports the main differences across the four kinds of design thinking derived from 146 consulting packages provided by the 47 consulting organizations analysed. More specifically it reports the different drivers that influence the application of the four kinds of design thinking, the adoption shown by the 47 consulting organizations providing advisory services based on the design thinking paradigm, the practices that connote the four kinds of design thinking. If the great portion of the practices described in the literature review section underpins all four kinds of design thinking, few of them

TABLE 7 Drivers, adoption, and practices associated with the four kinds of design thinking

	<i>Creative Problem Solving</i>	<i>Sprint Execution</i>	<i>Creative Confidence</i>	<i>Innovation of Meaning</i>
Drivers				
Addressed challenge	Inspire insights able to lead the development of creative and original solutions that can meet emerging users' needs	Accelerate the development process and reduce market uncertainty to quickly make and launch new solutions on the market	Promote new innovation mindsets to engage employees with a new set of approaches, practices, and methodologies able to stimulate innovation and change	Create new visions that represent radical reinterpretations of the strategic direction to follow
Contextual factors	<ul style="list-style-type: none"> Complexity and dynamism of user behaviors Demand for more sophisticated and personalized solutions 	<ul style="list-style-type: none"> Tension towards execution and continuous updating Digital technologies empowering different experimentation strategies 	<ul style="list-style-type: none"> Entrepreneurial opportunities for individuals Importance of work-life balance and personal purpose in the job 	<ul style="list-style-type: none"> Easy access to innovative ideas Abundance of alternative options
Adoption				
No. of consulting organizations adopting ...	38 [81%]	23 [49%]	16 [34%]	16 [34%]
No. of consulting organizations adopting ... as CORE (>50% of annual revenues)	22 [47%]	6 [13%]	4 [9%]	4 [9%]
Average % of annual revenues obtained by ...	65.5%	47.6%	35.0%	34.7%
Themes and practices				
Human-centred design	Sourcing inspirations from Humans	Testing solutions with Humans	Co-designing with Humans	Gifting Humans
Problem framing	Creative Ideating			Curious Criticizing
Diversity	Leveraging on Naïve Mind	Knowing from Experts	Engaging key Stakeholders	Debating with Interpreters
Experimentation	Prototyping Problems	Making MVPs		
Visualization				Representing by Metaphors

highlight different interpretations by the consulting organizations in their application. In other words, all four kinds of design thinking share common features belonging to the same paradigm, but they also embody different nuances in the interpretation and adoption of specific practices demonstrating the kaleidoscopic nature of design thinking. Even if the differences across the four kinds of design thinking refer to specific practices, consulting organizations adopt them according to specific drivers such as the challenge they are facing and other contextual factors.

The four kinds of design thinking address different domains: while the *Creative Problem Solving* and *Sprint Execution* approaches address the solution domain, the *Creative Confidence* approach operates in the people domain, and the *Innovation of Meaning* approach in the direction domain (Verganti, 2017). Even if the three domains are significantly interdependent, they require appropriate adaptations of the design thinking paradigm to deal with the specific challenges. The increasing complexity of user behaviours and the growing demand for more personalized solutions make the *Creative Problem Solving* approach particularly powerful in facing wicked, ill-defined problems (Dorst & Cross, 2001; Liedtka et al., 2013; Tripp, 2013). In this vein *Creative Problem Solving* is particularly aimed at inspiring insights able to lead the development of creative and original solutions that can meet emerging users' needs. *Sprint Execution* can be considered a sort of evolution of the *Creative Problem Solving* approach, incorporating the efficiency of the lean/agile approach (Knapp et al., 2016; Ries, 2011) to accelerate the development process and reduce market uncertainty. The *Sprint Execution* approach is particularly appropriate in digital markets where products must be continuously updated and renewed, incorporating feedback from the market. The diffusion of digital technologies supporting and empowering different experimentation strategies is boosting the adoption of the *Sprint Execution* approach also in industries that are not intrinsically digital. The *Creative Confidence* approach aims to engage employees with a new set of approaches, practices and methodologies able to foster innovation and change (Kelley & Kelley, 2013). Organizations face new and significant challenges in engaging and keeping their employees motivated, and several consulting organizations are reinterpreting design thinking through organizational lenses leveraging human-centrality and empathy (Gloppen, 2009; Sato et al., 2010). Finally, the *Innovation of Meaning* approach enables facing the drawbacks determined by the incredible abundance of accessible ideas through the identification of a novel purpose, not only a new how, but especially a new why; having a clear direction to pursue makes it easier to focus on those few ideas that fit the novel purpose (Verganti, 2017). For this reason, the *Innovation of Meaning* approach mainly aims at creating new visions that represent radical reinterpretations of the strategic direction to follow.

