LAUREA
UNIVERSITY OF APPLIED SCIENCES
Together we are stronger

Service Design based Co-creation framework for customer oriented product development in B2B context

Singh, Nidhi

2016 Laurea

Laurea University of Applied Sciences

Service design based co-creation framework for customer oriented product development in B2B context

Nidhi Rakesh Singh
Degree Programme in
Service Innovation and Design
Master's Thesis
September, 2016

Laurea University of Applied Sciences
Service Innovation and Design
Master's Thesis

Nidhi Rakesh Singh

Abstract

Service design based co-creation framework for customer oriented product development in B2B context

Year 2016 Pages 65

In today's ICT marketplace, customers have easy access to a lot of information about a company and its competitors' products. Customers are using this information to only purchase a product which completely matches their requirement. In this challenging competitive landscape, developing products without fully understanding customer requirements does not remain an option for companies anymore. Companies are using different approaches to understand customers' requirements and to become more customer oriented. Research has shown that co-creation and open innovation are the approaches that are used by companies in different industries to develop products in collaboration with their customers to completely meet their requirements and become customer oriented.

The purpose of this thesis is to transform the product development process for the business-to-business unit of the case company to a customer oriented approach. The thesis is a development project for the case company based on Moritz's service design framework. The concepts of co-creation and open innovation were analyzed as the approaches for customer oriented development. Based on the analyses, a new product development framework was created for co-creation with B2B customers in the case company. The new product development framework was developed in collaboration with internal and external stakeholders including partners, customers, product management, marketing and r&d.

The new product development framework is an enhanced version of the existing agile product development process. The existing agile product development process was modified for co-creation with customers using service design tools and methods. Five new phases were introduced to the existing agile product development process and service design tools were suggested to execute each phase. Requirement validation was added to the beginning of the product development process to confirm the needs of customers before developing a full product and a feedback phase was introduced to get customers' feedback as early as possible into the product development cycle, so that the case company would only develop products that satisfy the needs of customers. In the newly created product development framework, product management was also advised to work with partners and customers as much as possible and along as many phases as possible to attain better understanding of their needs.

Keywords: customer oriented development, co-creation, open innovation, service design, service design methods, service design tools, product development, agile development

Table of contents

1 Introduction

1.1 Relevance of Customer Oriented development

Integrating customers in product and service development processes for understanding their needs and learn from those needs has become an essential part of organization's development and innovation processes (Edvarsson et al., 2010). Companies that rely on traditional ways of product development of company-centric practices are confronted by decreased customer satisfaction and decline in growth. Customer oriented development is recognized by most organizations as one of the main success factor in today's competitive environment, which allows companies to develop products and services to fulfill real customer needs and requirements and thus reduce the waste and increase customer satisfaction (Revans, 1998).

Customers today are more knowledgeable, connected and empowered and challenging the companies creating products and services for not giving them what they want (Ogawa, 1998). The traditional company centric value creation modes of development are not working in today's emerging economy. Companies are now trying to shift their focus from utilizing only internal resources to towards leveraging external resources, especially competences of customers and partners to regain the competitive advantage.

In the ever changing competitive landscape, development based on customer's point of view determines the competitive advantage of organizations. According to Piller et al. (2007, 7), customers are getting more and more empowered and buy products based on their judgement of value and it will be implausible for the companies to run their business without putting customers at the center. With the growing popularity of customer oriented approaches, companies are involving users in innovation and product and service development, especially in ICT innovation (Greer & Lei, 2012, 63).

The 21st century consumer is more conversant than ever before and have high expectations. Customers have access to all the information regarding a company and its competitors' products and can easily evaluate what is best fit for the need and experience or service they are looking for. Price is no longer the only differentiator for deciding which product to buy. Customers are looking for more value for their money and better experiences.

One of the European commission survey (2009) reveals that 75% of all users find their ICT tools more stressing than relaxing. The survey further goes suggesting that in such contexts, user-centric development and validation with users can play important role to speed up the product and service development processes by addressing the real customer requirements.

Involving customers in the early phases of development of products and services ensures that development fulfills the requirement of target customers.

1.2 Co-creation with customers using Service Design

Understanding the unrevealed latent needs of the customers can provide a company greater opportunities to differentiate from competitors. In order to know what customers of a product or service really wants, using quantitative methods tells what a company thinks customer will want. According to Polaine et al. (2013, 3), quantitative methods help in getting knowledge about the needs of customers, but does not help companies for converting this knowledge into action and to do something with it. Companies these days find it difficult to discover the latent needs of customers by using traditional structured research methods and require new methods to improve understanding of customer's latent needs, value and the value creation process (Ojasalo, 2010, 174). Talking, observing and listening to customers can reveal their real needs that are not shown in traditional quantitative methods (Clatworthy, 2010, 140).

According to Prahalad & Ramaswamy (2004, 5), customer's role is changing and companies can no longer work independently designing and developing products without interacting with customers. Customers want to exercise their influence in every part of the business system. They want to interact with firms and co-create value. Companies might feel threatened due to the loss of control to their customer in co-creation paradigm but by partnering with customer they can balance both top line of cost and investments and bottom line of growth and revenues (Prahalad & Ramaswamy, 2002, 53).

Kristensson et al's. (2011, 25), research shows that products that are developed based on ideas through market research involving real customers are more profitable than traditional market research. Involving active customers in development generate ideas which are more innovative than those generated through traditional research. Company managers can get useful information about customer's value in use contexts by co-creating with those customers who have more clear ideas of real life needs in the situational context. According to Ojasalo (2010, 176), significant competitive advantage can be obtained by adopting deeper understanding of the characteristics of co-creation.

Involvement of customers in a firm's innovation and development process requires the firm to apply new practices to include customer early on in the development processes. Despite this, not many frameworks or models are defined that would help a company in co-creation with customers.

During recent years service design has emerged as a holistic field which has empowered organizations in various industries by providing them tools and methods to co-create products and services with their customers. By focusing on humans rather than companies service design thinking is finding ways to help companies co-create value with their stakeholders (Kimbell, 2010, 46). Using design tools in co-creative development projects can enhance the process. These tools help to visualize processes and clarify the match between strategy and development. (Vuorela et al., 2012, 123.)

Service design's user centered approach helps companies in exploring real needs of customers by involving them from beginning in the development process. But, since each organization's development process is so unique, it is not possible to work through a generic framework to define sequential steps or process that will work for all companies. Each company has to adapt and develop its own framework for product development process. Thereby, the goal of this thesis is to define a product development framework using service design approach for the case company and provide practical knowledge for improving the understanding and usage of service design in the field.

1.3 Objectives of the thesis

In view of the insights presented in the introduction sections, importance of co-creation with customers for the customer oriented development of products and services has been widely acknowledged, regardless of industry or type of business. During exploratory study, it was found that although several cases exist in various industries for doing co-creation with customers but there is lack of a well-defined process or framework that can be easily followed by a company for co-creation with customers. In practice, it is not even possible to define one step by step process that would work for every company. So, a company interested in co-creation with customers must develop its own process to follow. It was also found that in recent years, service design tools and methods has been used widely in different industries for defining new product and service development processes for co-creative development with customers. But, on the other hand, examples of using service design tools and methods to enhance the already existing product development processes to do co-creation with customers, are very scarce.

The case company of this research also found the need for customer oriented development based on the recent circumstances and decided to implement co-creation with customers as part of its existing product development process. The main reason for not developing a completely new process discarding the existing process was that the current development process is working quite well for the r&d and changing r&d's ways of working in a quick fix was not feasible and also was not the objective of this project. It was clarified from the beginning of

the research that case company do not want to completely discard the existing process but instead wanted to transform it according to the new requirements.

The purpose of this thesis is to develop a co-creation framework for business-to-business customers in case company for transforming the development process of products and services to become more customer oriented.

The main objectives of the thesis were to:

1. Discover new ways of customer oriented development for Business-to-business segment of case company
2. Define a framework for working together with the business-to-business customers for product and service development
3. Facilitate the knowledge creation among internal stakeholders for the new framework

The thesis is performed as a development project for B2B customer segment in a Finnish ICT company during 2015. Service design approach was used for executing the development project. In this development project, my personal objective is to utilize the service design knowledge gained during my master's degree studies for executing the project. Through this project I contribute to my working environment by helping my employer in transforming the development processes to become more customer oriented, open and co-creative. It was also expected to create and distribute the knowledge of service design approach to a wider audience in the case company during the development project.

