Design Thinking vs Co-Création :

Une étude comparative de deux méthodes d’innovation¹

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Design Thinking vs Co-Création: a Comparative Study of Two Innovation Methods

Abstract:

While many papers have studied innovation methods based on design thinking and co-creation, little research has compared them. Given the increasing popularity of these methods, one may wonder whether one approach or the other leads to innovations which are more innovative and consistent with market needs. Based on an in-depth case study, we show that user-oriented approaches lead to fewer operational results, but offer a founding framework useful to shed light on use patterns. We also observed that some of these methodologies are more appropriate when introduced at a specific stage of the new service development process.

Key-words: Co-Creation, Design Thinking, New Product Development
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Introduction

Co-creation and open-innovation have been announced as a new value paradigm in which the firm no longer acts unilaterally, but together with external partners or customers (Chesbrough, 2003; Prahalad and Ramaswamy, 2004). This trend emerges together with the shift from firm-centric to consumer-centered approach in the innovation process (Prahalad and Ramaswamy, 2004a, Vargo and Lush, 2004). As in the open-innovation process where companies call on external partners to develop their R&D innovative potential, more and more service companies are integrating external expertise, such as design or consumer knowledge, to enhance service innovativeness. While many papers have studied innovation methods based on design thinking and on co-creation, little research has been conducted to compare these methods. Clearly, these two innovation methods are quite different in essence. While design thinking method contributes to create value through in-depth user observation, co-creation method aims at creating value through user interaction. Both, however, are user-centered, aimed at creating value though experience and fostering innovations that go beyond the internal corporate perspective while favoring product differentiation and competitive advantage. Given the increasing popularity of these approaches among academics and companies, one may wonder whether one approach or the other leads to different types of innovations that are more consistent with market needs, and that reshape markets and product meaning. One may also wonder to what extent these two approaches can complement each other and whether the use of one approach is more appropriate than the other depending on the new service development (NSD) process stage.
The paper is organized as follows. In the next section, the literature review shows that the integration of a consumer perspective is essential in NSD and can be enhanced by both co-creation and design thinking methods, especially through the User-Oriented Design (UOD) approach. The specificities of these two approaches and their contribution to innovation are analyzed. We then present our methodology based on a qualitative in-depth case study at a major telecom operator and internet provider. After presenting the results, comparing the methodologies and their outcomes, we discuss them and underline the limitations and managerial implications of the research.

1. Theoretical Framework

1.1 User Innovation and Value Creation

The co-creation method focuses on the mechanism to create value through the interaction between firm and customers (Prahalad and Ramaswamy, 2004a; Payne, Storbacka and Frow, 2008) that is also called “value-in-use” creation (Payne, Storbacka and Frow, 2008; Grönroos, 2011). More precisely as Prahalad and Ramaswamy’s (2004b, p.8) suggest, “co-creation is about creating an experience environment in which consumers can have an active dialogue”. Consumer can co-construct personalized experience even if the product is the same. Yet, co-creation is not about outsourcing activities to customers such as product design or to proceed to mass-customization that increase product choice but not capitalize on consumer’s unique desires and preferences (Prahalad and Ramaswamy, 2004b).

Different approaches can be adopted in order to implement co-creation. When using this approach, companies can ask customers about their opinions, desires and needs, but also aim to capitalize on their problem-solving and creative skills (Füller, 2010). Either companies choose to integrate customers very early in the process from idea creation to communication or com-
panies choose to integrate consumers later in the development process to keep the lead on idea
generation (Vernette and Tissier-Desbordes, 2012). Choosing customers specific attributes is
therefore crucial to enhance new product success (Grüner and Hombourg, 2000). In the idea
generation phase, firms can resort to lead users, i.e. avant-garde consumers who anticipate fu-
ture needs that will shape and influence the market offering in the coming years while increas-
ing new product success (Von Hippel, 1986). Companies can also refer to innovators commu-
nities (Franke and Shah, 2003) or to customer network of actors which favors the innovation
of leading companies enabling them to be more imaginative when devising their value propo-
sition (Cova and Salle, 2008). Last, with the emergence of digital marketing, more and more
companies are capitalizing on virtual co-creation and crowd-sourcing all along the NPD pro-
cess to observe, test and develop new value propositions with customers (Füller, 2010).
Co-creation is therefore a means not only to develop more innovative propositions but also to
stimulate positive reactions from consumers both in terms of brand image and in terms of fi-
nancials. The literature suggests that using the co-creation method has many advantages. First,
literature shows that customer participation improves the effectiveness of the new product de-
velopment process (Fang, Palmatier, Evans, 2008) while influencing product innovativeness
and speed to market (Fang, 2008). Second, research that focuses on customized products
shows that co-design experience significantly influence perceived global value (Merle, Chan-
don and Roux, 2008). Last, customer participation seems to favor an enhanced perception of
the firm, a willingness to recommend the firm to others, as well as a higher purchase intent
and willingness to pay (Schreier, Fuchs and Dahl, 2012).

