DESIGNERS AT WORK: An introductory study on the practice of Design Thinking in Brazil

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ABSTRACT

Innovation has been largerly pointed as source of competitive advantage. Among several questions which involve the subject, naturaly multidisciplinar, one seems not to be easy to answer: 'how to innovate?'. In this context, the recent practices named Design Thinking have not only contributed to conceive, but also to implement innovative ideas and projects. In order to understand its theoretical scope and its implementation peculiarites, diverse strategy and innovation strategies, mainly the Design Thinking concept, were analized along the study. Later, four sênior professional from companies specialized in innovation which have used the approach to develop innovative solutions for their clientes were interviewed. It was noticed that the methodology contributes to address problems in which there is multiple interested parties and whose optimal solution combines creativity and logics, taking in account the focus on human being the solution´s technological and financial feasibility.

Keywords: *Inovation, Design Thinking, Consulting*

1. INTRODUCTION

The economical scenario over the last 20 years has been marked by profund and fast changes in organizations' dynamics and in applied technology, both in manufacturing and services. For Becattini (1999), the new competitive scenario suggests that given the current pace of changes and demand saturation, success tends to be determined more by the innovating capacity than by productivity. Mozota (2003) considers that it was in that scenario that the design started to be understood as a factor capable to leverage results by means of innovation. Sundbo and Gallouj (1998) conceptualize innovation as a change in a given business by adding a new element or recombining current elements. Zaltman et al. (1973) argue that, while all innovation implies change, not every change involves innovation. The wider concept of innovation is that related to "novelty", which is not necessarily means "originality", but necessarily brings a new concept, technology, process or material in the company context. The variety of alternatives, the complexity and the uncertainty inherent to decision-making led organizations to recognize on design a possibility of articulation of multiple stakeholders needs. Brown (2009) states that the Design Thinking (DT) can be understood as an approach which appropriates to itself the mental process of the designer, targeting problem solving. It is developed to specifically meets customers needs, given technology and commercial boundary conditions (price, conditions of supply, target audience, provisioning technology, among others).

This article objective is to discuss the practical approach on *Design Thinking*, deepening the concepts under which it is structured, steps commonly taken on projects that have it as a method of development, the tools commonly used and the applicability of the methodology. The methodological approach was based on literature revies and interviews with practioners form three business consultancy companies that adopt DT on its projects.

2. DESING THINKING FUNDAMENTALS

There is no widely accept definition for DT, but there are certain consensus around the understanding that the essence of the process lies on thinking like a designer and work with strict user-centered focus. For Brown (2009) DT definition involves understanding the needs of customers and discover the best business alternatives to tackle them, taking into account the constraints of capital and business strategy. The approach consists of an intense investigation into how the product creates value for consumers, what they like and what they don't like about the way they interact with the product. This would include packaging, the way the product is sold and supported by complementary services. Vangala et al. (2012) complement the concept by stating that the human-centered approach shoud be carried out by a multidisciplinary team, that interacts with consumers during several parts of the development. Designer work in a multiphased and non-linear process, which emphasizes constant interactions and facilitates the constant learning.

The "intense investigation" on DT comes from the reconciliation of two traditionally dissociated business currents: rationality and creativity (Martin, 2009). Rationality is based on powerful control systems and quantitative analysis and it considers personal judgement, actors' biases and environment changes as enemies; on the other hand, creativity understands that quantitative analysis is "the first step" to limit innovation capacity, making organization inflexible and resistant to changes. Author's basic arguments (Martin, 2009) are that mastering one of the approaches is not sufficient and that organizations that achieve competitive advantage are those which successfully combine holistic creativity and analytical capacity.

Companies live a trade-off between reliability anf validity, and in general make decisions prioritizing reliability, that is, avoind risk from innovation, when, in fact, should stabilize the decision between reliability and validity in order to innovate in products and services without losing focus on productivity (Sato, 2009). According to Sato (2009), DT can be described "as a systematic method which optimizes values for customers with benefits for company" (Sato, 2009, p. 40). Companies that develop products and services without a value creation methodology, focusing on reliability only, usually adopt a 'technology push' approach, in which the focus is on on production – with few investments stimulating demand. On the other hand, companies excessively focused on value creation may harm its offer´s profitability, whether by increasing costs, or by quality standards fluctuation, given that the market can be changeable. In that context, DT would be a manner to balance value for consumers and benefits for company. Morevoer, Martin (2009) affirms that DT process involves thinking of how a question "should be", in order to compare it with how it is indeed. Consistent with this view, Cardon and Leonard (2010) define DT as a methodology that allows the understanding of complex problems and proposes feaseble solutions. These solutions would involve practical approaches (prototypes), so that innovation maturing process happens in an experience-based**,** empirical way (Brown, 2009).