1.4 Delimitations of the thesis

This thesis focuses on the design of the new framework for product development process in the B2B context of the case company only. Companies using similar development processes might find the framework useful but required to modify the final designed framework based on their own development processes. The implementation of the developed framework was excluded from the research scope. Also, the changes required in the case company's organizational structure, ways of working etc. for implementing the new product development framework are not included in the thesis.

The execution of service design development project for the research was also kept very linear and no iterations were done for different stages to refine the final developed framework for product development. This is not ideal for any development project and it is always recommended to do some iterations of the development stages to improve the output. The iterations allow quick analyses of the outcome of a stage and then the stage can be repeated if the outcome is not desirable. In this development project, due to time limitations, the

agreement was made with the case company stakeholders to iterate and improve the developed framework of product development process while implementing the selected idea with partners and customers.

Transforming the traditional development process used for years in the company not just requires conceptualizing and implementing the new process but also require a complete transformation in the ways of working of the management, r&d, sales and marketing for accommodating the change completely. This was not the scope of this project, but any company implementing the changes will have to deal with these during the transformation process. Due to confidentiality, only selected material is allowed to be added to the thesis.

1.5 Structure of the thesis

This first chapter introduced the themes and objectives of the research as well as introduced the reader to the relevance of customer oriented development and the topic of service design and co-creation. The second chapter gives the overview about the focus customer segment and continue with a brief introduction of the existing product development process in the case company. In the last section of chapter two, research motivation in case company is given to clearly describe the current situation in case company. The third chapter kick starts the analyses towards finding the ways to solve the problem of case company and introduces the reader to the topics of co-creation, service design and open innovation which formulate the base of solution space. Chapter four outlines and describes the complete development project of the thesis. This chapter describes in detail the service design process followed during the research and explain in detail the tools and methods used during each stage. The later sections of chapter four describes in detail stages for finding the final solution. The chapter four ends with a detailed description of the selected solution. Chapter five concludes the thesis by mapping the solution to defined objectives and also evaluate the results and validity of thesis development project and give ideas for future research.

2 Background

Michael Shamiyeh (2010, 5) says:

"in a world that is increasingly driven by faster cycles of change, the risk of eventually destroying a business by merely continuing what one is doing – that is, in failing to adapt to a changing internal or external environment simultaneously – is higher than ever today"

In order to stay relevant in market and to keep up with the changing needs of customers, ICT companies are required to release new enhanced versions of their existing products and ser-

vices with new features and functionality and also add completely new products and services to their portfolio. In today's time where customers are much more informed due to easy access of information, releasing new features or products is not enough for a company to stay ahead in the game and to remain the only choice of customers since given the access to knowledge, resources and technology it does not take long to the competitors to either create similar or something unique to a company's existing products. Due to this, companies are trying to find out different ways to differentiate themselves from each other. For success in future, these companies have to move away from traditional development processes to the ones that involve customers in the developmental decisions and takes care of customer's real needs. Being good and early with the development of new features and products is not going to be enough. Successful companies of tomorrow will have to adopt new product development processes and practices and most importantly have to match product features to customer requirements.

2.1 Description of the current state in the case company

This thesis focuses on business-to-business (later referred as B2B) customers of a Finnish multinational ICT company. The case company has a dedicated organizational unit X for B2B products, which is running successfully its business since its creation. The unit develop and sell software products and services to the B2B customers. The company have been very successful during all these years in releasing products and services which are admired by its partners and customers and hence resulting in increase in market share, revenue and customer base.

The main customer base of this unit are other companies selling products of the company to end customers which are mainly SME (small and medium-sized enterprises). The companies that sells case company's products are referred as partners and the end customers who buys these products from partners are referred as customers in the remainder of the thesis. The products and services are collectively referred as products in the thesis.

The unit X is using the agile development approach for developing its products and services. In this approach, product management makes decision about product development on their own without involving partners and customers in the process. The new features and functionalities are released frequently to keep the products up to date and satisfy the changing needs of the customers. The existing development process in the unit X is product centric and R&D focused. Release schedules and timelines guides which features can be included during a product release cycle. The product management of the unit relies on traditional ways of discovering the needs of customers. They are using traditional techniques of quantitative surveys to find out customer's needs, discovering what the competitors are developing or then de-

pending on what sales personnel are telling them based on requests from partners and customers. Sometimes the another process used for finding out ideas for new features or products is based on the suggestions of the research and development teams where engineers decide based on their knowledge on the subject what might be beneficial for the customers and could fulfill their needs.

This product development approach seemed to have worked traditionally but in today's rapidly changing and competitive business landscape where customers are well informed and have clear understanding about their real needs, these traditional methods have failed most of the time resulting in wasted effort of development teams and hence loss of business to competition and decreased customer satisfaction for the business unit X. The case company need to become customer oriented and deliver products based on real needs. They need to close the reality gap between customers and unit X's product management and development personnel. For bridging this gap case company need new skills, tools and methods. The company need to design a process that allows them to have open and meaningful conversation with their customers to understand their real needs by gathering insights through the dialog.

For the clarity of reader or whoever want to use this thesis as a reference, a brief description of the current product development process of business unit X is given in the next section.

2.2 Agile product development process in business unit

According to Rodriguez et al.'s (2012) survey on agile and lean usage in Finnish software industry, Scrum process was the most used method for agile development. The business unit X also uses Scrum process for product development in different r&d teams.

Figure 1 depicts the existing product development process of business unit X, which is not the "out of the box" implementation of scrum by the process, but instead the teams have adapted the process according to their needs. The figure has been also adapted to show the current process.

The scrum process starts when Product Management defines the upcoming product requirements and business goals into the product backlog. The product backlog is a list of to-do tasks or business goals that are required to be developed by the product teams. The development based on business requirements could be anything from adding new features into an existing product or developing a new product from scratch. While providing the business goals and requirements to development teams, product management also defines the timeline by which the feature or product is expected to be released for customers. This release timeline guides

the scope of development of a feature or product and sometimes depending on the timeline and schedules, some required features might be postponed for a later release in time.

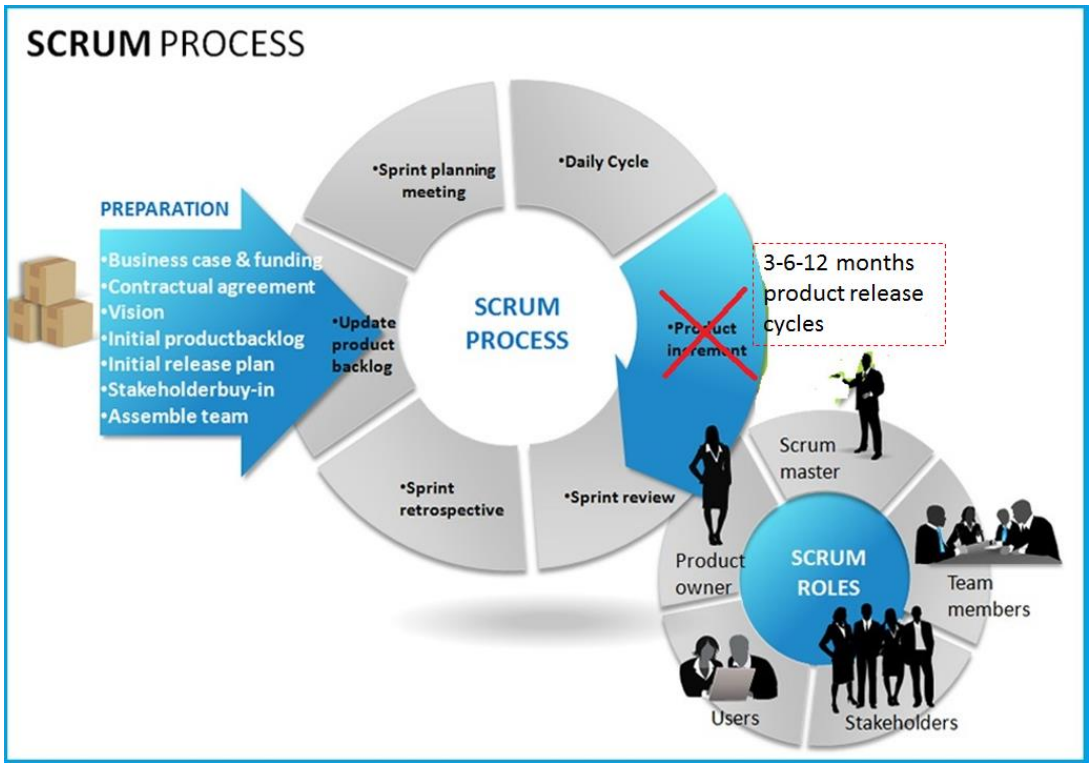

Figure 1: Existing development process of Business Unit X

Scrum master together with the product owner and r&d team, work on these business goals and convert them into workable tasks in backlog during planning. The team uses two weeks of development cycles called sprint, for implementing specified tasks based on the priority given by product management. During planning, only a number of tasks which are doable in the given time of two weeks are selected for a sprint. At the end of two weeks' sprint cycle a review meeting is arranged for presenting the work finished by team during sprint. Based on the presentation, product owner accepts or rejects the implementation depending on whether it fulfilled the specified requirements or not.