1.2 User Observation and Value Creation
Design-thinking approach is a human-centered innovation process which aims at discovering
unmet needs and opportunities to convert them into demand and create value through custom-
er experience (Brown, 2010; Lockwood, 2010). This innovation method is based on applying designers’ methods to solve problem, especially management issues, through a process based on the following steps: inspiration, ideation and implementation (Brown, 2010).

Understanding users’ needs is therefore crucial in this innovation process, especially in the early steps to identify what the users really need even though they cannot ask for it. Many designers therefore develop “empathy” towards consumers through in-depth visual observation and ethnographic research techniques (Leonard and Rayport, 1997). This specific approach, also called User-Oriented Design (UOD), helps to collect insights by getting close to the users and their needs (Veryzer and Borja de Mozota, 2005). It is a way to positively affect idea generation and product superiority (Veryzer and Borja de Mozota, 2005). Thanks to their creative skills, their divergent thinking and their problem-solving approach, designers are then more likely to identify new solutions that will lead to new product offers (Brown, 2010). Moreover, thanks to the combination of their capacity to visualize concepts, plans and ideas and their ability to represent these ideas using different tools such as sketching or prototypes, designers contribute to making tacit knowledge become alive. This helps to make communication more efficient, enabling teams to focus on a tangible production (Utterback & al., 2006; Brown, 2010).

Designers also have the ability to interpret and address emerging lifestyles and social trends which helps them create products that generate meaning and emotion (Dell'Era and Verganti, 2010). This creation of new meaning contributes to create value that relies on the experience of consumption rather than on product characteristics (Verganti, 2006). Strengthening the unique set of meanings embodied in the brand also fosters uniqueness and desirability for consumers (Ravasi and Lojacono, 2005).

Many research underlines the positive link between design management and firm performance (Gemser and Leenders, 2001; Hertenstein, Platt and Veryzer, 2005; Chiva and Alegre, 2009).
Design helps to strengthen product differentiation and increase purchase intent (Kotler and Rath, 1984) while enhancing consumer delight (Bloch, 1995; Chitturi, Raghunathan and Mahajan, 2008). It enables companies to improve the fit with market needs while conceiving unique products and services that create value (Hoffman & al., 2007) and many service companies are looking to improve their customers’ experience and enhance their service design by resorting to design (Cova, 2004).

Moreover, calling on external design agencies in the innovation process is also a way of generating more radical innovation than in-house or mixed approaches (Von Stamm, 2003, Perks, Cooper and Jones, 2005, Abecassis-Moedas and Benghozi, 2012). Since they reside outside the boundaries of the firm, external designers bring fresh ideas and knowledge (Dell’Era and Verganti, 2010). They are less hampered by political and internal rigidities while being relatively autonomous.

1.3 Integrating consumers in the new service development process

Human-centered approaches appear to be essential when dealing with experiential services that are services that focus on the experience of customers rather than just on the functional benefits of service delivered (Zomerdijk and Voss, 2010). Moreover with the emergence of the service-dominant logic (Vargo and Lush, 2004), marketing is moving away from the traditional producer-centric perspective of service innovation and emphasizing the importance of integrating consumers in the NSD process (Perks, Grüber and Edvardsson, 2012).