Prototyping can be basic understood as "a human-centered innovation process which emphasizes observation, collaboration, fast learning, idea vizualization, concept building, and analysis, in order to influence innovation and business strategy" (Lockwood, 2006, p.11).

In line with the reasoning "as it should be", Martin (2009) argues that only the abduction process might work to fully apprehend or understand a business phenomena. Vangala et al. (2012) understand that this is the logic that differentiates the designer in the corporate world – the pronounced bias to analytical thinking as a working tool – stating that this is the base of DT. Authors challenge corporate standards based on abductive reflexion, or, in other words, discuss the reasons occasionally taken as unquestionable facts: "the designer, thinking in a abductive way, constantly defies his standards, doing and undoing, makes new conjectures and translates them into opportunities for innovation. It is this ability to extricate the Cartesian logical thinking, which causes the designer to remain 'outside the box'" (Vianna et al., 2012, p. 13). Still following this same logic, Martin (2009) explains that the DT abandons the 'I think' paradigm, seeking to rely on facts, data and research, without, however, inhibit the creative thinking.

The "knowledge hopper", in this context, favours the understanding of the designers' mental process, remarkably on the balance between logic and creativity (Martin, 2009). The first phase of the hopper consists of "mistery", where phenomenon perception occurs and agent's curiosity awakes. The second phase is the "heuristics", in which the development of a basic set of rules which organize the phenomenon is started, that is, the mistery becomes explicit. Recognising the progress inside the hopper, Martin (2009) alerts that heuristics does not assure results, but "has a vague promise that, preserved initial conditions, using this set of rules may bring an expected result and, on average, it is better than not using it" (Martin, 2009, p. 11). Heuristics development can can lead to a more complex set of interrelated rules or "algorithm" in the terminology of the author. This step encloses documentation and guarantee of result, given initial conditions: "algorithms are certified production processes. They ensure that, in the absence of an intervention or complete anomaly, one following the sequence of steps will obtain a particular outcome" (Martin, 2009, p. 11).

The hopper suggested by Martin (2009) can be understood as a learning process that seeks to balance logics and creativity: starting from phenomenon observation, creativity and abductve logics are used in order to develop a heuristics and its recursive use and doucmentation leads to the proposirion of an algorithm. Martin (2009) finally highlitghts an important aspect of the balance between the two currents: the perception of the right time to return to the beginning of the hopper and produce new formulas. So, the *design thinker*, with his/her reality observation and understanding behaviour, must be willing to restart the process of the knowledge hooper, aiming to turn his/her solution robust and adequate to the surrouding conditions. Amongst design thinker characteristics, one highlights empathy (ability to view the world from multiple perspectives and imagine solutions that meet the explicit or latent needs), integrative thinking (ability to see the main aspects, often contradictory, of a problem, besides the analytical process), the optimism (a potential solution is better than existing alternatives, no matter the challenge involved), curiosity (ability to ask the right questions and explore limitations) and collaboration (interdisciplinary capacity) (Brown, 2008).

2.1 Design Thinking Core Characteristics

A remarkable feature of DT-based innovation process is its human centered approach. Brown (2009) deepens the meaning of that concept to illustrate three fundamental behaviours, that mutually reinforce themselves: *Insight*, *Observation* and *Empathy*.

About "Insight", Brown (2009) compares the paradigms of design and pure analysis: "while in the paradigm of analysis the problems get solved with numbers, in the paradigm of the design the solution is not hidden, waiting to be found, but it is in creative work of the team" (Brown, 20009, p. 41).

In regard to “Observation”, Brown (2009) suggests that sucess comes from observation quality in opposition to the number of hours spent on the process. Moreover, Bown (2009) suggests that the choice of case to be observed affects dramatically the process final result. In this sense, it is advisable to look for extreme cases, that is, consumers or users who use the product or service in limit of its specifications. According to the author, in those cases there is a greater likelihood of learning and discovering. Brown (2009) still highlights that the observation process requires an important designers characteristics that helps, primarily, to understand issues and, secondly, to strengthen the creativity needed to generate ideas: use of analysis and syntesis. The author conceives analysis as the capacity to fragment complex problems for better overall understanding, and synthesis as the colective act to aggregate diverse parts generated in the previous phase and develop ideas, concepts and, finally, new products or solutions. Both reasoning have the same importance and are fundamental to the process of alternative creation and decision making. Sato (2009) highlights that the *design thinkers* range from analysis to synthesis, always balancing the tangible factors (business feasibility and available technology) and abstract (appeal to consumers). Proper balancing occurs from experience and empathy.