In an "out of the box" scrum process, generally a product release was done for customers at the end of each sprint. But, in business unit X, products are released based on pre-defined product release schedules of 3-6 months or in some cases even 1 year. So, customers and partners had to wait for long time for getting the functionality they required in the product and also are not able to give any feedback before the product is publicly released. This has led to delayed verification of features and dissatisfaction of partners and customers with products and development process. In some cases, some of the implemented product features and releases are made available for few selected partners as a beta release 1 month before the public release in the market.

As described the existing development process of business unit X either does not involve partners and customers at all in the process or they are involved only during the later stages when the product is fully ready and there is no scope of doing any changes based on the feedback. As a result of this late involvement of partners and customers in the process, the feedback given was generally postponed to be implemented in the next upcoming releases of existing product.

2.3 Research motivation

In a B2B business, a company is not only responsible to its own customers but also the customer's customer, even though the relation might be indirect (Gummesson, 2012, 96). According to Ojasalo et al. (2010, 3), in B2B it is always essential to know the business processes and real needs of partners to create value together.

Success of a B2B company is directly affected by the success of its partner's business who sell company's products to end customers. A company's partner always has the option to switch its vendor if it does not find the products relevant for its business and customers. Also, competitiors are always in the look out to persuade partners of a company to sell their products. In order to keep the partners interested in its products, a B2B company should listen to their needs and requirements for the products and give them what they want. Failure to do this, could result in loss in partner's interest in selling company products.

Case company like many other companies practices Net Promoter Surveys (NPS) to gather the feedback from its partners and customers about its products and services. NPS surveys are used extensively to understand the customer's satisfaction and loyalty towards a company and its products. These surveys tend to reveal the reality behind the growth and failure of a company. In case company, NPS surveys are performed twice in a year for finding both product's and business unit's performance from partner's and customer's perspective. Together with the overall score, case company also uses the free form feedback to know the reason behind the rating about the company and its products.

From the NPS survey performed in November 2014 in the business unit X of the case company, it was discovered that partners and customers are not satisfied with the speed of development and also the product management's decisions about the choice of feature development of existing products as well as new product development. Partners complained in the feedback that business unit X is not developing the relevant features for the current needs of the customers and development is very slow paced where release cycles for a product are either once or twice in a year. They also complained that product quality is also degrading causing

more frustration with the products. The outcome of the survey triggered the immediate need in the company to take necessary actions and it was decided to investigate the root cause and ultimately find ways to improve the situation.

In January 2015 a workshop was organized during which the survey results were thoroughly analyzed. This workshop was attended by all the members of product management and Directors of product management and marketing teams. Being a member of the product management of the business unit X, I also participated in this workshop. Several options were discussed during this workshop about how to move forward and what are the possibilities to overcome this problem. In the end, decision was made to look for the ways of improving the situation and kick starting a project for this. I was doing my master's study during this time and offered to take this as a topic for my master thesis work to help the product management and hence my employer in finding the solution for this problem. After some discussion, everyone agrees to my proposal.

3 Discovering new ways for customer oriented development

This section describes the theoretical concepts relevant to the needs of case company. The literature topics were chosen based on the contextual requirement of the project.

The theoretical analyses start with the concept of co-creation which was chosen because the main objective of the study is to improve the existing product development process using which company wants to work with external stakeholders such as partners and customers in the development process. Customer orientation and working with external stakeholders is the main essence of co-creation and it stands out as an approach which can fulfill the requirement of the case company of working with customers and doing customer oriented development using insights from customers.

In the next section, concept of open innovation is analyzed from the perspective of involving external resources in the development and innovation processes for generating new ideas which are close to customer's real requirements. This will help the case company in not only working towards the real needs of the customers but also help in discovering new innovative ideas. The final section in this chapter describes service design approach which is the central part of this thesis both for the execution of development project and for the final outcome of the research for case company. The Service design approach is chosen as it provides tools and methods for co-creation with customers and these methods are very importance in this research. The main idea of the theoretical analyses is to investigate how service design can be used to facilitate the process of co-creative product development with partners in case company and other companies who have similar needs.

3.1 Co-creation

Ramaswamy et al. (2010, 4) define co-creation as a practice where services, products and systems are developed together through collaboration with different stakeholders. In co-creation premise the distinction between producer and consumer disappear, as consumers both define and create value for themselves (Prahalad & Ramaswamy, 2004, 10). Ojasalo (2010, 176) states that a company can achieve significant competitive advantage by adopting deeper value co-creation understanding. Co-creation helps companies reducing the market risks and improving the return on investment and time to market by better addressing the customer's latent needs (Westerlund and Leminen, 2011, 19).

According to Prahalad et al. (2004, 1-2), product variety has not necessarily resulted in better consumer experiences. The abundance of information does not allow consumer to create improved experience since consumer has to decide on their own what is best suited to the needs. For company management the situation is no different. On one side, technology, globalization, industry deregulation is discontinuing competitive landscape, where on the other, competition is intensifying and profit margins are shrinking. Focusing solely on products and efficiency is not enough and managers have to find new sources of innovation and creativity.

B2B business setting is shifting away from traditional formal defined roles of customers to towards more collaborative dealings. Customers are changing their role from passive receivers to towards active role in creating value. By doing this they become a new source of competence for the companies and bring their knowledge, skills and willingness to experiment and engage in active dialogue. (Prahalad & Ramaswamy, 2000, 79-80.)

Prahalad & Ramaswamy (2004b, 9) defines the four building blocks of co-creation in the DART model of value co-creation - dialog, access, risk assessment and transparency, shown in figure 2. These building blocks forms the requirements of successful co-creation between company and customers.

According to Prahalad et al. (2004c, 7), dialogue means interactivity, engagement and communication on both firm and customer sides. It means shared learning on both sides and not just listening. Dialogue allows focus on issues in interest of both firm and customer. Successful dialog requires rules of engagement to create a new level of trust between the customer and the company. (Prahalad & Ramaswamy, 2004c, 7.)

The Access building block require information and tools (Prahalad & Ramaswamy 2004c, 7). According to Prahalad et al. (2004b, 9), it is difficult to have a dialogue between the consum-

er and the firm, if the consumers do not have the same access and transparency to information as the firm.

Risk assessment building block of co-creation suggests that companies should provide consumer an informed choice and give means to assess the risks involved in that choice (Prahalad et al. 2004c, 7). Open dialogue about risks can help create trust between the consumer and the company and also with informed risk customer can bear more responsibility for dealing with that risk. Prahalad et al. (2004a, 14) states that co-creation is a two-way street and the risks cannot be one sided and consumers have to take responsibility for the risks they accept.

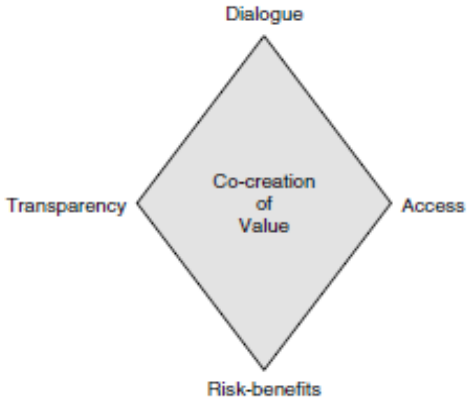

Figure 2: Building blocks of co-creation (Prahalad & Ramaswamy, 2004b, 9)

The fourth and final building block is Transparency, which mandates the company to create information transparency between consumer and themselves. Transparency of information is required to build trust between company and its customers (Prahalad et al. 2004a, 30-31).