This integration of consumers helps companies gain a better understanding of their needs and therefore favors service development success since it helps to create additional value for both service providers and customers (Edvardsson & al., 2008; Gröñooss and Helle, 2010). Yet up to now, the typical new service development (NSD) process only integrates customers during the testing phase. Defined as the overall process that moves a project from the idea generation
through to launch (Cooper et al., 1994), the NSD process is based on the following stages: concept creation, analysis, detailed design, and launch (Froehle and Roth, 2007). Contrary to NPD process, NSD process is less likely to include manufacturing stage. Crucial phases are concept generation and detailed design (Griffin, 1997). It is built on a formal procedure for generating and evaluating new service ideas, a drawing-board approach for service design, and a new services testing phase that involves customers (De Brentani, 1991). In terms of the NSD process, research shows however that customer involvement throughout the process has a positive effect on innovation speed, which has an indirect effect on competitive superiority and sales performance (Carbonell, Rodriguez-Escuerdo and Pujari, 2009).

1.4. Comparison Criteria

To integrate users in the NSD process, both methods - co-creation and design-thinking- can help to create value. The first thanks to the formal involvement of the consumer either from the outset or at the end of the process, the other thanks to an in-depth observation and understanding of their needs from the beginning of the process. Both methodologies help to improve the front-end of the NSD process by identifying consumers needs (Vargo and Lush, 2004). They are both based on a dynamic, non-linear process, capitalizing on prototyping and aim at creating value through experience.

Yet, to identify whether these two innovation methods differ in terms of processes and outcomes when applied to an NSD process, comparison criteria have to be determined. Importance of cost and time to market are both raised by NPD and Open-Innovation literature as major criteria to evaluate projects (Cooper and Kleinschmidt, 1005; Howells, Gagliardi and Malik, 2008). Open-Innovation literature also tends to focus on criteria such as the importance of learning effects and the importance of supplier’s commitment (Howells, Gagliardi and Malik, 2008).
Building on this theoretical framework, the aim of our research is thus to identify how these two customer-oriented approaches differ in terms of processes and outcomes when applied to an NSD process. It will also contribute to analyzing whether the use of one approach is more appropriate than the other depending on the NSD process stage.

2. Research Methodology

2.1. Case selection and research setting

Since this research focuses on the analysis and comparison of the process and the output of two innovation methods applied to the very same situation, a single case study with embedded units of analysis was considered to be particularly appropriate (Flyvbjerg, 2006; Yin, 2009). Moreover, having the opportunity to study a unique and rare case also justifies the use of a single case study (Yin, 2009). The case was selected from the information and communication technologies sector, specifically one of the major French telecom operators and internet providers. In the context of always on web access available everywhere, the issue of entertaining, educational products and services that allow children to learn and play at the same time appeared to be a major objective for this company. Yet, while innovation in this field usually comes from a new technology or a new product, this company decided to adopt a new approach by focusing on innovation by usage to create a unique experience. This company was therefore looking for new concepts for edutainment tools, that is entertaining, educational products, and offered the rare opportunity to conduct a comparative study of co-creation and design thinking methods.

To gather innovative insights for developing new edutainment tools while better understanding consumer expectations regarding young people’s learning experience, this firm decided to launch three different innovation methods simultaneously based on the same initial brief. The
first two were related to design thinking. First, they worked with a design consultancy, recognized for its user-centric innovation approach rooted in ethnography and human sciences (UOD approach). Second, they collaborated with students from a design school, asking them to create new products (design thinking creative approach). Third, they used a crowd-sourcing web platform to post questions and gather innovative ideas from creative consumers. These insights were then used in beta testing with the online innovation community of the firm (co-creation approach).

2.2. Data collection and analysis

To understand the idiosyncrasies of the three experiences we combined semi-structured interviews and the collection of secondary data (Yin, 2009). Several semi-structured interviews were conducted with the telecommunications firm and the contributors of each approach. We also conducted group interviews with both the firm and the contributor when possible. These interviews were enriched with other material that was essential to gain a sound understanding of the role and input of each actor throughout the process. We collected briefs from the company to the contributors, the minutes of kick-off and interim meetings, the results of creative sessions held by the design agency, and the final recommendations of each contributor (storyboards, videos or pictures). We also were granted access to internal documents from the company with their own evaluation and synthesis of each method. Table 1 contains summary of the collected data.