The comparison of the four kinds of design thinking allows us to highlight the different behaviours adopted by the 47 consulting organizations. The *Creative Problem Solving* approach is the most widespread: 38 out of 47 adopt this kind of design thinking, while the *Creative Confidence* and the *Innovation of Meaning* approaches are the

least adopted: 16 out of 47 adopt these kinds of design thinking. Similarly, the relevance of each kind of design thinking shows different results across the approaches. Twenty-two organizations focus on the *Creative Problem Solving* approach, gaining more than 50% of the annual revenues from consulting projects based on its adoption. The 38 organizations that adopt this kind of design thinking, on average, obtained 65.5% of annual revenues from providing advisory services based on this approach. *Sprint Execution* is adopted by six organizations as a core approach; the 23 organizations that base their offering on this kind of design thinking on average obtained 47.6% of annual revenues through applying this approach. The *Creative Confidence* and *Innovation of Meaning* approaches show similar evidence in terms of relevance: only four organizations apply these as core approaches. The 16 organizations that adopt these kinds of design thinking, on average, obtained respectively 35.0% and 34.7% of annual revenues, providing advisory services based on these approaches.

From a theoretical point of view, the four kinds of design thinking share a common trait: coherent with the *human-centred design*, design thinking is an approach that looks at value and change from the perspective of people (Brown, 2008; Holloway, 2009; Ward et al., 2009). Design thinking, whatever nuance considered, always starts from what is meaningful to people (Verganti, 2017). Even if humans are at the core of design thinking, their role changes significantly across the four kinds of design thinking. In the *Creative Problem Solving* approach, people are the source of inspiration; observation and then interpretation of user behaviours inspire the consulting organization in the creation of original solutions (Brown, 2009; Martin, 2009). In the *Sprint Execution* approach, users are mainly involved in the testing phase as core stakeholders to interact with in order to collect feedback and reactions, but they are not considered the main source of information at the start of the design process (Knapp et al., 2016). In the *Creative Confidence* approach, employees are engaged in co-designing a shared sense of purpose that can guide change, stimulating proactive behaviours, and creating the appropriate premises to deal with innovation challenges (Kelley & Kelley, 2013). Finally, the *Innovation of Meaning* approach interprets humans as gift recipients. Meanings cannot be outsourced: while users can be particularly valuable in providing inspirations for new solutions, their contribution is less effective in supporting the development of new meanings. People are gifted by organizations with new meanings (Verganti, 2009, 2017).

The organizations analysed also show interesting differences in the application of other practices related to different themes: *Problem Framing*, *Diversity*, *Experimentation* and *Visualization*. While the *Creative Problem Solving* approach intensively leverages on creative ideating to frame and re-frame the problem addressed, the *Innovation of Meaning* approach focuses on upstream phases of the innovation process, recognizing the incredible value of curious criticizing in envisioning meaningful futures. All four kinds of design thinking are based on practices aimed at involving different categories of actors that can provide diverse perspectives: *naïve mind* people in the case of *Creative Problem Solving* (Kao, 2011; Stefik & Stefik, 2005; Sutton, 2007), *experts* in the case of *Sprint Execution* (Sakkab, 2002; Zeratsky, 2016), *key stakeholders* in the case of

Creative Confidence (Buehring & Liedtka, 2018; De Bono, 2017), and *interpreters* in the case of *Innovation of Meaning* (Verganti, 2009, 2017). The practices aimed at experimenting new solutions highlight intriguing differences between *Creative Problem Solving* and *Sprint Execution*: while the former is significantly based on the capability to prototype problems in the very early stage of the development in order to explore alternative paths, collect feedback and identify new opportunities (Lockwood, 2009; Rylander, 2009), the latter focuses on direct dialogue with the market enabled by making minimum viable products (Ries, 2011). Finally, the *Innovation of Meaning* approach significantly relies on metaphors to visualize and represent meanings in a tangible form (Verganti, 2017).

From a managerial perspective, the paper provides a refined view of design thinking, clarifying how different interpretations of the design thinking paradigm can require different practices. This may help managers seeking to adopt design thinking to understand which kind of design thinking is right for them, and on which practices they need to focus to increase the probability of success.