Co-creation demands that both firm and customer make the necessary adjustments and build the relationship based on building blocks. Co-creation effort always starts with access and transparency where firms provide access to customers about the information related to purpose of co-creation effort and create a dialog with customer. Based on the risks customers can decide to join the firm in co-creation.

In co-creation approach customers play an active role by taking part in design of new offerings and suggesting new solutions. The co-creation activities are performed in an act of company to customer interaction which is facilitated by company since its objective is to use the customer's capabilities for its own innovation process. While some customers provide competence in the form of information about future trends and possible technological solutions others might be more suited to only evaluate a prototype or solution. (Piller et al., 2010, 9.)

According to Bhalla (2011, 4-5), customers are no longer satisfied with a passive role and they want a dialog about value creation and how company create value for them. Table 1 shows the profile of new customer created by Bhalla (2011,4) which shows that today's customers are creative and active collaborators. They want to have a dialog with the company and provide feedback about their needs.

Table 1: A profile of the new customer (Bhalla, 2011, 4)

	Old Reality	New Reality
Identity	Consumers, respondents	Real people, creative partners
Role	Passive; consumers of value	Active collaborators; co-producers of value
Source of insights	Surveys, dispassionate objective observation	Conversations, stories, impassioned immersion
Handshake with company	Transactions-based	Interactions and experience-based
Location	Fixed and invisible; at one end of a long value chain	Adaptive and very visible; anytime, anyplace
Information and influence	Company advertising and messages; expert opinion	Word-of-mouth; peer-to-peer; social media
Concept of value	Company offers; one size fits all	Customer determines; tailored and unique
Primary source of value	What's in the brand; attributes and features	What customers do with the brand; unique solutions and customized experiences

According to Bhalla (2011, 20-23) in order to build co-creation capabilities with customers, as shown in figure 3, companies need to listen to their customers to get feedback about their needs and requirements, engage with the customers to have a conversation to generate new insights and create relationship with them, respond externally and create means for co-creation by empowering customers using toolkits and prototypes and involve them in early innovation process and finally, respond internally and align the organization to become ready for co-creation by investing in organizational culture, processes and structure. He (2011, 23) adds that successful co-creation requires changes not only to external but also to the internal processes of a company.

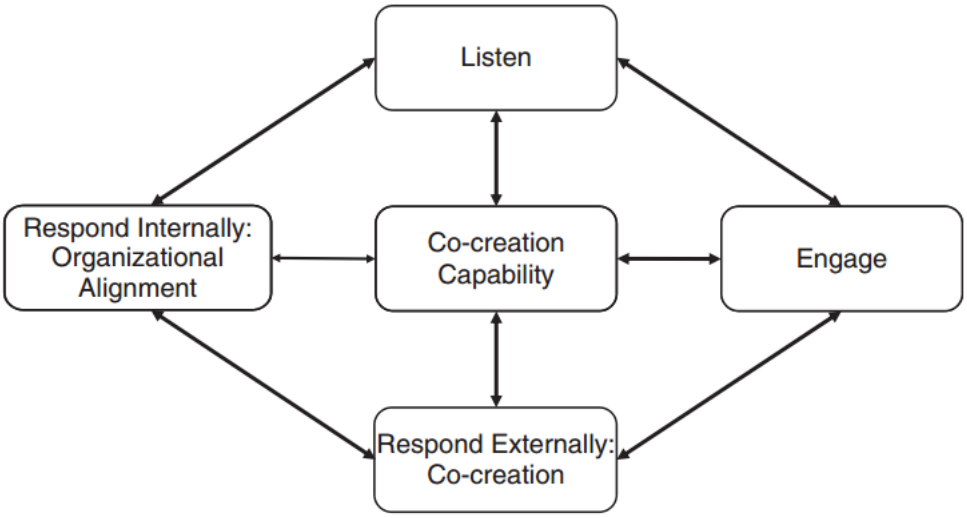

Figure 3: Framework for Building a Co-creation capability (Bhalla, 2011, 20)

Ramaswamy (2009, 36) states that management of a company at all levels has to play a key role in migration towards co-creation and their role is very critical in investing to the development of co-creation capabilities and decision making. He further adds that one of the main challenges faced by management while leading towards co-creation is the need to open internal organizational boundaries and move away from firm-centric to towards interaction-centric capabilities (Ramaswamy, 2009, 37).

In his co-creation framework, Bhalla (2011, 24) suggests, shift in mindset of organization's management in order to be able to collaborate and co-create with customers. He suggested three prerequisites viz. authenticity in intent and orientation for co-creation and collaboration efforts with customers, flexibility in listening to opposite points of views of customers and willingness to re-consider own values and beliefs in certain matters and conviction towards customer's co-creation efforts; that facilitate migration from traditional value creation models where customers are passive recipients of value created by company for them, to new models of active customer participation in value creation process.

The underlying idea of customer co-creation is an active, creative and social collaboration process between producers and customers. Co-creation involves customers of a company in active innovation and companies intending to use co-creation profitably need to know which of the methods are suited for themselves. A company looking into using co-creation with customers need to assess whether the organization or its branch is suited for customer co-creation and managers of such companies need to know their internal capabilities before involving customer in the innovation process. (Piller et al., 2010, 21.)

Co-creation of value is central aspect in human–centered design and companies use different design methods to understand and gather user needs to initiate innovation. Customer journey maps, focus groups, shadowing and many other design methods are used to involve customers in innovation process and gather their needs. (Sjödin, 2015, 24.)

Bhalla (2011, 79) also define a structure which most of the organizations follow during collaboration with customers in co-creation process. According to Bhalla a company engages in co-creation with objective to create value with their customers.

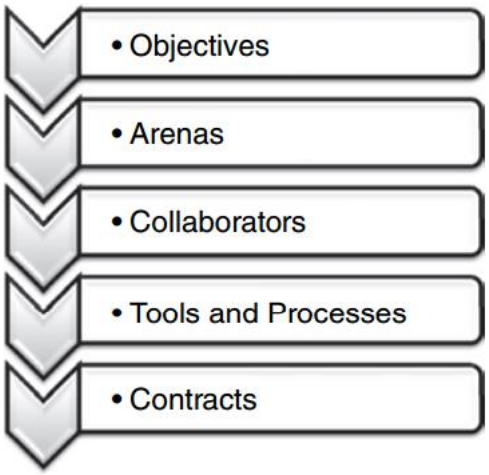

Figure 4: Structure of co-creation (Bhalla, 2011, 79)

According to Bhalla's suggested structure of co-creation (2011,79) as shown in figure 4, a company needs arena for co-creation with customers which can be digital or physical depending on the nature of co-creation tasks. In order to co-create a company needs collaborators who want to participate in the process. These collaborators are either end-users or customers who are creative, have ideas, passion and energy but are not familiar with co-creation or they are specialist people who are formally trained. For successful co-creation, case company also have to find the possible arenas and partners and customers who are ready to participate in co-creation.

Bhalla (2011, 90) adds that effective co-creation happens when it is organized, managed and facilitated, for which companies require tools and processes. According to him, in some cases, tools are easily available but processes require proper management while in others successful co-creation require finding right collaboration tools. He further adds that, there are different co-creation processes e.g. lead-user design, contextual/user design, participatory design, empathetic design etc. which share the similar foundations.

Effective co-creation require that it is of benefit to everyone involved in it and hence that is why contracts are required sometimes in the form of incentives or premises that convince customers to be an active collaborator (Bhalla, 2011, 91).

Case company also requires processes, tools and methods for co-creation with customers and partners. For this objective service design approach is selected to be utilized for implementing co-creation in case company. Service design methods and tools are described in detail in the last section of this chapter.

In the next section concept of open innovation is analyzed to understand further the relevance of involving external resources such as customers and partners in a company's product development and innovation processes, to not only gain understanding about their needs and requirements but also to generate new innovative ideas, that will help a company to further improve partner's satisfaction by developing and delivering products and services based on their ideas and real needs.

3.2 Open Innovation

Open innovation increases a company's knowledge about customer's needs and supplements its internal innovation, but does not substitute it (Piller & Ihl, 2009, 12). Customers play different roles in the innovation process depending on the stage at which they are involved in the process. While some customers provide information about future trends and solutions others may be more suited to evaluate the new concepts. (Piller & Ihl, 2009, 14.)

