Role of designers in developing new products: an innovation turn in transformational economies

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Abstract

Purpose – The purpose of this paper is to present a critical literature review on design management.
Design/methodology/approach – The map of the field is based on the analysing the chain of associations between the papers (Latour, 1987). The strategy for this review is informed by the methodology described by Callon *et al.* (1986) on following the construction of the arguments. The first search was conducted in EBESCO and Web of Science looking for papers dealing with design management; "design management"; innovat* and design* in the management, including title, keywords and abstract. It resulted in 8,216 articles that were exported and downloaded in a database.
Findings – Five groups emerged: design as rational decision making, industrial design, managing as designing, design as proposals of new meaning and design as a network construction.
Originality/value – This paper maps the role of designers in innovation and design management literature. Design management is a variegated field of research, and the focus of this paper has been on product design in business and management literature. To begin with, the research philosophy which was inferred by analysing the preferred methodology in the papers belonging to five perspectives was analysed, and the ontology, essence, metaphysics delineated. Then, a map of the field of on the role of designers was proposed. The author concluded with a reflection of a possible research agenda in design management, focussing on investigating the role of designers in transformational economies, such as Vietnam.

Keywords Design process, Designers, Design management, Transformational economies
Paper type Literature review

Introduction

Design practices are increasingly generating debates among practitioners and academics, as the numerous reports (e.g. from the British Design Council and British Council) and streams in workshops and in management conferences demonstrate (e.g. innovation and product development conference; strategic management society; European group of organisation studies). The field of design management has progressively moved away from design being referred as competitive tool for industrial products (e.g. Walsh *et al.*, 1988) to become a tool for solving problems in the organisational, public sector and social context (e.g. Dorst, 2015). However, because of its wide range of uses, design is a general term (Heskett, 2002) and it has different definitions depending on the aim of the research: design can be researched as an outcome, as a process, or as a purpose (Ravasi and Stigliani, 2012).

Design embraces different areas, such as service design (Blomkvist *et al.*, 2011), interactive design, architecture, images and logo, software, engineering and technology, typography, fashion, arts, crafts and jewellery, engineering processes and structures (Walsh *et al.*, 1988). In this paper, I focus on product design.

Previous work of Johansson-Sköldberg *et al.* (2013), which critically looks at the design thinking and designerly thinking discourses. They find five different discourses of "designerly thinking" that have distinctly different epistemological roots: design and

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designerly thinking as the creation of artefacts; design and designerly thinking as a reflexive practice; design and designerly thinking as a problem-solving activity; design and designerly thinking as a way of reasoning/making sense of things; and design and designerly thinking as creation of meaning.

Design thinking and designerly thinking might be way to see how to increase the creativity of managers and with a set of tool box. However, as the authors recognise in the paper, the role of designers is not deeply analysed in these discourses, rather on the role of managers in the design process:

> To talk about design and leaving the designer out is like talking about musicians and leaving the music out (Johansson-Sköldberg *et al.*, 2013, p. 131).

Also, despite the increasing attentiveness in using the design construct (e.g. the editorial for the special issue in product design research and practice by Swan and Luchs, 2011), other systematic review studies in design and innovation management remain focussed mainly design processes and the role of managers, rather than the role of designers (e.g. Ravasi and Stigliani, 2012).

Furthermore, only few practitioner papers focus on the role of designers in creating societally new products. This research interest emerged from the analysis of the data in the field, and during the analysis phase it emerged how important was social innovation for designers in this ODA contest.

The paper proceeds as follow. First, I present the literature review on the role of designers; second; I present the methodology, followed by the discussion.

Third, I will discuss suggest possible research directions. By performing this map of the literature review, a gap emerged: there is very little engagement with broader issues such as the impact of design products in the climate change, and what actions designers could take to alleviate the consequences. Therefore, I suggest possible future research works that reflect on the role of designers in changing the meaning of production and consumption, and on the managerial implications of dealing with climate change and societal challenges.

Mapping the literature

Whereas Johansson-Sköldberg *et al.* (2013) are social constructivists, I am a social scientist driven by science and technology studies (STS).