“Empathy”, for Brown (2009), may be the single most important designer behavior, once it deals with the moment in which information and humans (users) are connected and a possible ideal solution emerges. Empathy means to "borrow" people´s lives to "see with their own lenses". The first stetp to generate new concepts is to understand the way the object of study is perceived today by the agent. The objective is to observe the phenomenum as it occours, but through the lens of the agent. Brown (2009) highlights that the designer must be capable to extrapolate from individual cases to general, in order to recommend an economically feasible solution.

With regard to the structuring of potential solutions, Brown (2009) argues about the importance to make them tangible, leaving the traditional written and numeric languages and using drawings and low resolution propotypes, mainly because mistakes and route changes identified early in the process prevent expensive anf time consuming changes in the future.

Vianna et al. (2012) argue about prototyping, relating three levels of fidelity with levels of situatedness. For the authors, levels of fidelity refer to how the prototype is detailed and its closeness to the final product and situadness refer to the test environment of the prototype. The levels of fidelity range from “low” (conceptual representation similar to idea), passing by “average” (representation of idea aspects), reaching “high” (representation very similar to the idea). The levels of situadness are: “restricted” (controlled environment), “general” (any user, any environment), “partial” (final user or final environment) and “total” (final user in final environment). Still according to authors, prototyping is useful to reduce uncertainties of the project and it allows continuous learning from successive improvements. In this sense, authors argue that the sooner one start prototyping, the greater the chances of learning and success of the project (Figure 1).

2.2 Design Thinking Phases

There are distinct designations for different DT phases. This topic aims to identify practical elements on how the process occurs in each of the generic phases that lead to innovation: Inspiration, Ideation and Implementation. Brown (2009, 2011) states that the HCD (human centered design) approach consists basically of: Inspiration (hear, observe, understand and investigate the problem under several points of view), Ideation (create alternatives solutions based on the information raised from the field) and Implementation (continuous refinement of solution through prototyping and the learning processes carried out during the implementation). A summary of this approach is presented on Figure 2.

For Vianna et al. (2012) the approach is divided into Imersion (subdivided into Preliminar Imersion and Deep Immersion), Analysis and Synthesis, Ideation and Prototyping. Authors still suggest that this is not a linear process, since it emphasizes learning, and may involve repetition of phases already travelled until the adequate solution is obtained.

2.2.1. Immersion

The first phase is defined as the "moment [in which] the Project team approaches the problem context, both from company's view and final user's view" (Vianna et al, 2012, p. 21). The initial aim of this phase is to limit design challenge, the initial point of the process. Accordin to Brown (2011), the challenge must be translated through user's perspective, instead of be seem under technology, product or service functionality; it must be broad enough to allow unexpected discoveries and restricted enough to be manageable. Moreover, the challenge must be expresses with sentences using verbs that express action (such as create, define, adapt) or questions such as "how to...?". There is a consensus that the success of the approach depends on the use of multi-disciplinary teams. This strategy is suitable to address complex problems, once it uses a blend of different experiences and knowledge to make it ease the ´view under different persectives`; other recommendation is to define a space dedicated to team meetings, in which information and ideas obtained throughout the process can be gathered (Viana et al, 2012; Brown, 2011).

As tools to be used in this phase, Vianna et al. (2012) propose the Re-framing, the Exploratory Research and Desk Research, preliminar phases to the one called "deep dive" by Brown (2011), occasion in which the Project team "dives" in field to closely understand and observe users reality.

"Re-framing" is "to examinate unsolved problems or issues at a company under different perspectives and diverse angles, allowing the deconstruction of actors (stakeholders) beliefs and suppositions and to break their thinking patterns, helping them to change paradigms and, with that, take the first step to reach innovative solutions." (Vianna et al, 2012, p. 24). The approach can be related to Brown's proposal to develope a beginner mental model, in order to abandon the concepts already established (Brown, 2011).

After defining design challenge, Brown (2011) suggests that all affordable knowledge shall be gathered. That survey can occur only inside designers team or to it can be spreaded to customers. A possibility is the Desk Research, method in which secondary data is collected by research in websites, books, magazines, blogs, articles, among other available sources (Vianna at al, 2012).

The deep immersion starts after limiting the design challenge (preliminar immersion). It basically consists on observation in the field and interview with users (Brown, 2011). Etnography is a fundamental element in Inspiration phase, once it is expected new ideas may arise from on site observation of how consumers use, adapt, accept or reject the object of study.

Some interesting interview techniques in this investigative process are to do it on the spot, register the interview through pictures, objects and other physical evidence; ask respondents to draw or use pictures to show underlying and sentimental aspects; use the model of the "five whys" seeking to understand the reasons behind the answers and "think aloud", that is, ask to interviewee say what he/she is thinking as ideas cross his/her mind (Brown, 2011). Other useful tools for the development of empathy are "A Day in the Life" and "Shadow" (Vianna et al, 2012). The first is to "put on the shoes" of the user, simulating live in their context. The second is tracking user journey over a period. Brown (2011) explains the usefulness of these tools suggesting that the observation of people in their environment provides valuable information eventually not articulated in interviews and other forms of data acquisition.