The do-it-yourself phenomenon where companies rely mostly on their internal core competence and resources to innovate new ideas and solutions is fading away from most of the industries and companies are moving more towards openness and outside-in thinking and started to look for ideas of innovation outside their boundaries.

Chesbrough (2003) conceptualized the concept of open innovation which is designed to speed up the innovation through collaboration between internal and external resources. He defined open innovation as *"a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology"*. In open innovation a company works with external partners and internal resources to create new business opportunities. It is a distributive, decentralized and participative approach to innovation which is based on the fact that not all the useful and best knowledge is present within a company whether small or big and it has to look for knowledge outside. By using external knowledge and expertise open innovation brings diversity in the innovation process. (Chesbrough, 2003.)

Traditionally ICT companies develop products and technologies using their internal competence. Open innovation pushes company boundaries and allows companies to share and join resources with customers and partners. It provides companies the opportunity to become less dependent only on their internal ideas and willing to work with external resources to innovate.

According to Westerlund and Leminen's (2011) research in Living labs on open innovation, traditional project-based development and open innovation differs in many aspects which are relevant for an organization's attempt to become open innovation company. They suggest that such organization first have to forget its traditional ways of working and establish new management tools and practices to facilitate and motivate all participants in co-creation. A prior knowledge of agile development methods is beneficial for a company due to more adaptive and responsive culture.

According to Huff et al. (2013, 7) most of the organizations are discovering nowadays that they do not have sufficient resources to keep up with the speed of market growth and meet the demands of customers and hence are attracted towards open innovation. Lindegaard (2011, 11) describes open innovation as a way to combine the internal and external resources and working on the new opportunities it brings. According to him (2011, 26), open innovation can speed up the development leading to early launch of new innovation solutions and improve the success rate of a company.

Organization open their innovation processes typically involving customers, suppliers, value partners and members of universities or research institutions who brings great knowledge for generating design ideas, innovation concepts or even complete solutions (Huff et al., 2013, 70).

Piller et al. (2009,7) says that in the changing economic environment, development based on customer's point of view determines the competitive advantage of organizations. According to them, customers are getting more and more empowered and buy products based on their judgement of value and that it will be implausible for the companies to run their business without putting customers at the center.

According to Piller et al. (2009, 35-40), for customers to be a significant source in open innovation they are supposed to possess product competence to experience needs, technical competence to contribute to the solution and leadership competence which is mostly necessary in network based open innovation where multiple customers are involved to ensure goal achievement. Conversely, for successful open innovation with customers firms require disclo-

sure competence to correctly explain the problem to establish the interaction with innovative customers, appropriation competence to capture and protect the knowledge generated with customers and integration competence to combine the produced knowledge during open innovation to existing or new product development (Piller et al., 2009, 40-45).

In service business tacit knowledge has a prominent role to play and at the same time difficult to acquire, since it is hard to convey or write. Open innovation through co-creation helps in gathering this tacit knowledge by repeated interaction between customers and company. (Chesbrough, 2011, 22.)

Chesbrough (2011, 27) states that innovation done based on tacit knowledge gathered from customers through co-creation is difficult to copy by competitors and there is less risk that customer will buy competitors solution, since they have been the source of development and it is difficult for them to abandon the results. Companies can create deeper relationship with customers through co-creation which is hard for competitors to imitate (Chesbrough, 2011, 67).

According to Sjödin (2015, 14), current innovation practices need to be enhanced in the companies to understand user's latent and expressed needs. Open innovation provides the ways to interact on different levels to understand these needs.

Open innovation provides a number of benefits such as faster time to market for products, access to unique external knowledge, less cost of innovation, better adaptation of products and services to customer needs, commercial utilization of knowledge or technology that otherwise would have been wasted, shared risk in product and service development, and enhanced company image and reputation. Managers need to understand that company can be benefitted from the external knowledge through open innovation and can outcompete other companies by solving customer problems first and not necessarily by only releasing a product in the market first which does not solve real needs. (Wallin and Krogh, 2010, 147.)

According to Steen et al., (2012), human-centered design (HCD) is one form of open innovation which is especially relevant in technology-oriented projects because it brings user's perspective and users into innovation process and helps in filling the gap of market understanding. HCD not only helps to develop user specific ideas but also helps in evaluating team member's ideas with user's requirements and hence in decision making. Using HCD companies can better understand user's potential needs along with their context and develop products and services which better fulfills these needs.

Open innovation concept does not provide a standard process to follow, but instead companies interested in open innovation paradigm first have to analyze their internal processes and external environment of business. Second, based on the analyses they need to define the specific open innovation methods to meet their goals. (Lackner, 2013, 25.)

Based on the analysis of co-creation and open innovation concepts, it was clear that co-creative open innovation with customers brings competitive advantage to a company by working together with customers towards satisfying their real needs. But, there is still lack of any step by step process to follow for co-creation with customers in a company. The following section introduces the service design approach which offers tools and methods for co-creation with customers.

3.3 Service Design

Service Design is establishing itself both as practice and academic discourse (Miettinen, 2012, 6). It is a human-centered approach which involves designing with people and not just for them (Polaine, 2013, 41). It is a new holistic and multi-disciplinary field that helps to innovate and improve services and make them more usable and effective for customers and efficient and more profitable for organizations (Moritz, 2005, 40). Service Design provides the common language for all the stakeholder's involved in the service development.

According to Curedale (2013, 14), service design's approach is people-centric that seeks to reveal the unmet needs and desires. He further highlighted that service design can help companies understand the changing needs of market and can help create more value with existing resources and even help in improving customer satisfaction. (Curedale, 2013, 22.)

According to Frontier Service Design (2010, 32), *"Service Design is a holistic way for businesses to gain a comprehensive and empathic understanding of customer needs".*

By focusing on humans instead of companies, service design is finding ways to help firms co-create value with their stakeholders (Kimbell, 2010, 46). According to Beuker (2010, 100), service design is a key facilitator to help in creating blue oceans to create market for something that does not exist before and so management of firms should try to integrate service design logic into management thinking to create integrative service design thinking.

Marc Stickdorn (2010, 117) says, "service design thinking supports the cooperation between different disciplines towards the goal of corporate success through enhanced customer experiences, employee satisfaction, and integration of sophisticated technological processes in pursuing corporate objectives".

According to Polaine et al. (2013, 41) service design is all about designing with people and users rather than designing for them based on own perceptions. They further suggest (2013, 23) that customers should be considered as valuable active asset for providing insights into real needs and not just as passive consumers.

According to Moritz (2005, 40), service design helps in understanding the customer, market and available resources and gives insights into customer's expectations and needs. He adds that for a company service design helps to reveal hidden opportunities and product ideas.

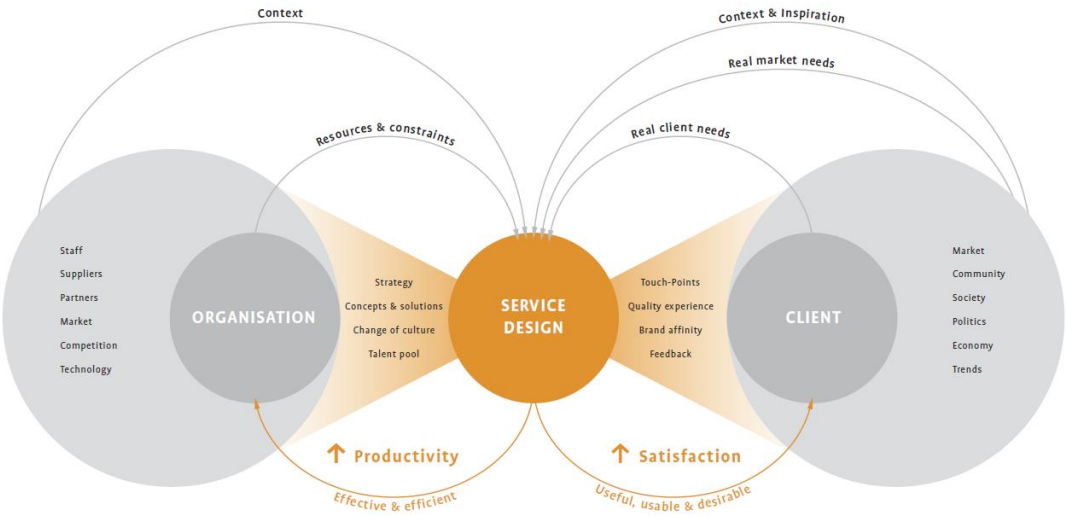

Figure 5: Service design as a mediator between client and organization (Moritz, 2005, 152-153)

Moritz (2005, 40) further states that *"service design connects the desires of the client with the desires of the organization. Service design is a mediator that understands how to build the bridge between the two within the overall context"*. See figure 5.