As in any other research project, the paper also has some limitations. The empirical evidence relies on retrospective case studies; the development of further research based on collaborative approaches can allow direct observation of the adoption of specific practices. The empirical results rely on case studies in Italy; a geographic extension of the study could provide a more holistic view of design thinking. Enriching the research framework with performance variables could lead to more normative guidelines and enable investigation of the statistical correlation between performance and the different kinds of design thinking adopted. Studies using larger samples, adopting different techniques such as survey methodologies, would shed light on other kinds of design thinking that may be emerging in the competitive arena. Finally, the empirical results show that consulting organizations interpret and adopt design thinking in different ways that are influenced by multiple contextual factors. Further research about the role played by contextual factors such as market demand, competition landscape, leadership personality, etc., in influencing design thinking practices can provide insightful contributions.

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ENDNOTES

¹ In 1999, the Digital Innovation Observatories of the School of Management, Politecnico di Milano, were set up to raise cultural awareness in all the principal areas of digital innovation. Observatories provide an expert point of reference for digital innovation, integrating work in research, knowledge and communication. The purpose is both to produce and spread knowledge about possible opportunities and the impact of digital technologies in companies, public authorities and society (www.osservatori.net).

² <https://www.forbes.com/sites/alankohll/2018/07/10/what-employees-really-want-at-work/#25c1f74c5ad3>

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APPENDIX

Interviews

Company	Job Title	Date	Duration
3M	Head of Design Europe	12/10	2.00 h
Accenture (Fjord)	Group Director Fjord Milan	11/01	2.00 h
Adobe	Digital Transformation Consultant	02/11	2.00 h
	Business and Innovation Strategist	02/11	2.00 h
Altran	Senior Solution Manager	03/11	2.50 h
Boston Consulting Group	Digital UX/Service Design Strategist	06/11	2.00 h
	Executive assistant	06/11	2.00 h
	Partner and Managing Director	06/11	2.00 h
BTS Design Innovation	Principal	06/11	2.00 h
	Director	01/06	2.00 h
	Managing Director	01/06	2.00 h
Caffeina	Managing Director	01/06	2.00 h
	Founder & Operations Director	20/06	2.50 h
	Lead UX/UI	20/06	2.50 h
Capgemini Consulting	CEO	20/06	2.50 h
	Digital Service Design Agency	21/11	2.50 h
	User Interface Designer	21/11	2.50 h
Competence	Senior Project Manager	05/09	2.00 h
	Senior Project Manager	05/09	2.00 h
Continuum	Managing Director	11/09	2.50 h
	Strategy & Service Team Lead	11/09	2.50 h
Coppa + Landini	CEO	26/09	2.50 h
	Strategist	26/09	2.50 h
DEGW	Director, Consultant Architect	30/05	2.00 h
	Senior Architect	30/05	2.00 h
	CEO	30/05	2.00 h
Deloitte Digital	Service Design Lead	15/06	2.50 h
	Partner, Digital Transformation Leader	15/06	2.50 h
	Experience Design Director	15/06	2.50 h
Design Group Italia	Design Research Director	20/07	2.50 h
	Industrial Service Design Director	20/07	2.50 h
DINN Design	Chief Creative & Founder	12/07	2.50 h
	CEO & Founder	12/07	2.50 h
	Chairman & Founder	12/07	2.50 h
Doing	Head of Service Design	18/07	2.50 h
	Head of Client Directors	18/07	2.50 h
	Consulting & Strategy Director	18/07	2.50 h
dpeople (Vidiemme)	Founder & CEO	29/06	2.50 h
	Senior Digital Consultant	29/06	2.50 h
	Sales Account Manager	29/06	2.50 h
	CEO	29/06	2.50 h
Ernst & Young	Executive Assistant to Andrea Paliani	25/10	2.00 h

(Continues)