My reflections on mapping the field are based on the ANT research works on mapping and visualising. Maps have the function of representing knowledge. In the last chapter of Science in Action, Latour (1987) explains the importance of mapping with the explorations in the seventeenth century:

> [t]he implicit geography of the natives is made explicit by geographers; the local knowledge of the savages becomes the universal knowledge of the cartographers […] [and] are turned into precise, certain and justified knowledge (p. 216).

I am building justified knowledge from the autochthones in design management (publications in the field), as it is rigorously constructed, but it could be otherwise (Latour and Woolgar, 1979): another researcher, mapping out other associations, could find out a different map of the field, as papers are the hands of the reader and are subjected to his/her interpretation (Latour, 1987).

Review method

The map of the field is based on the analysing the chain of associations between the papers (Latour, 1987). The strategy for this review is informed by the methodology described by Callon *et al.* (1986) on following the construction of the arguments.

The first search was conducted in EBESCO and Web of Science looking for papers dealing with design management; "design management"; innovat* and design* in the management, including title, keywords and abstract. It resulted in 8,216 articles that were exported and downloaded in a database. However, this search also provided articles that had little connection with design management, for example, informatics system design, design configurations in companies or papers in the field of supply chain/operations management. The focus was kept on the use of design for new products development/innovation management studies with a focus on product rather than services, in order to delimit the field. The research was then refined by reading the abstract and keywords and was narrowed to 280 articles in journals in the ABS list. Even if the ABS list is a discussable tool to assess the quality of publications, it gives an indication of journals in management, organisation and sociological areas related to business studies.

Since the EBESCO and Web of Science databases do not include a comprehensive list of books, Amazon, Google and Google Scholar were used to search for books on design management and management of design. Also in this case, the search produced a massive number of items that needed to be disregarded.

Then, I read the selected papers. I analysed their literature review and discussion to identify which authors were mobilised to construct the argument following Latour (1987): looking at the controversies in the paper, I looked for "friends brought in" (i.e. other mobilised papers to construct the argument).

As in Callon *et al.* (1986), I did not use the provided keywords, but I constructed themes that for each article. Parallel to that, I analysed the construction of the argument in terms of methodology, and the philosophy of research.

I coded in each paper the definition of design, the role of managers, the role of designers, how value is created and which are the most recurrent (most cited, described and analysed) technologies of managing/tools that designers use in each perspective.

Five groups emerged: design as rational decision making, industrial design, managing as designing, design as proposals of new meaning and design as a network construction.

The following table represents the perspectives based on their philosophical research method.

Table II summarises the conceptualisation – how each perspective was analysed, and reports the main findings of the five perspectives on design management.

First perspective: design as rational decision making

The first perspective, design as rational decision making, is based on the American pragmatism which believes in realism: the reality is out there, external to the individual, tangible, concrete and relatively immutable, ontologically prior to the existence of the single human beings (Burrell and Morgan, 1979). Realism believes that:

> […] empirical and experimental investigation is unintelligible in the absence of an external world, and human capacity intervene in that world and monitor the results of their action, it argues that the world is composed of objects, structures and causal or other powers, and that it is the job of the scholars to offer revisable theories or hypotheses about these. A distinction is made between the powers or the empirical (what appears in experience), the actual (actions that occur when power structures are activated), and the real (that which is there, those structures and powers, and whether or not this is visible or activated) (Law, 2004, p. 158).

This perspective is based on Simon's (1969) book, *The Sciences of the Artificial*. This is the reference that is often cited as the funder of the design management field (e.g. Hatchuel, 2001).

Design was traditionally a sub-topic of engineer studies. Simon (1969) raises for the first time the idea that design can become a science, and in particular, the sciences of artificial: produced by art and synthesised by human beings rather than by nature. Therefore, design can potentially be related to any discipline.

Designers are concerned with how things ought to be, conceiving and creating artefacts to reach certain goals (Simon, 1969).

Design is both a process of problem-solving rooted in the creation of new useful things, and processes for making decisions by designing the courses of actions (Simon, 1969). Designers start with the process of problem solving begins with the representation of the problem space and the representation of its solution. Managers make decision based on these representations, choosing an alternative among a number of presented ones, directed towards achieving organisational goals (Simon, 1976).

Designers need to know theories related to utility, control, and statistics, computational methods and algorithms for proposing optimal situations.