According to Moritz (2005, 57), service design can play crucial role in the success of an organization and can deliver following drivers of change:

- True understanding of market needs
- Higher value with the resources available
- Changes organizational culture
- New perspective on future development
- Higher effectiveness
- Better efficiency
- Connects organization and clients

- Higher quality service experiences as basis of success
- Differentiation against competition
- Brand affinity

These above mentioned drivers of change that service design brings, clearly meets the requirement of case company which wants to transform the current state of development process to improve customer satisfaction. By working closely with its customers, case company wants to understand their needs better and develop products which satisfy those needs as closely as possible.

Service design approach is used in this research to execute the development project and also suggested for use in the new product development framework. The following section describes service design approach from the perspective of using it as a process for executing a project.

3.3.1 Service Design process

There are several different processes that exist in the Service Design field and almost all of these processes follows the same basic approach of being focused towards the user and are iterative. According to Stickdorn (2010, 124), the iterative nature of service design processes allows to see the outcomes of various phases fast and allows to fail and fail quickly and move forward to the next solution until the most probable have been found and implemented. He further adds that during a service design process, it might be necessary to take a step back and repeat a stage based on the mistakes of the previous iteration.

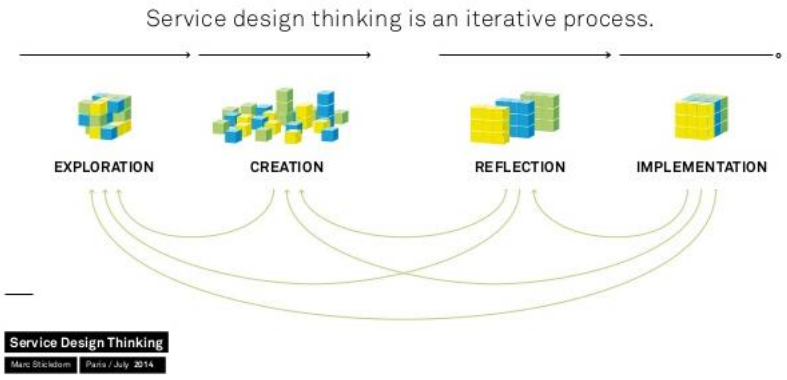

Figure 6: Iterative service design framework (Stickdorn, 2010, 122)

Stickdorn (2010, 126), outlines a four step Service Design framework for designing products and services consisting of exploration, creation, reflection and implementation phases. See figure 6. The 'exploration' phase is about understanding the goals, needs, behavior, mindset

and desires of the customers, employees and stakeholders of the company. This stage is all about discovery. The understanding can be gained by using different tools and methods for gathering insights. This phase is all about finding the problem first. (Stickdorn, 2010, 129.)

The 'creation' phase is the generative stage about creating and developing solutions based on the identified problems and in-depth insights from the exploration phase (Van Dijk et al., 2010, 149). For attaining holistic and sustainable solution, all the main stakeholders are recommended to work with multidisciplinary teams consisting of customers, employees and managers as well as engineers, designers in this phase. (Stickdorn, 2010, 131.)

The 'reflection' phase is about prototyping and testing the ideas and concepts created in the previous phase (Van Dijk et al., 2010, 149). According to Stickdorn (2010, 132), service Design follows the same iterative approach of testing and retesting as used by physical products to ensure the quality of output.

The final phase of the process is 'implementation' which includes implementing the designed concept from the previous phase. Implementation of a new concept demands a process of change. Therefore, some change management principles are required (Stickdorn, 2010, 134). According to him (2010, 135), this change should be based on the testing of prototypes done in the previous stages.

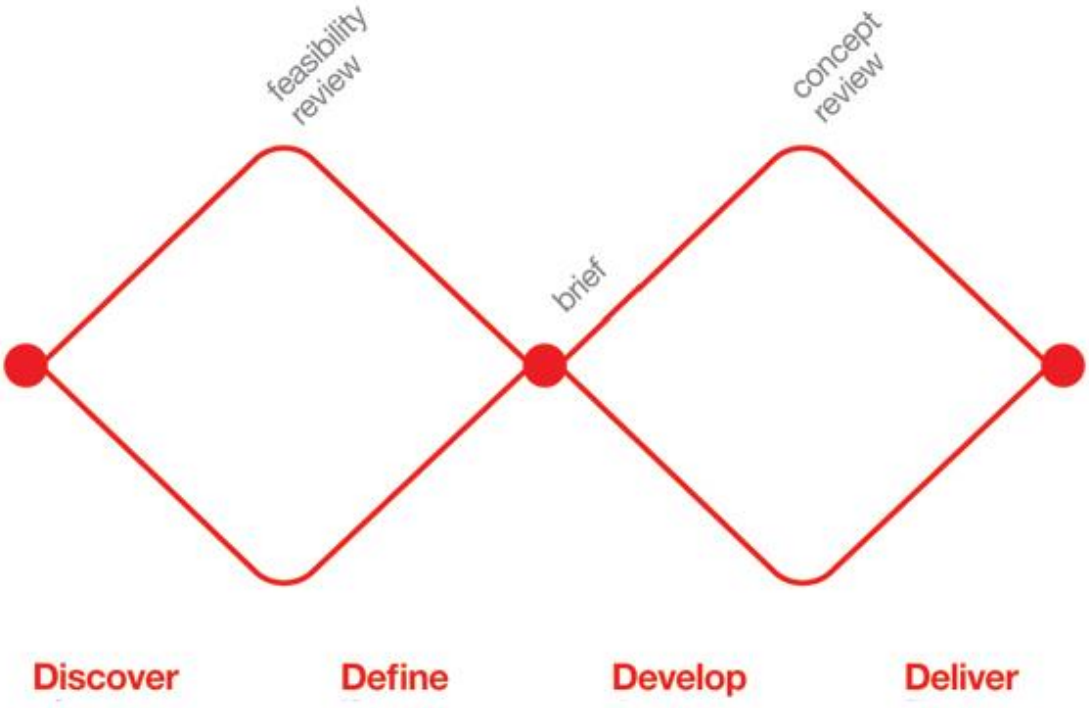

Figure 7 Double Diamond Model (Design Council, UK, 2005)

All the service design processes follow the same approach but, the actual steps to follow might be different. Each service design project starts by understanding the needs and requirements of customers and proceed towards creating solutions for fulfilling those needs.

The double diamond design process was developed through in-house research at the Design Council UK in 2005 as a way of describing the design process. Shown in figure 7, the process is divided into four different phases of Discover, Define, Design and Deliver which maps the divergent and convergent stages of design process, showing the different modes of thinking that designers use in the process. Divergence and convergence are central elements of problem solving. Divergence phases are about generating as many ideas as possible without any constraints and involve lots of creative out of the box thinking. On the other hand, convergent phases are about analyzing the generated ideas and eliminating the not so good ideas. In a service design process, divergent and convergent phases always follow each other in an iterative process

Figure 8: Service design process framework (Moritz, 2005, 123)

Moritz (2005, 123) also created a framework which consist of six different tasks categorized in four stages. See figure 8. The categories gave two different functions to the design framework. One is to create a simple framework that helps to understand service design and second is to establish what different mindsets are needed for service design. The tasks in six categories fulfill different goals at the four stages of service design process. The four stages are: Research containing SD understanding and SD thinking tasks, Concept Design containing SD

generating, SD filtering and SD explaining tasks, Design stage consisting of SD realizing task and Operation stage without any tasks. Moritz (2005, 123) also suggested that each of these stages required a completely different mind-set, attitude, focus and environment than the other based on the tasks required to be done.

Moritz's suggests (2005, 149) that service design projects are always different from each other and there is no rule in which order all the above mentioned categories should be used. In a project all the six categories often overlap and inter-linked with each other (Moritz, 2005, 154). Similarly, Stickdorn (2010, 126) also recommended that since each design project has its own needs and requirements it is necessary to first design the process itself for each service design project before starting the execution and according to him, a carefully designed service design process greatly effects its outcome.