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<thead>
<tr>
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<th>Interviews</th>
<th>Archival Data</th>
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<tbody>
<tr>
<td>Co-Creation</td>
<td></td>
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<tr>
<td>Crowdsourcing</td>
<td>1 interview with the 2</td>
<td>Client’s briefs*</td>
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</tbody>
</table>
| Client’s Innovation Community | - Announcements of the creative projects posted on the crowd-sourcing company’s website  
|  | - List of creations*  
|  | - Reports and analysis of the crowd-sourcing company *  
| Design-Thinking | - Evaluations of crowd-sourcing’s proposals by this innovation community  
| Design Consultancy | - 1 interview with the designer and project leader  
|  | - 1 interview with project managers of both design consultancy and client  
|  | - Client’s Brief  
|  | - Agency’s reformulation of the brief  
|  | - Minutes of kick-off meeting  
|  | - Synthesis of the observations *  
|  | - Report and analysis of the design consultancy including story-boards  
| Design School | - 1 interview with the design teacher and researcher, leader of this pedagogical project  
|  | - Client’s Brief  
|  | - Students’ presentations  
|  | - Minutes of intermediary mee-
Data analysis consisted of three different steps. First we analyzed the propositions generated by the three methods independently. The design consultancy suggested three concepts as storyboards whereas design students produced eleven collective projects as short movies. The crowd-sourcing company ran a two-stage co-creation project. The first stage was not branded with the company name and focused on developing a product that facilitates the learning experience. The second stage, three months later, was branded and focused more on the learning experience itself. About fifty videos and photos were generated in both cases. All these creative outputs were then submitted to the firm's online innovation community to be evaluated. We focused on their top 5 ranking for the analysis. Second, we analyzed and compared the outputs of these three approaches to depict the impact of the methodology on the type of innovative projects. Despite the apparent heterogeneity of the submissions, we focused our analysis on the scenario for the user rather than on the suggested support. We then developed an analytical grid using criteria based on both the literature on performance evaluation in NPD.
and open-innovation, that are cost, lead time between the brief and the output, co-learning effect and commitment of the firm during the project. We also added four dimensions that emerged from our data: time invested by the firm prior to the project, relevance to the firm’s initial expectations, reliability of contributors’ proposals and final utility of the output. We then evaluated each of these criteria on a 5-point scale with the firm’s manager (Table 2). Finally, we investigated whether the output of these methodologies had been implemented by the company and how.

3. Findings

The analysis of their propositions revealed convergence and divergence in their approaches. First, our data showed that there was no difference between the three methods in terms of the cost of data collection and final utility of the output. The design consultancy approach, however, was the one that brought the largest amount of new knowledge thanks to its in-depth understanding of the phenomenon and the relevant meaning of its proposals. The crowd-sourcing company was the one that required the longest preparation time prior to the project from the firm but was the fastest to get tangible results (three weeks versus three months for the other methods). Last, design students required a higher level of commitment from the firm during the project which resulted in greater reliability in their proposals.
Second, we identified many similar propositions between the crowd-sourcing company and design students; we checked that students were not contributors of the crowd-sourcing company. Their final proposals consisted either of videos or almost finalized professional propositions. It is interesting to note that even though the participants of the crowd-sourcing community used new media resources and new technologies in their designs, the ideas submitted were often imagined as everyday objects. Design students used a lot of images, pictures, sketches and sometimes prototypes to design their proposals before making their movies. Their proposals were not always consistent with the brand, but it was a means for company to collect fresh and new ideas. Even though the outputs of these two approaches (crowd-sourcing and design students) were quite similar, the crowd-sourcing supplier managed to bring additional value to the firm by integrating their final proposals into a larger presentation based on a semantic analysis of the outputs. On the other hand, the design consultancy output consisted of three storyboards that emerged from an in-depth observation of potential users in-situ (young people at home and after school) and interviews with both children and parents. After a creativity phase involving the firm, these ideas were transformed into storyboards that were then tested among consumers. The design consultancy also provided the firm with an in-depth analysis of their issue and a large amount of verbatim citations. According to these findings,
we managed to cluster these different approaches into two dimensions: creativity-oriented and usage-oriented proposals (Table 3).

