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Design Thinking as Innovative Management Method

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ABSTRACT: Business organizations are constantly looking for new managerial techniques and tools, to satisfy customer needs for new products, processes and services. Customer satisfaction is in the focus of contemporary organizations because of its great importance for performance and shareholder value creation. Design thinking has been recognized as innovative management method for product innovation and process or service improvement. In contemporary business organizations, design thinking is increasingly gaining importance because, on the one hand, it is directed towards customer; while at the same time it is managing multidimensional problems. As a new innovative management method, design thinking concept was created by studying the work of successful designers and applying their best practices into business world. Today, it is used in processes of innovation management, product development, and the improvement of customer relationship management. As design thinking is still a relatively new and insufficiently researched management method, the aim of this paper is to explore its role and development in contemporary business practice. In addition, in this paper we will describe the tools and techniques that are used in the process of design thinking. This study will contribute to entrepreneurs and managers in terms of understanding the design thinking concept, along with the possibilities of its application in business practice in order to improve performances and increase shareholder value.

KEYWORDS: design thinking, management method, innovative management, managerial technique, customer satisfaction

Introduction

Design thinking is considered to be one of the best approaches for innovation and creativity stimulation in business organizations, as well as for multidimensional problems solving (Gasparini 2015). The importance of this management method for solving multidimensional problems has been particularly emphasized in the literature over the last ten years (Brown 2009; Martin 2009). Liedtka & Ogilvie (2012) consider design thinking to be the best approach when: a person is at the center of a problem; there is a need for a deep understanding of individuals involved; there is ambiguity about the problem definition; there is a significant number of unknowns; there is simply not enough relevant data to carry out quality analysis. Contrary to the view that design thinking significantly influences business and society as a whole (Brown 2009; Martin 2009; Liedtka & Ogilvie 2012), there are authors who consider this management method a myth and a failed experiment (Norman 2010; Nussbaum 2011), which is partly the result of concept misunderstanding as well as a fundamental misunderstanding of its application in practice.

The design thinking concept was created by studying creative and successful designers and applying their best practices in the business world. In contemporary business environment, design thinking is a proposition of mindset and innovation

process, that is, a broad tool that entrepreneurs and managers can use to accelerate innovation activities and improve business results.
Besides its implementation in the process of innovation generating, design thinking is also an approach to solving multidimensional organizational and broader problems, through a continuous circle of idea generating, consequences predicting, testing and generating. Design thinking is a necessary skill that contemporary entrepreneurs and managers need to possess, in order to generate innovations and create a sustainable competitive advantage, and to provide answers to a wide range of multidimensional problems.

Theoretical background and development of design thinking concept

Design thinking originated during research in the 1960s with the goal of understanding the processes and methods used by successful designers to carry out design activities. Nobel Prize winner in Economics Herbert Simon laid the theoretical foundation for design thinking. Although he did not use this term, Simon is still a reference point for the design thinking literature, because he divided activities into two fundamental types, namely: the activity of creating new, and the activity of existing state (Simon 1969). In his book *The Sciences of the Artificial*, Simon identifies design as a type of knowledge in professions such as: engineering, management, or medicine (Simon 1969). In his most significant article on design theory, Simon states that design is not only about the technical education, but that design is a fundamental discipline for any liberally educated person (Simon 1969). He sees design as a rational set of procedures that provide answers to problems, whereby the problem-solving process itself involves disassembling into simpler parts, finding and selecting alternatives (Simon 1969; 1973). One of the first authors on the design thinking as a management method was Peter Rowe (1987). He studied architects and urban planners and, through case studies, described design professionals as individuals who rely on assumptions, not just facts, whereby the nature of problem-solving process shapes the solution itself.