The purpose of all of these service design processes and frameworks is essentially to create a human-centered processes where customer is at the center of the process and his needs are the driver of design process.

3.3.2 Service design tools and methods

All the above described service design processes requires tools and methods to execute the different phases and work with stakeholders. Service design is an interdisciplinary approach which uses various tools and methods from different disciplines which makes it possible to define a selection that is unique to each case (Stickdorn et al. 2013, 29).

The list of tools and methods that are available to be utilized in a service design process are endless and their usage depends on the context of the project (Moritz, 2005, 185). The service design tools can be used in any combination and there is no right or wrong way to use them. For a successful project one just need to find the right combination to conceptualize, develop and prototype ideas and improve it iteratively. (Van Dijk et al., 2010, 148.)

During the service design development project for case company several different service design tools and methods were analyzed to find out the best fit for the context of both executing the development project and for utilizing in the new product development framework. The methods and tools used during the development project and which are part of the generated new product development framework are discussed and defined along with each stage in the development project in the next chapter.

4 Service design process for conceptualizing new product development framework

This chapter describes the complete development project of the research. It defines step by step the process followed in the project and also, a brief description about how the project was kick started is given. As explained in the motivation section of chapter two the idea of this project is discovered from the need in the case company to find solution to the declining customer satisfaction and lower net promoter scores for the case company and its products. In the past, such dissatisfaction from customer have led to not only just change in decisions about development of a feature or product but also have led to changes in strategic direction of the case company.

The business unit X have recently modified the business outlook for next 5 years and outlined the new strategic direction both for products and business unit. After analyzing the new survey results, management was worried that whether these results also reflect partner's dissatisfaction from the newly defined outlook and strategic direction of the business unit X. They were concerned that if company now implement those big decisions then it might lead to further decline in business growth followed by loss of interest of partners in company products.

In January 2015, decision about executing a development project for finding the solution to case company's problems was made and the next step was to kick start the project. As I decided to do this development project as master thesis, I drafted a preliminary plan for project execution first to get a sign off from stakeholders. The next section gives brief overview of the presented service design process for development project.

4.1 Kick-off: service design process for development project

In February 2015, a meeting was organized to show the first draft of the development project plan to internal stakeholder of business unit X. The stakeholders present in this meeting were people from product management and marketing groups and some r&d team members. The main objective of this meeting was to show the plan and get a sign off for kick starting the development project. During this presentation session, the selection of service design concept for executing the development project and Moritz's service design framework were presented. A brief introduction about service design approach and selected framework was also given as no one from the stakeholder group was aware of the service design approach.

The thesis development project was executed using service design approach. By doing this, I wanted to show how service design can not only provide the ways of executing a project but it is also a process in itself for doing the actual development. Stefan Moritz's service design framework was chosen as the process to follow for the development project for the case

company because the framework clearly defines the tasks and goals for each stage. This is necessary for successful execution of the project because I will be able to successfully achieve the objectives of a stage if I know explicitly the tasks. Also, knowing the tasks helps in defining the service design tools and methods required for executing the tasks.

At this stage in the project, we were not sure about the actual reason for complaints of partners. So, I decided to only show development project plan for the phases which are meant to discover insights about the problem first. This is why the initial drafted service design process only depicts the first two categories of SD understanding and SD thinking from Moritz's service design framework. These categories were relevant because we were still dealing with the problem space and first objective is to clarify the problem domain and then later to conceptualize ways to overcome it. The two categories of SD generating and SD filtering which are relevant for finding the solution were added later to the plan of development project once the problem is known. Also, it was agreed during this initial session that two last categories of SD explaining and SD realizing are kept out of the scope of this development project and hence will be excluded from the thesis as well. The main objective for this project was to develop the new framework for product development process and the actual execution of the selected process is kept out of the scope.

Figure 9 outlines the initial development project plan that was presented to case company stakeholders to get a sign off for doing the development project as a master thesis. The plan also showed the service design tools and methods used to execute SD understanding and SD thinking categories in which the main task was to discover the problem domain of the case company. These service design methods were also introduced briefly to the stakeholders for giving them an overview of each method, as they were going to participate in the project for the execution of development project. This was just the initial plan which was later updated based on the theoretical research. As shown in the picture, I decided to do internal stakeholder presentation at the end of each phase to keep everyone up-to-date about the progress of development project and also to create knowledge about the process among all the stakeholders, which was one of the objective of this project.

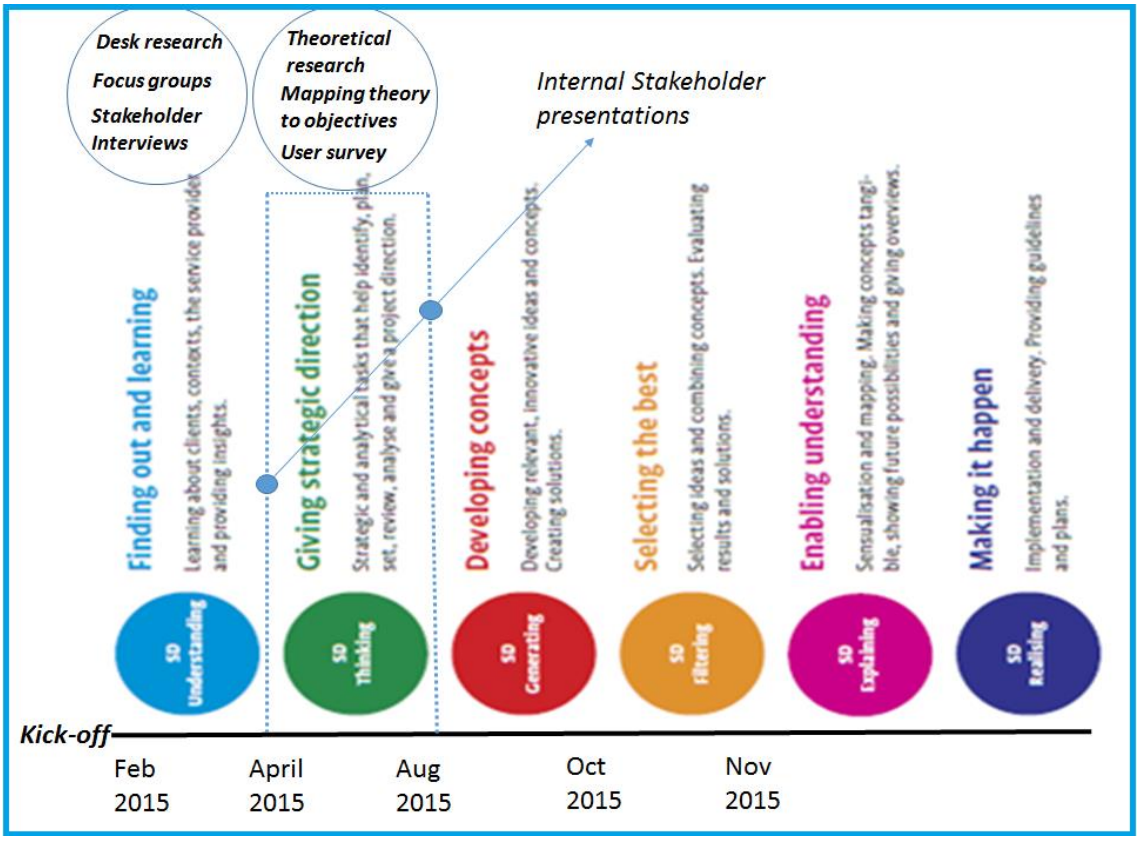

Figure 9: Initial Service Design process of development project

During this session, I was assigned as the main responsible person for executing and facilitating the complete development project and documenting the process in the end as part of master's thesis. At the same time, it was decided to involve both internal and external stakeholders from product management group, r&d department and partners and end customers to work through the different phases of the project as it progress. This was done purposely to make sure that service design knowledge is distributed in the company for future needs and executing the process internally and also given the complexity of the research and problem domain it was necessary to not perform the project in isolation from the real context.

4.2 SD Understanding

The tasks under this category generates insights that helps identify the areas the company should be going for, based on what is right for the company. It is about researching client's latent and conscious needs. Finding out the contexts, constraints and resources. Exploring possibilities about people's desire. The tasks include understanding clients and their behavior, desires, problems, goals, values psychology, understanding contexts- political, social, economic, technological, understanding providers – what factors are influential to the pro-

ject, person or organization, understanding relationships – is there something to be gained from opportunities or other providers. (Moritz, 2005, 126.)