After deep immersion, the Project team reunites again to divide the practical learning and ellaborate a commom image of the object of study.

2.2.2. Create

Ideation is to exhaustly discuss insights seeking to solve the design challenge, better limited after deep immersion. Basically, it is the time to analyze information, to understand subjacet aspects, to organize information and to sumarize the raised knowledge. Accroding to Brown (2011), this phase consists of translating the research into a unit of strategic guidelines and tangible solutions, based on logic and creative thinking.

For that, Vianna et al. (2012) propose the use of Personas, User Journey and Blueprint, among others. In all cases, the process begins by sharing observations and experiences in field. This sharing could be done from storytelling [as suggested by Brown (2011)]. This phase's tools will help to organize information and to identify standards.

Personas consist of archetypes, fictional characters, in which the synthesis of behaviors captured in the field are observed. Vianna et al. (2012) suggests that personas should be created with distinct profiles, with the most significant characteristics of the population under analysis. Brown (2011) recommends the creation of frameworks to better identify relationships and to provide a holistic view of the situation. Some examples are the "User's journey", that encompases the stages of the relationship established between the user and the product or service, and the "Blueprint", a matrix that visually represents the whole system of interactions between agents. These tools are used in co-creation workshops and brainstorming sessions, using both sides of the brain (Vianna et al., 2012). Kelley (1999) suggests that the discussion should occur in an orderly fashion, without, however, disturbing the creative process and that before decision, all ideas must be listened; this meeting dynamic is called "focused chaos" by the author. Brown (2009) draws attention to the importance of divergent and convergent thinking within the development group. In his vision, divergent thinking is the only one capable of generating new ideas, since the condition of disagreement the discussion tends to expand. Conversely, convergent thinking is a practical means to decide about the existing alternatives. During brainstorming sessions, it is advisable to encourage ideas that go beyond the incremental logic, without which one cannot bring brand new aspects to the discussion and eventually obtain an idea to a radical innovation.

Once the ideas are expose, the group will discuss ways of prioritization, which will serve as a basis for the development of the prototypes. As examples of prototyping, Brown (2011) proposes the construction of physical models, series of images and drawings to reproduce the experience and process of use of the service or product, staging – mainly to simulate the emotional experience – and diagrams linking spaces, processes or structures. In this step you should get feedback for learning, developing more of a prototype to allow comparison, test each one of them in different environments where conducted field research and define clearly which questions you want to answer (Brown, 2011; Viana et al., 2012). In addition, Brown (2011) emphasizes the importance of maintaining neutral during the presentation of the prototype as well as be ready to adapt the prototype and solicit ideas to users after the tests.

2.2.3. Implementation

This is the phase where the solution implementation is planned, taking into account fundamentally the financial and technological aspects (Brown, 2011). Initially one must develop a sustainable revenue model assuming the definition of the value proposition, the target price of product or service, the method consumers will pay for it. This process involves the discussion on the relationship with the consumer and on the value for each stakeholder (Osterwalder, 2004). After this phase, Brown (2011) proposes a reflection on the internal factors, such as the internal capabilities required to deliver the solution, the distribution channels and key potential partners, in line with Prahalad and Hamel's theory on organizational competences (Prahalad and Hamel, 1990).

After the solution dialogue, Brown (2011) proposes a solutions flow planning, with the main goal of understanding how the organization can capture value with each one of them. Bown (2011) classifies the innovations suggested on "solution flow planning" as incremental, evolutionary and revolutionary. This classification can be related to Kim and Mauborgnes's (2005) and Schumpeter's (1982). This phase also includes the elaboration of an implementation plan, listing the steps needed to develop each idea and sketches of schedules and other project management tools. Aligned to Martin's (2009), Brown (2011) also proposes to develop a learning and follow-up plan. Such a work would involve the understanding of the context (similar to what is done at the Immersion phase), collecting feedback to evaluate plan evolution and, if necessary, its refinement. A set of project metrics should be designed to assist the team assessing the impact of the proposed solution and occasionally support new design challenges to respond better to business demands.

3. METHODOLOGY

Given the objective of this study and considering that Design Thinking has limited penetration in the corporate environment in Brazil, authors decided to use qualitative methods for understanding the fundamental

characteristics and stages of the practical approach of DT by business consulting companies. Data were collected through interviews with business consultants that are exeperts in the use of the DT, seeking to compare theory and practice, as well as to understand the difficulties and challenges inherent to the process. It was also held the discussion of a hypothetical case to better understand the mental model of a design thinker facing a new design challenge.