There are numerous critical approaches in the literature concerning the design thinking concept as contemporary management method. Design thinking is relatively new concept in business practice and is considered confusing by some authors (Kimbell 2009), incomplete (Cross 2006), and inconsistent in application and articulation (Lourens 2015). Chick and Micklethwaite (2011) point to the need for critical and skeptical view at the new value brought by contemporary concepts, such as design thinking. Badke-Schaub et al. (2010), Kimbell (2009) and Nussbaum (2011) criticize the construction and definition of design thinking, and state the need for differentiation of design thinking from other terms. Kimbell (2011) and Lourens (2015) find the design thinking concept confusing, as it should be called design thinking, skills, and action. Furthermore, Kimbell (2009) considers the literature on which design thinking is based to be controversial, and Hassi & Laakso (2011) believe that more empirical research is needed to understand the concept and its applicability more clearly. Badke-Schaub et al. (2010) also find that the contemporary idea of design thinking is not based on empirical research. Another challenge is the fact that design thinking is often considered a general solution to problems that require very specific and contextual knowledge (Lourens, 2015). The literature states the need for a coherent definition of design thinking, with a view to understand its value (Hassi & Laakso 2011). Some of the critics of design thinking include the ambiguity of answering questions as when and how this management method should be implemented into practice (Dorst 2011). Walters (2011) states the importance of defining the role of each individual in design thinking process. Nussbaum (2011), Norman (2010) and Winchester (2011) deny design thinking as a

term, and consider creative intelligence a more appropriate concept. Because of all the above criticisms, Norman (2010) and Nussbaum (2011) consider design thinking a new myth and a failed experiment.

In addition to stated critical attitudes towards design thinking concept, a number of authors advocate this concept as a contemporary management method, and explain its application in business practice. Design thinking in management specifically builds on the business model innovation and the creation of sustainable business organizations (Bonakdar & Gassman 2016; Lehmann et al. 2015). Business model innovation is considered to be a key element in achieving the competitive advantage of contemporary organizations (Teece 2010). Lehmann et al. (2015) find that design thinking can be an approach that helps creating sustainable business models. More specifically, design thinking can help mitigate differences in understanding between team members, catalyze team agreement and disagreement, incorporate various aspects that are important to each team member, and more quickly integrate in-group, intergroup and external feedback. Also, this approach supports identifying weaknesses and defects, generating additional ideas, ranking different options for modifying a proposal. As a new field in management, design thinking does not have a unique definition, but different authors define the term differently. Design thinking can be defined as "discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity" (Brown 2009, 86).

While the term design thinking is created by academics who have explored the design discipline, today it is most commonly referred to the challenges of business organizations (Johansson-Sköldberg et al. 2013). Design thinking is often equated with creativity, as it allows managers to think more creatively. Johansson-Sköldberg et al. (2013) state that creativity represents only one part of managerial job. The challenge of applying design thinking is knowledge and skills of managers using this method, which are competencies acquired through continuous training (Johansson-Sköldberg et al. 2013).

Tools and techniques used in the process of design thinking

Design thinking in the context of job design within an organization can be presented through six key elements of new work experience: Identify real and compelling needs; Focus on values and values; Design the employee experiences, not just workflows and tools; Collaboration, co-creation, co-production; Sensory and emotional engagement; Creating a Narrative (Gruber et al. 2015). The key elements of design thinking process are: emphasis on collaboration; strong use of empathy; and the strong use of visualization and prototyping (Liedtka 2015).

Design thinking has the potential to reduce the cognitive biases that decision makers face (Liedtka 2015), whereby cognitive biases can be sorted into three categories. The first is directed at the inability of decision makers to look beyond them, and to avoid relying on previous experiences, current state and tendency to be influenced by specific factors. The second category refers to the inability of product / service users to articulate future needs and provide accurate feedback on new ideas, which complicates the development process. Finally, the third category refers to deficiencies in decision makers' ability to test the hypotheses they have developed (Liedtka, 2015; Mahmoud-Jouini et al. 2016).

Liedtka (2015) suggests that design thinking as management method can help decision-makers address cognitive biases. He highlights the following tools as design thinking responses to cognitive biases (Liedtka 2015):

- Visualization involves the use of imagery, either visual or narrative. In addition to traditional charts and graphs, it can take the form of storytelling and the use of metaphor and analogies, or capturing individual ideas on post-it notes and whiteboards so they can be shared and developed jointly.
- Ethnography encompasses a variety of qualitative research methods that focus on developing a deep understanding of users by observing and interacting with them in their native habitat. Techniques here would include participant observation, interviewing, journey mapping, and job-to-be-done analysis.
- Structured collaborative sense-making techniques like mind mapping facilitates team-based processes for drawing insights from ethnographic data and create a "common mind" across team members. Collaborative ideation, using brainstorming and concept development techniques, assists in generating hypotheses about potential opportunities. These tools leverage difference by encouraging a set of behaviors around withholding judgment, avoiding debates, and paying particular attention to the tensions difference creates in the process of seeking higher-order thinking and creating more innovative solutions.
- Assumption surfacing focuses on identifying assumptions around value creation, execution, scalability, and defensibility that underlie the attractiveness of a new idea.
- Prototyping techniques facilitate making abstract ideas tangible. These include approaches such as storyboarding, user scenarios, metaphor, experience journeys, and business concept illustrations. Prototypes aim to enhance the accuracy of feedback conversations by providing a mechanism to allow decision makers to create more vivid manifestations of the future.
- Co-creation incorporates techniques that engage users in generating, developing, and testing new ideas.
- Field experiments are designed to test the key underlying and value-generating assumptions of a hypothesis in the field. Conducting these experiments involves field testing the identified assumptions using prototypes with external stakeholders, with attention to disconfirming data.