Company	Job Title	Date	Duration
	Managing Partner Advisory Services	25/10	2.00 h
Experientia	CEO	26/10	2.50 h
	President	26/10	2.50 h
	Business Development Officer	26/10	2.50 h
Frog	Executive Director User Experience	21/06	2.50 h
	Creative Director	21/06	2.50 h
Futureberry	CEO	05/09	2.50 h
Gaia	CEO	11/01	1.50 h
	Managing Director & Partner	11/01	1.50 h
	Envision Strategist	11/01	1.50 h
Great Pixel	CEO	24/10	3.00 h
HIT	Project Manager	07/09	2.50 h
IBM	iX Manager	20/10	2.00 h
Inspiring Software	Managing Director	06/10	2.00 h
INTESYS	Head of Design	22/09	2.00 h
	Digital Area Director & Partner	22/09	2.00 h
	Business Analyst	22/09	2.00 h
i-Seed	Business Development Director	20/09	2.50 h
Lenovys	Managing Director & Lean Master	05/06	3.50 h
	Innovation Master	05/06	3.50 h
	Business Development Manager	05/06	3.50 h
Logotel	Partner	20/10	3.00 h
	Partner	20/10	3.00 h
Marketing & Trade	CEO	19/06	2.00 h
Microsoft	Digital Transformation Advisor	21/11	2.00 h
Moviri	CEO	04/09	2.50 h
NTTData	Head of Digital Entity	12/10	2.50 h
P4I	Senior Consultant	09/10	2.00 h
	Senior Consultant	09/10	2.00 h
PwC Italy	Director at PwC Italy Experience Leader	26/07	3.00 h
	Customer Leader	26/07	3.00 h
	Partner	26/07	3.00 h
	Manager Design Thinker	26/07	3.00 h
Realtà Group	Chief Operating Officer & Partner	01/06	2.50 h
Reply Spark	Founder and Partner	05/09	2.00 h
Rina Consulting	Senior Engineer	06/07	2.00 h
	Business Manager	06/07	2.00 h
	Business Manager	06/07	2.00 h
Rokivo	Founder & CEO	16/10	2.00 h
Roland Berger	Partner	31/10	2.00 h
	Personal Assistant	31/10	2.00 h
	Managing Partner	31/10	2.00 h
Salesforce	Solution Engineer Director	31/10	2.00 h
SAP	Head of Global Business Transformation	30/10	2.00 h
SketchIn (+BIP)	CMO & Communication	07/09	2.50 h
	General Manager and Chief Strategist	07/09	2.50 h





(Continues)

Company	Job Title	Date	Duration
	CEO & Head of Design	07/09	2.50 h
Studio Volpi	Design Director	17/07	2.50 h
	CEO	17/07	2.50 h
VarGroup	Business Developer	19/09	2.50 h
	Public Relation and Marketing Manager	19/09	2.50 h
VRD Research	CDO & Managing Director	13/10	2.00 h

APPENDIX 2A

Interview protocol – general information

Company Profile

<p>Company Name –</p> <p>Founder –</p> <p>Foundation Year –</p> <p>Employees – (2015) – (2016) – (2017)</p> <p>Revenues (mil€) – (2015) – (2016) – (2017)</p> <p>Website –</p> <p>Address –</p> <p>Design Studios Strategic Consultants Technology Developers Digital Agencies</p>	<p>Date –</p> <p>Time –</p> <p>Address –</p> <p>N Interview –</p> <p>INTERVIEWERS</p> <p>INTERVIEWEES</p> <p> Name and Surname Job profile Email</p> <p> Name and Surname job profile Email</p> <p> Name and Surname Job profile Email</p> <p> Name and Surname job profile Email</p>
<p>Company Description (Introduction and Short history)</p> <p>–</p>	

Organizational Unit dedicated to Design Thinking

<p>Strategy and Experience of the Organizational Unit dedicated to Consulting Projects based on the Design Thinking paradigm</p> <p>–</p>	<p>Structure of the Organizational Unit dedicated to Consulting Projects based on the Design Thinking paradigm</p> <p>–</p>
	<p>Competences of the Organizational Unit dedicated to Consulting Projects based on the Design Thinking paradigm</p> <p>–</p>

Initiatives aimed at absorbing/ diffusing Design Thinking

<p>Initiative delivered for internally absorb/ diffuse the Design Thinking paradigm (Acquisitions, Training programs, Partnerships, etc.)</p> <p>Why? When? How?</p> <p>Title</p> <p>–</p>	<p>Initiative delivered for internally absorb/ diffuse the Design Thinking paradigm (Acquisitions, Training programs, Partnerships, etc.)</p> <p>Why? When? How?</p> <p>Title</p> <p>–</p>
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APPENDIX 2B

Interview protocol – offering

Offering: Architecture

NAME 1	NAME 2	NAME 3	NAME 4
Target -	Target -	Target -	Target -
Value Proposition -	Value Proposition -	Value Proposition -	Value Proposition -
Challenge and Scope -	Challenge and Scope -	Challenge and Scope -	Challenge and Scope -
% Annual Revenues (2017) -	% Annual Revenues (2017) -	% Annual Revenues (2017) -	% Annual Revenues (2017) -

Offering: Consulting Package 1 - Introduction

Typical Brief -	Typical Output -	Team Structure (Consultant and Client) -
Key Performance Indicators (KPIs) -		

Offering: Package 1 - Practices

Frameworks -	Phase 1 -	Phase 2 -	Phase 3 -	Phase 4 -	Phase 5 -
	Description (Inputs, Outputs, Practices, Tools) -	Description (Inputs, Outputs, Practices, Tools) -	Description (Inputs, Outputs, Practices, Tools) -	Description (Inputs, Outputs, Practices, Tools) -	Description (Inputs, Outputs, Practices, Tools) -