The design thinking is different from the engineer thinking, since it adds a creative component to the process of building ideas. As Simon described the design thinking process, which include defining the issues that need to be solved, the audience, and the criteria for pondering the choices, collecting examples to support the choices, weighting of the choices, ideating, prototyping, choosing through the process before described, implementing, learning by doing and learning from the mistakes.

Designers are employed in organisations to assist managers by reducing complex things to simpler interactions of their parts. Designers help to solve problems through the representation, visualisation, the appointment of the values of the solution, and increase the novelty, originality, taste and uniqueness of the ways of approaching problem solving (Simon, 1969).

This approach of design contributed to the development of design thinking (Johansson-Sköldberg *et al.*, 2013). Design thinking is a stream of research in innovation believing that everyone can be a designer (Brown, 2008) by learning the inductive, deductive and abductive reasoning (Dunne and Martin, 2006). However, this is a limiting way to look at problem solving: contemporary problems are open, complex and networked (Dorst, 2015). Dorst (2015), instead, suggests a fourth method: framing. In this problem-solving process, designers know only the outcome, which is the desired value, and they work backward framing the problem adopting or developing a frame that is new to the problem situation.

Another stream of research within this perspective is design theory. Design theory is a formal model of design reasoning, which inspires forms of organising collective design activities, characterised by the role of knowledge in design, the design process and the design organisation (Le Masson *et al.*, 2011). This stream has been mostly studies in engineering setting. In design theory, the designer is part of a collective process: design is a collective action, the outcome of a collective enterprise, rather than the effort of a single person (Hatchuel *et al.*, 2005).

Second perspective: new product development process in industrial design

The second perspective is based on positivism. Positivism looks for explanations and predictions of what happened and what could happen, hunting for causal relations between the different constituents to build up models. Reality is tangible, not transcendental. The aim of this epistemology is to discover laws and rules, models of synthesis, short descriptions of the reality in the organisations, to predict the future phenomenon, and to give useful information for human beings, which are ontologically superior to non-human beings.

The authors, anchoring their arguments on Simon's book, clarify that design is not simply an aesthetic add-on or an ornament but a tool to produce value as driver for innovation (e.g. Walsh *et al.*, 1992; Cooper *et al.*, 2003; Veryzer, 1993). This perspective, based on industrial design, is mainly researched in UK manufacturing setting.

Borja de Mozota (2003) suggests that design comes from the Latin *designare*, which is translated in English both as to design and as to draw. The noun design, in English, has retained its dual meaning: on the one hand, it refers to a plan, a project, an intention, or a

sketch, a model, a motive, a decor, a visual composition, a style; on the other hand, it indicates a process to give form and order (Ulrich, 2011). Design process is a problem-solving activity (Perks *et al.*, 2005). Therefore, design is also intended as a way of including designers in developing new products (Walsh, 1996; Hertenstein *et al.*, 2005), and to make the company more profitable by presenting superior value for the product (Randall *et al.*, 2005).

Designers work to humanise technologies (Borja de Mozota, 2003), and to address issues of use such as durability, efficiency, or convenience, and to consider the exploration and transformation of materials and the relative complexity or simplicity of the arrangement of forms (Roy *et al.*, 1997). Designers are also concern on how to enhance the sustainability, ameliorate the living conditions of human beings, create new values and meanings (Kristensen, 2004) and support local identities despite the globalisation (Borja de Mozota, 1998).

Industrial designers are among the several persons that participate in NPD, which is a simplified version of the stage-gate model diffused by Cooper (1990). They are trendsetters (Borja de Mozota, 2013), professionals working in multifunctional teams composed by people from engineering, manufacturing, and marketing (Perks *et al.*, 2005), gatekeeper or integrator of the customers' needs (Leonard-Barton, 1992; Bruce and Daly, 2007), and communicators in marketing campaigns for the products (Walsh *et al.*, 1988):

> More specifically, industrial designers focus on improving customer ease of product use and their graphic and aesthetic capabilities help to differentiate competitive product offerings and attract customers. These activities together with successful marketing campaigns enhance for customers the perceived product value, which in turn strengthens demand and/or justifies a relatively higher selling price, thus increasing sales revenue (sales) (Hertenstein *et al.*, 2005, pp. 5-6).