In addition to primary analytical, critical thinking when making decisions, managers also need to enrich their competence repertoire with design thinking. Boland & Collopy (2004) consider that managers are decision makers, but also designers, whereby they must adopt a design attitude that implies analytical perspectives and methods. The design thinking approach has led to the creation of set of tools for managers that can be used in a variety of situations, such as post-acquisition and merger integration activities, strategic planning thinking, strategic networking, business model innovation, etc. (Liedtka & Ogilvie 2012; Mahmoud-Jouini et al. 2016; Bonakdar & Gassmann 2016; Liedtka et al. 2013).

Thinking design is not just about cognitive activity; it is also a collective organizational activity that involves the joint action of different actors, both internal and external. Hooge & Dalmasso (2015) find that a strong correlation between R&D, marketing, and design activities, as well as the formation of multidisciplinary teams, results in successful processes and innovative products. Meinel & Leifer (2015) state that design thinking is innovator based, and they believe that teams should be heterogeneous in different dimensions, such as gender, culture, ethical background, personality mix, nationality, education, etc.

Design thinking is part of an organizational culture, with the key elements being empathy, ideation, collaboration, and iteration (Rosenberg et al. 2016). The necessary elements to guide the organizational culture towards design thinking are: leadership tenure, with design thinking as a corporate priority; targeted infrastructure, such as the

innovation sector; own creative process that is appropriate to the nature of business, the resources of organization, and the current culture; a supportive organizational culture, which places an emphasis on openness to new ideas and reduces the fear of risk and failure of iterations (Rosenberg et al. 2016).

Application of design thinking concept in business practice

Design thinking (as an approach to solving business problems) is applied in business practice to manage innovation or to solve multidimensional problems, while relying on intuition and creativity as well as in-depth analysis. The design thinking process as a management method is considered to be a combination of micro and macro processes, whereby micro process is based on the principles of design thinking as a way of thinking, while macro process consists of key goals that manifest themselves in prototyping to meet defined needs (Brenner et al. 2016).

The application of design thinking can be realized through four basic stages: research, analysis, synthesis and realization, which can also be considered as a macro process (Kumar 2013). The stated process stages are nonlinear and iterative, meaning that some (or all) of the stages will be repeated until the final solution is reached. Within these stages, seven modes of design thinking and innovation process can be defined: sense intent, know context, know people, frame insights, explore concepts, frame solutions and realize offerings (Kumar 2013). The stages and modes of design thinking process are given in Figure 1.