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<tr>
<th>Creativity-Oriented Co-Creation</th>
<th>User-Oriented Co-Creation</th>
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<tr>
<td>Co-Creation</td>
<td>Crowd-sourcing</td>
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<td>Design-Thinking</td>
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<td>Creativity-Oriented Design</td>
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<tr>
<td>Innovation Community</td>
<td>User-Oriented Design</td>
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**Table 3. Clustering of Innovation Methods**

Third, we observed that none of these outputs had been used as is by the firm. Innovation teams made use of these suggestions to develop new ideas that are at the crossroads of all the propositions. These ideas led to the testing of two concepts: “Webcam remote control” and “An incredible day at the museum”. The results of these two methods helped the company to fuel and enrich existing projects under development such as the creation of an interactive and educational TV channel for kids. Finally, this case study revealed that some approaches were more appropriate than others depending on the NSD stage in this firm. For example, using a crowd-sourcing supplier or design school students appeared to be more relevant during the ideation phase. Integration of the online innovation community of the firm was most suitable during the testing phase to run beta tests. Last, outputs from the design consultancy (storyboards) were referred to all along the NSD process from idea creation to launch (Table 4).
Table 4. Innovation methods according to the NSD process stage

<table>
<thead>
<tr>
<th>NSD Process Stage</th>
<th>Concept</th>
<th>Detailed Design</th>
<th>Testing Phase</th>
<th>Launch</th>
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<tbody>
<tr>
<td>Crowd-Sourcing</td>
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4. Discussion

The goal of this research was to better understand how these two customer-oriented approaches differed in terms of processes and outcomes when applied to an NSD process and whether the use of one approach was more appropriate depending on the stage in the NSD process. Through this unique, in-depth case study, this research extends prior research in the design-thinking, co-creation, NSD and marketing literature.

First, this research contributes to the NSD literature showing the influence of different innovation methods at different stages of the NSD process. It also extends Zomerdijk and Voss’s work (2010) showing that both methods, one based on a business-to-business relationship with design consultancies, the other based on direct relationship with customers, can influence the design of new experiential services.

Second, these findings show that UOD approaches lead to fewer operational results but offer a founding framework that is very useful in shedding light on use patterns and that can be referred to at every stage of the NSD process.

This research also brings additional knowledge to co-creation and marketing literature, extending the study of Payne, Storbacka and Frow (2008) which suggests that customers have to be involved at each stage of the NPD process since our findings underline how each innova-
tion method can help to integrate customers according to the NSD process stage. This research also extends service-dominant logic literature (Vargo and Lush, 2004) since it underlines that value-creating processes can be generated by a combination of different innovation methods. It also shows that within co-creation, methods are not mutually exclusive and can be easily combined to be more effective (crowd-sourcing and the firm’s online community). Another result concerns the importance of the right initial key question to stimulate relevant innovation. As said Peter Drucker, “The important and difficult job is never to find the right answers; it is to find the right question”.

In terms of methodology, this study offers a new analytical grid that helps to compare these different approaches. In terms of managerial implications, as customers' involvement in the NSD process becomes essential to create value, these findings provide guidelines for companies to identify which of the main approaches is the most appropriate during their NSD process and why. More precisely, thanks to the clustering of innovation methods, this research enables to identify which is the most appropriate innovation tool according to firms’ objectives: either focus on creativity or usage innovation.

This research also has limitations. Investigation in a telecom company at the early stage of the co-creation process is noted and a comparison with other services categories would be needed to enlarge the external validity of our findings. Future research could extend this study to analyze whether using design thinking or co-creation has an impact on performance. Moreover, this research has adopted a supplier perspective, with the edutainment service provider as the central actor. Further research might contrast this viewpoint with the one of market and customers to run a larger analysis of the impact of these two innovation methods on both firms and final customers. Last, future research could also study knowledge transfer by comparing the absorptive capacity between firm and supplier during the co-creation and the design-thinking process.
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