Lima (2008, p. 118) states that "the interview can be defined as a meeting between two or more people in order that one or more of them can obtain data, information, opinions, impressions, interpretations, placements, testimonials, or evaluations about certain subject". Interviews were conducted with three specialized business consultancies in innovation whose approaches are based on Design Thinking (Chaos Focused, Live|Work Brazil and MJV Technology and Innovation). Interviews occurred between April and May of 2013, with consultants who played the role of project leaders. Four professionals were interviewed and the interviews lasted, on average, two hours. The interviews were recorded to facilitate the registration and organization of the information gathered. Two of the partners from Chaos Focused, one of the founders of Live|Work Brazil and a senior consultant of MJV Technology and Innovation were interviewed. The Consultants were named A, B, C and D in order to ensure the confidentiality of information and opinions. The choice of professionals took into account the practical experience gained in consulting projects and academic background.

(i) Interviewee A: Mechatronics Engineer (Polytechnic School from University of São Paulo), with international stage at ParisTech; researcher of C-K Design Theory and theories of innovation. Master student at Polytechnic School from University of São Paulo in Design services and a member of the São Paulo Futurists Group.
(ii) Interviewee B: Bachelor of Business Administration from University of São Paulo, with large experience in strategy and business modeling; the interviewee has won several prizes in business creation and business cases competitions. Member of IDIN, the interviewee works with design and social innovation.
(iii) Interviewee C: Industrial Engineer and Product Designer, specialized in Design of Services, interviewee has more than 10 years of experience with DT. One of the founders and Directors of Live|Work, interviewee is the author of the book (in Portuguese) Design Thinking Brazil (2012), Campus Elsevier Publisher.
(iv) Interviewee D: Bachelor in Design from the University of State of Rio de Janeiro (UERJ), with specialization in Media Design at the University of Potsdam (Germany), and a master's degree in Arts, Digital Media and Trend Monitoring by the University of Bremen (Germany).

Interviews were based on a protocol designed considering the literature review (please refer to the Appendix for the protocol).

4. RESULTS ANALYSIS

During the interviews it was noticed strong adhesion between the practice and the theoretical precepts of DT. Interviewee A explained that the "human being" cannot be confused with the "customer", this just one of the users of the company's products or services. Interviewee stated that client involvement in the process is crucial, but should not be taken as the ultimate truth, exactly the way he/she understands the reality. The key lies on what is behind that and this is the trigger to generate user-driven innovation - "understand what the person wants without necessarily get 100% of what he/she said".

Interviewee B was reluctant to adopt the term "methodology" for DT, because he believes that the term conveys the impression of rigorous procedure and "step by step". The understanding of the interviewee is that DT refers to an approach, with a series of tools and concepts that are applied on a case-by-case basis. In this approach, the phases mentioned were empathy, collaboration and experimentation – directly related to the steps proposed by Brown (2011).

Interviewee C stressed that "being human-centered" means to understand the needs and views of people who are demanding the project, which will be involved in the project and that are part of the context of the project: "(…) and these impressions are not only our impressions, but from those who are demanding the project, from those who will be involved in the project and form all the context around it", concluding that "only then we can extract a robust solution". In addition, the respondent mentioned that the collaboration is central in the process – it is in a collaborative environment that new ideas are generated; on prototyping phase, he argues, the human factor must be central as well. Interviewee C also mentioned that in addition to the consumer and the service provider, the people who somehow can be influenced by the service must be represented, raising several examples related to supply chain and service provisioning.

Interviewee A explained that DT approach seeks to develop the best possible experience for consumers considering profitability and technological feasibility. In the same line, Sato (2009) proposes the concepts of

validity and reliability and defines DT "as a systematic method that optimizes value for consumers with benefits for the company" (Sato, 2009, p. 40). Brown (2011) sustains that HCD is a process that takes into account wishes and needs, financial and technological feasibility.

In relation to the DT particularities, Interviewee A brought up other alternative methodologies such as KCP (Knowledge, Concept, Propose), Triz, and Lean Start Up. He stated that the strengths of DT are its approach of designer as a thinker ("almost a philosopher"), its visual communication approach to demonstrate ideas, the composition of heterogeneous groups and the communication emphasis to ask the right questions. Interviewee C compared the methodology with the design process, commenting that the difference of the DT in relation to the design process is the high intensity of the human centered approach and the higher degree of empathy in the process.

When asked about the applicability of the methodology in the service sector, interviewees were unanimous confirming their viability. With regard to the creation of prototypes in the service sector [characterized by intangibility and Kotler (2000) emphasizes], Interviewee A stated that tools such as storytelling, cartoons, comic books, models with Lego, theatre or videos are tools that can be used in prototyping phase; Interviewee B suggested 2D prototypes as ways to build low-cost prototypes. Both statements converge with suggestions proposed by Brown (2011).