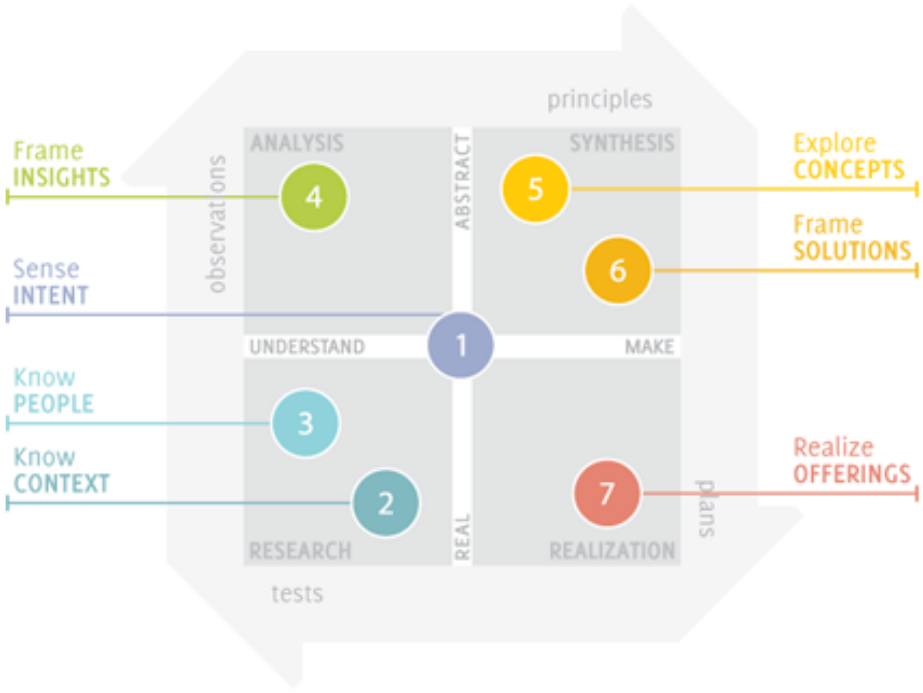

Figure 1. Seven modes of design thinking
Source: Kumar, V. (2013). 101 Design Methods: A Structured Approach for Driving Innovation in Your Organization. John Wiley & Sons

Sence intent. This mode involves looking at the external environment, all the changes happening in business, technology, society, culture, policy, and others. The effects of these changes on business and innovation opportunities are examined.

Know context. Involves looking at market opportunities, organization strengthens and weaknesses, competition and complementors, government policies and regulations and their effect on business and innovation opportunities.
Know people. In this mode it is necessary to understand the needs of end-users and other stakeholders. Traditional market research techniques are used, as well as observational and ethnographic research methods.
Frame insights. This mode is a sublimation of previously collected data. In doing so, patterns that point to untapped market opportunities or niches are determined.
Explore concepts. Involves structured brainstorming, identifying opportunities and exploring new concepts. New concepts include new products, services, communications, environments, brands, business models, and other. Based on the capabilities and new concepts of the business on the results from previous modes, they will be realistic and reasonable.
Frame solutions. Evaluation of new concepts and identification of ones that bring the most value to stakeholders. Stakeholders mean users - consumers and business organization. The concepts are organized into useful categories and hierarchies in this mode.
Realize offerings. Evaluation of new concepts, with the purpose of their implementation. It is necessary to confirm that new concepts add economic value to business organization. In this mode, a business case is prepared, with clearly defined stages of implementation.
Successful implementation of design thinking in business organization requires adherence to certain principles, some of which are given in Table 1.

Table 1: Six principles of design thinking application in business practice

Place customer emotion—identified through customer experience/ journey, at the heart of the design process and don't just use customers as starting point	Suspend judgement and generate unconstrained ideas that create the best experience for customers	Keep it "Lean and Agile" – aim for smallest viable solution that generates customer value	Look to competitors and new technologies/ startups for inspiration and direction as well as for potential partners and providers of services	Focus on reaching the fastest path to experience to enable rapid testing with customers	Continuously iterate designs based on customer feedback and increasingly refine solutions—experiment before freezing requirements

Source: Genpact (2017). Design Thinking innovation for business processes and operations

Design thinking is a creative way of thinking within business organization where the whole team is involved, engaged in solving a business problem. This problem solving management method is focuses on the customer experience, as opposed to the product or service itself. For example, the question that design-oriented managers would ask is not how to make an attractive vase, but how to bring the scent of flowers into the home. This mindset allows creating a broader picture and finding the best solution for those whom the service and product are intended - users. Design thinking, as an approach to business development, is especially recommended for start-ups. In order for design thinking to arrive at the highest quality solution, it is necessary to bring together employees from different fields, e.g. architects, designers, engineers, economists and marketing professionals. In this way the creativity and success of design thinking is

emphasized, which involves recognizing problems and creating solutions from different perspectives.
Three factors are important to the success of design thinking in a business organization: (1) multi-disciplinary decision-capable teams; (2) design thinking process workflow; and (3) flexible work space (Plattner et al. 2011).
Multi-disciplinary teams means a heterogeneous team of five to six people, with different professional qualifications and functions in organization. Team members need to be open to different perspectives, which is the basis for creating a creative working atmosphere of design thinking. The team strives for concrete results, paying attention to the perspective of each member.
Design thinking process should include several stages to facilitate planning, team and production activities (Plattner et al., 2011), as shown in Figure 2.