Designers are expected to meet the constraints that are given by managers (Hertenstein and Platt, 1997), and they are frequently asked to become active in managing the innovation process, by applying new ideas in practice of the form of new or improved products, services or processes (Bruce and Bessant, 2002). They can also act as knowledge brokers, bridging knowledge from one field to another to create radically new products (Hargadon and Sutton, 1997).

Designers can be both internal or external the organisation, which depends on the strategic choices of management (Bruce and Morris, 1994). They work to deliver value to the customers through a product which is distinctive, stylish, aesthetic, high quality, attentive to the customers' needs, but also that stimulates emotions, traits and personality (Norman, 2007). Designer can also work to reinvigorate products in mature markets, and communicate value to the consumer (Moultrie *et al.*, 2007).

Finally, designers keep a focus on maximising product performance with respect to customers' requirements, and minimising the variable costs of production (Ulrich and Ellison, 1999).

Third perspective: managing as designing

The third perspective, managing as designing is based on constructivism, which is:

> […] the claim that scientific statements or truths are constructed in a way that to a large degree (in some versions totally) reflects the social circumstances of their production […] Construction usually implies that objects start without fixed identities but that these convergences and so gradually become stabilised as singular in the course of practice, negotiation and/or controversy (Law, 2004, pp. 157-158).

This is the discourse that Johansson-Sköldberg *et al.* (2013) describe as "Design and Designerly Thinking as a Problem-Solving Activity".

According to Buchanan (2004) and Boland and Collopy (2004), design is a strategic discipline of management, founded by Simon, whose aim is to facilitate the relationship between people and objects, and between typologies of knowledge and expertise for

managing organisational operations, taking into account the critical importance of accounting, finance, human relations, strategic planning and visions, as well as the sociocultural context.

Constructing design in dynamic environments requires that information from diverse sources are integrated, that design options are identified, and that exploratory learning occurs with management of the ongoing organisation (Weick, 1993). Thus, design is not about filling a gap, but an opportunity to explore. As in the first perspective, designers help management in the decision-making process, which is most of the times based on improvising and has unintended consequences. In the book of Boland and Collopy (2004), managers are asked to observe designers to learn the design thinking to be more creative, thinking outside the boundaries. This learning needs to be translated into managerial processes, to facilitate their understanding in the changes in the structure, making sense of them, and encouraging people to generate novel, compelling and elegant solutions, grounded in decision making (Weick, 1993). In this perspective, the focus is not on innovation of a new product, but on how to better managing and designing of organisations (Boland and Collopy, 2004; Buchanan, 2004). Designers are considered inspirational figures for better organising.

The design of an organisation determines the distribution of resources and information, it possibility for managers to make and to implement timely, technically and economically acceptable decisions to be flexible and rapid in inserting technological changes in the organisation to increase the organisational efficiency (Weick, 1993):

> […] designing is synonymous with bricolage […] and the bricoleur is a thinker who makes creative use of whatever builds up during the process of world (Weick, 1993, p. 352).

The metaphor indicates that the managers act as bricoleurs, drawing and assembling organisational life from the raw material that is available to them, then using what they have at their disposal, so what managers do is very close to what designers do. Designers improvise as part of the decision-making process, choosing and implementing a good alternative (Boland and Collopy, 2004). Managers learn from them to create value for the organisation and society, as they need to connect with diverse kinds of knowledge and experts performing organisational operations, service activities, planning, relates with customers, suppliers, government, experts on social and cultural context of the organisations (Buchanan, 2004).

Thus, what managers do is very close to what designers do. Therefore, if managers become better designers, they can become better managers (Weick, 1993), with new ways of collaborating, of forming teams in organisations, and of approaching new problems (Boland and Collopy, 2004).

Fourth perspective: design as proposals of new meaning

This perspective focusses on radical innovation: design, if well managed, leads to radical innovation, through the process of design-driven innovation (Utterback *et al.*, 2006; Verganti, 2006, 2008, 2009; Dell'Era *et al.*, 2011; Buganza *et al.*, 2015).