Interviewees A and B stated that consumer involvement can occur in several steps and is fundamental in the observation phase and during insights generation. Consumer involvement can be carried out in workshops, in various forms of research, and during the actual use of the product or service. On the other hand, one caveat is that final consumer should not participate in "process intelligence", i.e. despite being involved in different moments of the process, users should not be invited when the alternative solutions are been discussed and the team has already a good understand of user issues.

With regard to suggestions that may drive innovation using DT, Interviewee A recommended that the facilitator empathize the articulation of "crazy ideas" in order to reduce the natural inhibition. The same Interviewee also suggested that the facilitator should "evangelizes" the team to the strengthen the investigative process and to generate a great number of ideas. Empathy is also mentioned by Brown (2009) as the key approach.

Interviewee C shared a tip derived from practice: Manage the project "with your team and with the client". In addition, "we have seen that lead the project along with your client has helped a lot (...); you and your client are coauthors (...) and this partnership creates value in a way that cannot be measured". The involvement of different stakeholders is the main suggestion of Interviewee C.

Regarding the management of the process, for example in a workshop, Interviewee C mentioned the advisable separation of ideas and the concepts behind the ideas, as a process of analysis and synthesis, in order to develop innovations and lead the group to a solution.

Finally, another suggestion mentioned by the Interviewee C is to highlight the learning from mistakes, since, according to the respondent, most companies simple don't do.

4.1 Phases of the Process and Used Tools

Interviews also explored how to develop consultancy processes based on DT. In synthetic terms, the phases are as follows:

a. Image or problem conceptualization
b. Observation
c. Presentation and Field reports
d. Brainstorming for alternatives
e. Synthesis
f. Prototyping
g. Learning and conceptual maturation
h. Refinement of prototype
i. Implementation plan
j. Final communication

In the phase of Image or problem conceptualization, research-desk, collective questionnaire, structured interviews with employees or consumers, existing knowledge and snowball were the tools cited by interviewees. The collective survey consists of a preliminary meeting with the client in order to better understand the issue to

be addressed. The already existing knowledge is related to the pursuit of pre-existing customer knowledge about the issue in order to start from a little more advanced position. Finally, the snowball consists of the word-of-mouth research aiming to find an expert on a subject related to the main issue, i.e., each element of the group ask for support within their own network who, and from those people the process is repeated in the search for a super-expert on the issue at hand.

In the phase of Observation, interviewees cited the "extreme case", but it was also mentioned by respondents that there are cases in which the observation happens with common cases. Tools such as workshops with consumers and enterprise users, snowball, shadow, and "a day in the life" were also cited. This last tool aims to emulate one regular day in the life of the user in order to understand the perceptions on the spot when the effective interaction with the product or service happens. The shadow is a process where the researchers follows the consumer or the user target in his/her natural behavior when using the product or service. Photographs and videos are used as ways to register the project.

In Presentation and field reports, brainstorming sessions are the primary tool, as well as the use of the a mindmap, drawings, blueprints, and personas. Interviewee A stated that these reports are conducted internally by simplicity. The use of Post it notes in workshops with customers can occur, but one of the interviewees said that depending on the profile of the client, this form of visual thinking can "take away the seriousness and confidence of the process". The mindmap is a way of organize graphically ideas and reports brought from field experience. The brainstorming, according to Interviewee A should be conducted with operational rules of conduct, such as "don't interrupt your colleague", "let the flow of ideas occur", "defer judgment", "encourage crazy ideas". The Interviewee B stated that the synthesis process occurs naturally from the reasoning of the members of the Group; Interviewee stated also that consensus should be ideally reached, but, given limitations of time and the dynamics of the project or the workshops, voting may be required.

Interviewee A brought the concept used in the book Lean Startup which states that as soon as the product or service is tested, the better for the entrepreneur ("Minimum Viable Product"). In this sense, the idea is that the prototype should be done and tested as early in the process as possible, to facilitate learning and minimize risks. This same vision is also proposed by Kelley (1999) and Brown (2009). In addition, Interviewee B suggested the idea of creating low-cost prototypes to test ideas. So both converge with the concept of Minimum Viable Product. In regard to the amount of prototypes in a single project, Interviewee A said that for those phases in which the client is involved, ideally two prototypes are created, but internally the team can created a bigger number, but always focusing on learning and process toughening. On the other hand, interviewees were unanimous in stating that each project can require different amounts of prototypes and refinements and, furthermore, limiting factors as time and resources tend to simplify the prototypes.