1. Understand. Introducing team members to the problem.
2. Observation. Building empathy and understanding the people and situations that a given problem relates to. The goal is looking at the link between the problem and its context and finding the hidden needs.
3. Define the point of view. Defining a problem that involves critical thinking and interpreting skills to bring a large amount of information to the core.
4. Ideation. Generating ideas, the ideas of an individual build on the ideas of other participants, thus defining an action plan to solve the problem.
5. Prototyping. The prototype development phase is about bringing ideas to life, sharing with others, and testing them out on the market.
6. Testing. The goal of testing is to get feedback on the idea, generally is done on the appropriate target audience.

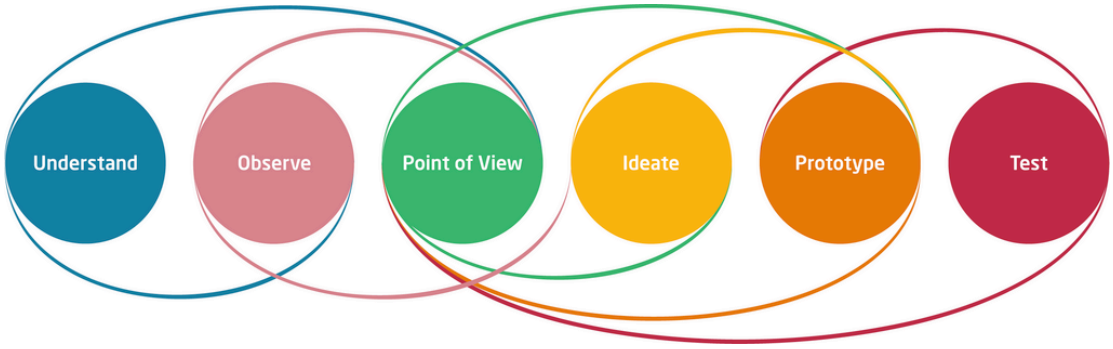

Figure 2. Stages of design thinking process
Source: Plattner, H., Meinel, C., Leifer, L. (2011). Design Thinking. Berlin: Springer

Flexible space. Application of design thinking concept in business organization involves the optimal conditions in the form of adequate office space. This allows for easier interaction between team members. A business organization must provide a flexible and well-equipped space, which includes movable furniture, whiteboards, presentation surfaces, materials for prototyping design ideas (Plattner et al., 2011).

Conclusion

Design thinking, as approach to business problems solving, has been recognized as new management method used in various organizations. The concept itself was created by studying creative and successful designers and applying their best practices in business

world. Today, it is used in business organizations as mindset and innovation process, as management method that can be used to accelerate innovation activities and improve results. Design thinking has strong potential to reduce cognitive biases of decision makers, with the process itself having several key stages. The concept involves, among other things, collection of data regarding end-user needs, generating ideas and testing prototypes. This problem solving management method is focuses on customer experience, opposed to the product or service itself. This mindset allows creating a broader picture and finding the best solution for those whom the services and products are intended – end-users.

Research shows that the success of design thinking is largely dependent on the capabilities of team members involved in decision-making process. Design thinking is a management method that contemporary business organizations and managers need to use in order to generate innovations and create sustainable competitive advantage, and provide answers to a wide range of multidimensional problems. Given that design thinking is still a relatively new and insufficiently empirically researched concept, this management method can be further explored within several research directions, such as: the role of design thinking in generating radical and incremental product, service and process innovations; redefining the business strategy and strategic transformation of organization; redefining the business model; the process of business organization growth; the role of team composition in the success of design thinking.

Design thinking, as approach to business problems solving, is applied in business practice to manage innovation or solve multidimensional problems, and it is necessary to rely on intuition and creativity and in-depth analysis at the same time. In order for design thinking to arrive at the highest quality solution, it is necessary to bring together employees from different fields, e.g. architects, designers, engineers, economists and marketing professionals. In this way the creativity and success of design thinking is emphasized, which involves recognizing problems and creating solutions from different perspectives. The paper provided an overview of design thinking development, clarified the role that concept plays in contemporary business practice, and provided an overview of tools and techniques used in the design thinking process and implemented in business practice. The paper contributes to entrepreneurs and managers to understand more clearly the design thinking concept and the wide range of its applicability in contemporary business practice, as well as to the scientific public interested in further studying this management method.

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