The stream was initiated by Verganti based on Krippendorff's (2006) theories of the semantic turn in design, and translating them into developing innovations through design-driven innovation. In Johansson-Sköldberg *et al.* (2013), this perspective is referred as Design and Designerly Thinking as Creation of Meaning (rather than Artefacts). However, they focus predominantly on the work of Krippendorff. I will discuss the management stream initiated by Verganti. Verganti, differently from design thinking makes a very clear distinction between the role of managers and the role of designers. The management activities in this perspective are focussed on the identification and nursing of one or more visionary and knowledgeable specialists (designers). Managers are persons with a highly

differentiated knowledge (social, political, organisational, economic and technological), and they need to be able to create the conditions for certain technologies to arise and to identify the suitable designers able to connect with the firm and the market (Verganti, 2009).

Managers have to find the best designer for their organisation. The designer leads the innovation process. Indeed, the designer is the person able to understand the unmet needs of society. Design-driven innovation is defined as a process producing radical design:

> […] where innovation starts from the comprehension of subtle and unspoken dynamics in sociocultural models and results in proposing radically new meanings and languages that often imply a change in sociocultural regimes (Verganti, 2011, p. 387), leading to the development of new breakthrough innovations in products' meanings (Dell'Era and Verganti, 2010).

Design is composed of the product's aesthetic appearance and its functionality, the product's sense, meanings and social significance. Designers start the innovation process by exploring the ways in which communities of art, design and innovation are amalgamating and influencing to create radical and breakthrough products that delight the customers (Dell'Era and Verganti, 2010; Utterback *et al.*, 2006). Hence, a designer produces a successful design which conveys meanings for all the stakeholders who can move an artefact through its life cycle making it part of a social process. Verganti (2011) indicates that the term meaning is intended as the psychological and cultural reason why a product is chosen and used, stimulating both the individual motivation (psychological and emotional meaning) and the social motivation (symbolic and cultural meaning). Therefore, the designer involved in the design process delivers a product that has a unique combination of technology and market, and is meaningful for the customers (Dell'Era and Verganti, 2010). The designer leads the creative process which is a collective and networked research process of meanings and design languages (Buganza *et al.*, 2009; Verganti, 1999, 2006, 2008).

Meaning is intended as sense, as perception, as something that can be experimented. Meanings are not rooted and permanent, but they can change according to who participates because of their experiences.

The designer develops an output that satisfies certain needs which are still unmet and cannot be expressed by the customers. Designers understand them and make explicit (Verganti, 2009). In the design-driven innovation, ideas from designers are the main output of the design process (Verganti, 2009) and the company chooses the design that will be realised (Utterback *et al.*, 2006). The client (firm that commission the design) is seldom involved in the generation of ideas at the earliest stage of design.

The designers are specialists, key players in the radical innovation process, as they have the capacity of getting closer to users, understanding their needs and creatively generating ideas. Therefore, have to recognise and sense what is contemporary with their superior sensitivity (Verganti, 2008). They start with a proposal (Verganti, 2009), which is a vision about possible new product meanings that customers have not thought about but that they were waiting for (Verganti, 2006). Having graphic capabilities, they visualise the ideas to speed up the processes and improve the new product development (Utterback *et al.*, 2006).

Designers stimulate an innovation strategy in the company, based on an approach that foster the deeper emotional and symbolic side of products, innovating what products mean for the customers by bridging information from different parts of the wider network they are part of. Therefore, they act as language brokers by taking advantage of discrepancies in the level of knowledge possessed by groups, connecting unconnected expertise within a larger network. Designers are supposed to produce and present one or multiple radical design proposals from which the management can select and choose the one compatible with the management risk profile, the targeted market and the strategic orientations (Verganti, 2009).

Fifth perspective: managing design as translation

This perspective on design management is based on actor-network theory, a stream of research coming from STS. Even if this sociological approach is widely used in innovation studies, its use in management and design management is still limited (for notable exceptions, see Akrich, 1992; Telier *et al.*, 2011). The study of the reality construction, mobilisations, interessement process and translations, pillars of actor-network theory, can lead to a better understanding on how the design process emerge and is managed through its life cycle (Christiansen and Gasparin, 2016).

In this perspective, the design is defined as the outcome of the process of constructing things by translating interests and goals, enroling and mobilising actors (Gasparin, 2014). Design is an outcome emerging from a design process, a technical artefact in which the designers and other actors belonging to the socio-technical network are inscribing characteristics, values and behaviours (Akrich *et al.*, 2002b).