Finally, the plan of implementation can vary significantly depending on the consultancy and the scope of the project. However the basic proposal is to identify the order of precedence of the ideas generated (which should be tested first, in view of the scope and sequence of development of the project), and then verify the plan feasibility. The target for the final communication of the project in general is the professional who demanded the project, although in some cases it can be more comprehensive, involving also operating levels.

4.2 Applicability of DT

All interviewees responded positively to the question about the use of the DT as a method for developing innovations, considering it a technology to redesign the value proposition approach, the relations with customers, the vitality of revenue generation and a good way to balance internal resources and strategic partners. This technology becomes, according to the Interviewee B, even more prominent when it comes to services: Once the service is fundamentally an experience associated to the solution of a problem, any modification of the experience becomes an important source of value creation (or destruction).

When challenged to drive, hypothetically, an innovation process using the approach, a design challenge was set: to develop a service franchise (a bar) focused on class C entertainment. Interviewee C proposed understanding initially what would be the value proposition that could be offered to the class C consumers as a differentiator and, subsequently, understand the underlying aspects of class C and what is the relationship that the audience establishes with the bar. All respondents proposed the implementation of research-desk, i.e. prior investigation about the context and people involved in the business (consumers, bar owners, employees), best practices, and trends of light franchises - franchises with lower restriction of activity, allowing the franchisee to adapt some processes and offers to the own needs.

Whereas the "entrepreneur is the central figure of the business" Interviewee A proposed an investigation into the reasons that would lead an individual to open the bars of the franchise (entrepreneurship by chance or necessity), the infrastructure required to the opening (many of them could be extensions of entrepreneurs' homes) and the life cycle of these bars. Interviewee B suggest a research around what would drive bar owner to open a franchise and what restrictions he/she eventually have seen in the current franchise models. Interviewee C suggested to use the "shadow" tool to observe the interaction of class C subjects at the bar, with the waiter, among others or "a day in the life" assuming the role of the owner of the bar to reflect on his/her actions and difficulties. He also suggested an analysis of the constraints of the project. All interviewees proposed structuring a workshop with the target audience to better understand the "humans" involved in the process. These workshops could be held according to a number of approaches – depending on the public participant it could occur in the bar environment itself or in a closed section. Interviewee A argued that if business focus were São Paulo, it would be interesting to carry out such sections in different regions of the city, since it could have different "bar cultures".

In the phase of Ideation, Interviewee A brought some ideas as what he called the "little boxes" model and a microcredit model. With regard to the model of boxes, the idea to be stressed is to offer the franchisee product options to combine (like different types of foods, breakfast, among others) that would be obtained during the research phase and elaborated over the already existing features in these establishments. Still at the stage of ideation, Interviewee C proposed a co-creation workshop specifically to generate ideas. He also suggested the structuring of a self-service bar – a very innovative approach for Brazil. Workshops would be structured with consumers and bar owners. The decision to combine the different stakeholders or to work with them separately would be performed depending on the purpose of the workshop.

In the phase of Prototyping, Interviewee B proposed carrying out simulations with different timmings when there is interaction between the parties (franchisor, franchisee, consumers, employees). This could be held in a closed environment, such as in a workshop, or even in the bar. Interviewee A, deepening the idea of "little boxes", proposed different combinations that could be tested by consumers and such tests could also be conducted in different regions of São Paulo. Interviewee C proposed structuring prototypes tested them separately: how would the tables should be, accounts logs, cups, among other elements.

5. FINAL REMARKS

Based on the literature review, one of the fundamental aspects of DT approach is the appropriation of the designer mental model (careful observer of the human) and the application in the business environment in order to solve complex but delimitated problems. It was observed that the methodology is strong to address problems in which there are multiple stakeholders and whose optimal solution will not be achieved solely by logic, but by the combination of creativity and logic, through continuous learning and through empirical testing of ideas in order to refine them, and effectively innovate in meeting customers needs. It was noticed that despite the centrality in human, the technological and financial feasibility of the solution to be offered in the market are fundamental restrictions.

The field research helped deepen understanding about the role and the profile of the design thinker, as well as identify the connection between DT approach theory and practice. Additionally, it has confirmed the DT applicability as a methodology for developing innovations, supporting the literature that describe the DT as "essentially a human-centered innovation process that emphasizes observation, collaboration, fast learning, visualization ideas (...)" (Lockwood, 2006, p. 11). The research results have also led to understand the effective use of DT in consulting projects, as well as revealed the importance of using a structured approach in terms of practical-theoretical bases (observation, empathy and prototyping), but at the same time flexible in terms of allowing successive iterations to refine the ideas.

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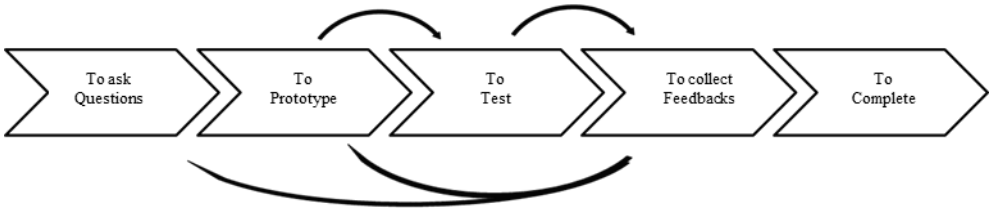
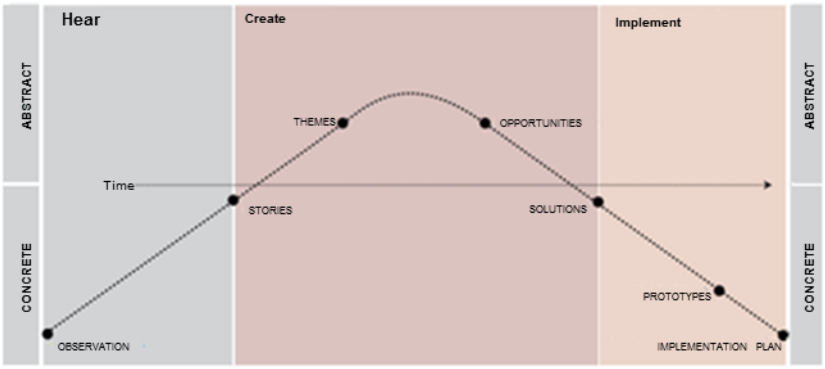
Figure 1: Learning by Prototyping



Source: Vianna et al. (2012, p. 124)

Figure 2: *Human Centered Design* Process



Source: Brown (2011, p. 8)

Appendix –Interview Guide

Question	Authors
1. Design Thinking is known to be a human-centered methodology. In pratical terms, what does it mean?	Sato (2009), Brown (2009), Martin (2009)
2. What does differentiate Design Thinking from othe innovation methodologies?	Sato (2009), Brown (2009), Martin (2009)
3. In case of applying it to services, is there any phase which differs from the application to industry? What does it differ?	Brown (2009), Martin (2009)
4. Do you include end users in the process?	Brown (2009), Martin (2009)

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5. In which moment are they involved?	Brown (2009), Martin (2009)
6. How do you perform the prototyping process?	Lockwood (2006), Brown (2009)
7. What are the weaknesses of the methodology that require attention from the facilitator of the process?	Brown (2009)
8. What are the recommendations/control points to conduct the process?	Brown (2009)
9. Do you believe that the methodology can be used in business model innovation? Business model "consists in the definition of business strategy and organization of the structure and operations of the company in order to create value for stakeholders" (Amit; Zott, 2012).	Brown (2009)
10. Is there any step that differs from the application to product or service?	Brown (2009)
11. Have you conducted an innovation in business model or applied DT for business model generation?	-
12. Imagine a design challenge was to develop a franchise that would be at a retail store (Bar) focused on Class C. How would you see yourself driving this process to obtain a competitive advantage in the market?	-
13. How would you see the prototyping process of that new business model?	-
14. Give examples of cases on the application of the methodology in business models.	-
15. Give examples of the cases on application of the methodology in services.	-
16. Give examples of results obtained with the application.	-

17. In the methodology applied by you, which are the basic phases included in the projects?

Phase	Questions
( ) Image formation / Problem	Which tools did you use?
( ) Field: Observation / Etnography	How does it work? How do you define the "extreme case"?
( ) Presentation and Reports on Field Experience	How is it structured the presentation to the Group? The process is open to contributions from other participants?
( ) Brainstorming for raising solution alternatives	The group formed for the project is heterogeneous? How is formed? How is the facilitator of the project determined? Do you encourage "wild ideas"? Are there rules of conduct? Give examples.
( ) Bottleneck of the alternatives	How does the process happen? Discussion? Vote? Consensus?
( ) Prototyping	How to build prototypes in service business? Who test them?
( ) Learning and Macturing the Concept	
( ) Refinement of the Prototype	How many prototypes are built on average?
( ) Implementation Plan	Which aspects are involved on the plan? Which is the level of detail delivered in the plan?
( ) Final Communication	In general, to whom the process result is communicated?

18. Which tools are used in this process?

( ) Post Its	( ) Brainstorming	( ) Simulation in Field
( ) Wild Ideas	( ) Dynamics	( ) Interview with Collaborators
( ) Vote Ideas	( ) Photography	( ) Interview with Consumers
( ) Drawings	( ) Videos	( ) Others. Which ones? _____