ANT has been defined as sociology of relations (Law, 1992) due to the believe that reality is existing in the relations, thus design is not a discovery momentum or an act of genius by a designer. If intended as a discovery moment rather than the work of the multiple actors, we might run the risk of eliminating all the work done by the actors in the socio-technical networks. Designers are involved in the process of enroling other actors, including workers, instruments, prototypes, inscriptions, machines and materials (Latour, 1987).

The design process is directed to the creation of the reality (the design), it is the process through which the design gains strength only by associating with others (Latour, 1984/1988). During the process, the spokesperson emerges, usually the manager of the design process (Christiansen and Gasparin, 2016). The spokesperson is an actor who is speaking on behalf of the allies, who recognise him/her as their representative in the network creating a stable network of human and non-human actors that are enroled across social, organisational and technical domains. In this perspective, the designer and the designed object are equally important due to the principle of generalised symmetry (Callon, 1986).

In STS and ANT work we find a particular stance towards the role of objects and as an accomplishment (Suchman *et al.*, 2002) and visualisation as a cascade of inscriptions (Latour, 1990). Designs are artefacts, which are moved from the periphery of traditional social science research to the centre of research work and are used to generate a broader understanding of how knowledge is produced and distributed, the nature and sources of expertise, and the social and organisational effects of the introduction of new technologies (Woolgar *et al.*, 2009). Artefacts are semiotic entities that are performative (Latour, 1987), and engaged in provoking realities (Muniesa, 2014).

More recently, STS researchers have engaged in research in which objects have been constituted as multiple and enacted in different practices and with a multiplicity of objectifying practices (Mol, 2002; Law and Singleton, 2005). This suggests interesting prospects in re-conceptualising and redirecting the investigation of artefacts from a singular process of construction through which an artefact's identity might become fixed or black boxed (as in early Latour) towards considering multiplicity of process and design.

Designers are initiating the design process (Telier *et al.*, 2011). Design process happens through translation, which is a process aimed at influencing relationships between the human and non-human actors to enrol and interest other actors to be in the network and to make it stable by solving struggles.

A translation:

> Mean(s) displacement, drift, invention, mediation, the creation of a link that did not exist before and that to some degree modifies two elements or agents (Latour, 1994, p. 32).

Designers are involved in a mishmash of decisions that cannot wait in an environment of complex changing markets and customer tastes, in which actions cannot be planned or

predicted in any mechanical way. Therefore, the designers work to interess, which means successfully getting others to support, interact and devote their energy and resources towards something (Akrich *et al.*, 2002a).

This would suggest that longer and stronger the translations are, higher the likelihood of the product to be accepted and to become successful. Translation facilitates also solving problems and struggles.

Discussion and possible research agenda in transformational economies

From the review, designers are problem solvers (perspectives 1 and 3), persons design new products that are aesthetically pleasant, cost efficient and able to transmit emotions (perspective 2), work collectively (perspectives 1 and 5) and are able to create radical new products by proposing new the meanings to the products (perspective 4). All the perspectives have sporadic researches on the issues of sustainability, corporate social responsibility. However, despite the positive attitude that designers should be concerned with designing sustainable products, it is not questioned how organisations are facilitating the engagement of designers in designing socially responsible products:

However, there is a gap in the literature of design management that needs to be considered:

(1) The literature in innovation and design management does not analyse the political and ethical implications of designers' processes, whereas the designers' practices are embedded in ethical practices (Steen, 2014).

(2) The literature on design management lacks reflection on wider societal challenges. Telier *et al.* (2011) discuss how designers are involved in social design to create a better future, which includes human and ecological reflections, but how can this be translated into implications for managers?

(3) The role of designers is not investigated in transformational economies like Vietnam.

Design and innovation management studies have not clearly explored the role of designers for redefining socio-political imaginaries, what can be done to alleviate the climate change due to the neoliberal capitalist dogma of throw-away culture and planned obsolescence. Design studies have recently become interested in the political aspects of repair (Rosner and Ames, 2014), but their implications for organisations and management studies are still unexplored. Concerning repairing as business model, Slack *et al.* (2013) propose Patagonia as case study of successful engagement with ecological issues. Patagonia is a design company selling out-door equipment that created a competitive advantage by offering their customers the possibility of repairing the Patagonia's clothes, if they get damage. However, still there are very few researchers of how the role of designers in transformational economies and their role in companies.

Conclusions

This paper maps the role of designers in innovation and design management literature. I have identified five perspectives with different roles and assumptions of the role of designers in the innovation process. Design management is a variegated field of research, and the focus of this paper has been on product design in business and management literature. This means that the literature on service design, public design, architecture, engineering, operations management, social projects has been excluded from the search.

To begin with, the research philosophy which was inferred by analysing the preferred methodology in the papers belonging to five perspectives was analysed, and the ontology, essence, metaphysics delineated (see Table I). Then, a map of the field of on the role of designers was proposed (see Table II). I concluded with a reflection of a possible research agenda in design management, focussing on investigating the role of designers in

	Design as rational decision making	New product development process in industrial design	Managing as designing	Design as proposals of new meaning	Design as a translation process
Philosophical tradition	Pragmatism	Positivism	Constructivism	Hermeneutic	Deconstructivism-semantic
Metaphysic	Realism	Functionalism	Sense-making	Metaphors and citations	Not a real metaphysic, but experimental metaphysics, as a method for investigating reality: looking at the connections
Ontology	Analysis	Design is an outcome of the stage-gate system and sold with marketing efforts	Subjectivism	Designers as interpreters and proposers	Symmetry between humans and non-humans
Essence	The essence is manifested in the complex systems	The characteristics of the design are proper of the object, they are the inner kernel, they can subsist *in potentia*, there is an élan	Managers are inspired by the designers, they are thrown in the organisations and they react creatively	Meaning	There is no essence in the actors, it lies in the relations
Substance	Systems designed for problem solving	Design object	Organisational structure-systems designed for problem solving	Discourse	Actors cannot be split into durable substances. There is no substance in the actors, as they are defined by the relationships

Table I.
Philosophical analysis of the perspectives

Table II.
Overview of the perspectives

	Design as rational decision-making process	Industrial design	Managing as designing	Design as proposals of new meaning	Design as translation process
Design definition	Design is the science for decision-making process, a process of problem solving	Design comes from the Latin *designare* and it means both to draw and to plan	Managing as designing means the monitoring, containing, and reversing of compounded abstractions	Based on this original meaning, one could say: design is making sense of things	Design is the outcome of the process of constructing things by translating interests and goals, enroling and mobilising actors
Design process	Rational decision making by selecting an alternative	Stage-Gate model	Design thinking	Creating a meaningful radical product	Enrolment, mobilising translating, the design process is directed to the creation of the reality (the design)
Role of designers	Planning courses of actions or artefacts	Stimulating creativity, problem solving, observation, interpretation, aesthetic judgement	Inspirational figures for managers	Understanding the unmet needs of society	The designer is one among the many actors that are working to construct the design; he is a macro-actor
Role of management	Creating and developing the decision-making process	Choosing the designer and the organisational structure	Idea generator who gives form to the new possibilities	Understanding sociocultural trends, deciding the selection of the designers	The spokesperson works for associating and disassociating features; works for enroling actors and participates at the translation process
Value creation	Process of reduction to declarative logic, optimisation process	Higher price, lower production cost, better company image, emotional, symbolic and relational value	Valuable and sustainable workflow, attention to competitors and changing situations	value is in the meaning	Value is built in the relationship and it is the result of the process of associating and disassociating features

transformational economies, such as Vietnam. Vietnam is a transformational economy, distinct from a developing, emerging or post-communist one, characterised by a recent history of violence and an ongoing single-party state. Vietnam is transforming by adopting market practices, changing the relationship between the spread of market mechanisms, changing companies' ownership, shifting from planned to market economy yet still subjected to political decision making. At this moment of transformation, innovation currently figures as a keyword for achieving a competitive advantage as a nation, in stark contrast to a history of solely investing in infrastructures, real estate and the establishment of mass manufacturing for foreign brands, typical of developing economies. The strategy of the Vietnamese Government is to move towards a democratic, open and innovative economy, as delineated in the strategy called "Towards Prosperity, Equity, Creativity And Democracy" (World Bank Group and Ministry of Planning and Investment of Vietnam, 2016). The Global Innovation index (Dutta *et al.*, 2016) reports that Vietnam has demonstrated a persistent innovation performance over the last few years. Therefore, I would encourage a development of design studies in transformational economies, as we do not know yet the role of designers in this transformational setting.

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