The objective of this category in the development project was to find out the problem domain of the case company. As it was clear from the survey feedback that partners are disappointed but, stakeholders were not yet so clear what is the root cause of this. Therefore, this stage was executed to find out what is the reason of low NPS and hence disappointment of partners and customers with the business unit X of the case company. The service design tools used in this stage are mainly for gathering insights from partners and internal stakeholders. For kick starting the stage desk research was used to first study the information which already exist in the company and then focus group discussion and interviews were conducted with internal stakeholders and partners to listen to their feedback about this problem.

4.2.1 Desk research

Desk research is a source of secondary research data that can be collected before starting the actual fieldwork. According to Hauge (2013), this secondary research data can be obtained in the form of already existing publications, presentations or any prior work done in the same context etc.

In the context of this development project, I used the desk research method to find out existing insights about B2B unit X of the case company and its customers. For doing this, I used only the internal data that already existed in the company. The researched data mainly consisted of the information about customers and partners, selling process of the business unit X and existing r&d product development process. This data was necessary to find out what is the current status of the business and what are the existing gaps in the development process execution both from company's and partner's point of view.

One of the main source of desk research was a previous segmentation study done by the marketing group in the business unit X of the case company. This segmentation study was done to find out who are our target of partners and customers. Information from this study helped me in understanding the target group for which I have to execute the project. It is always beneficial to understand clearly the target before executing the actual project.

The segmentation study data provided the already existing personas of partners and end customers. These personas helped me in digging deeper into the mindset of the target group. The personas had deep insights about the selling and buying behaviors of partners and end customers respectively. From end customer personas, I got the clear view of the needs of end customers when buying products of business unit X. This type of information is required fur-

ther in the study to understand the decline in the selling to these end customers. Similarly partner personas had in-depth insights about their buying behavior, the size and type of their business, what they look for in a product before selling it to the end customer and what kind of relationship they want to build with the vendor.

The another source for desk research was a customer journey created for the partner sales cycle of one of the B2B product. This journey had some already identified pain points for the partner such as long sales cycles, difficulty in product trials, lack of product trainings etc. which were not been looked at even at the time when this development project was on going. It clearly showed the negligence from the product management about not attending well to the feedback of partners and that could add to the partner's disappointment with the business unit X.

The third and final source of desk research was the study about some of the selected competitors of case company's B2B customer segment. The main sources of this research consists of visiting competitors' website, reading whitepapers, running trial of their products and visiting their social media space. The competitor study was necessary to understand their selling behavior that case company is up against and if possible also to anticipate what they are planning to do next.

All of the insights gathered during desk research were input into the development project as the source of insights about partner and customer behavior. These insights were necessary to understand the needs and requirements of partners and customers while buying our products, which further explains why they were happy before and disappointed now. Knowing what has changed is necessary to understand what needs to be changed. These insights were also collected to be presented to the stakeholders along with the other investigated data at the end of this stage of the development project.

4.2.2 Focus group with internal stakeholders

Powell et al. (1996, 499), defines focus group as "a group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of research"

A ***focus group*** is a small-group discussion guided by a trained leader. It is used to learn more about opinions on a designated topic, and then to guide future action. The difference between any group interview and focus group interview is that in this case the group has a specific discussion topic they have to stay on and the composition of the group is specifically planned around the topic to be covered. (Moritz, 2005, 199.)

According to Morgan et al. (1993), focus groups provides insights about a research context based on the attitudes, beliefs, feeling and experiences of the participants. Being structured and directed, but also expressive, focus groups can provide a lot of insights in relatively short time frame (Moritz, 2005, 199).

In the context of development project, focus group was chosen to find out the views of other stakeholders about what is the cause of dissatisfaction of partners and customers. The other reason for using focus group in this stage is to involve other stakeholders in the process, so that they also participate in the investigation and help in finding the problem and solution. By doing this, I also wanted to increase the dimensions of gathered insights as I do not want to be the one and only source of insights for the whole project. This was also necessary to speed up the project as stakeholders wanted to find the solution as fast as possible.

The organized focus group discussion consisted of 2 members each from product management, marketing and r&d teams. The idea of focus group in this stage was to figure out what the internal stakeholders think could be the reason for low NPS, disappointment of partners and decline in business growth. Before trying to find out a solution to solve the problem it is necessary to first clarify the root cause. Not sufficiently investigating problem domain leads to discovering the incorrect root cause and hence completely incorrect solution.

In order to get maximum output from the discussion and to give everyone some time to think, the topic of discussion and information about the context was send beforehand to the invited stakeholders so that they join the discussion with correct outlook.

As it was already clear from the low NPS that partners are not happy with the product development process in general, the discussion was kick started with one main open question:

"*What according to you is the reason for partner's disappointment with the development process?*"

Even this single question generated a lot of arguments from all the stakeholder. Overall, the discussion was started with a very positive outlook of stakeholders as they felt committed to resolve this problem.

Following key arguments were raised during the discussion by different stakeholders:

- lack of sufficient r&d resources for speeding up the development process
- lack of researching on the future development of products
- not taking customer's view in consideration while making the development decisions

- feature development generally guided by time and release schedules and not based on real and immediate customer needs

Main arguments that were given by almost all the participants during the focus group discussion and agreed commonly to be selected as the topics for further investigation were:

- lack of customer oriented development
- lack of validation of the development feature with partners prior to development
- not involving partners in development process
- need change in development process

4.2.3 Partner interviews

Interview is a method used for gathering insights. Interviews are the qualitative way of gathering people's opinion, experiences, expectations etc. There could be different ways in which an interview can be conducted based on the requirements of project and also there are many different forms of conducting an interview. The one form chosen for this development project was Personal interview.

Personal interview is generally a face-to-face discussion with one person to collect information and opinion. For any kind of insights gathering, interview questions should be prepared beforehand to have an idea about what is the context of interview. An interviewer need not to blindly follow the prepared questions, but need to allow free flow of the interview keeping the topic in view of the discussion. Interview can be recorded in audio, video or note format. (Moritz, 2005, 193.)

The purpose of interviewing is to know the context from interviewee's point of view and to understand their experiences and reason for their behavior in a given context. Interview is also a way to validate the data collected during other parts of research. (Portigal, 2013, 3.)

According to Portigal (2013, 10), interviewing creates shared experiences for teams consisting of people from different disciplines. He further adds, that in addition to learning about people's context, interviews help in gaining empathy about their context and needs. In the context of this project gaining empathy about partner's and customer's needs was really necessary for the internal stakeholders as till now all the development decisions were made independent of these contexts and not having this contextual knowledge might be related to the problem in hand.

During focus group discussion, used for gathering insights with internal stakeholders, a common understanding was attained about the possible root cause for partner's disappointment

with business unit X. But, before spending time on investigating the solution for the identified problems, it was necessary to get some initial confirmation from partners about what the internal stakeholders think is actually the real reason.

Interviews for confirming the insights gathered from previous method were conducted with few selected key partners to gather their views on this context. The reason for selecting these key partners is to give them an indication that company is actively working on their feedback and by doing this, show them that their feedback is important for the case company. The partners were selected based on the size of their business and also depending on the business value of these partners in terms of yearly revenue towards case company.

Based on above described criteria, 3 partners were selected from Germany and Finland each and 2 from France for conducting face to face interviews.

Due to time constraints and other work commitments it was not possible for me to travel to all the locations and so, it was agreed with the stakeholders to conduct few of these interviews online and with the help of some other internal stakeholders. Interviews in Finland are conducted by myself and one other product manager. Skype interviews were arranged with 2 partners from Germany and 1 from France and 1 partner each from Germany and France was interviewed by marketing personnel from respective country office of the case company. The interview guide used for conducting all these interviews was created by myself together with 2 other stakeholders. This guide was necessary to make interview easy for the interviewers as some of them have little to no knowledge about the context. Also, a well-structured guide makes analyses of interview output easy. All the interviews were recorded with permissions from participants. Each interview took approximately 45-60 minutes.

Before conducting the interviews, we investigated briefly about each of the partner. The main sources used were CRM (Customer Relationship Management) tool used by case company to keep all customer related data and discussion with specific partner's account manager about its business.

In order to avoid getting yes or no answers open questions were asked during these interviews to give partner the opportunity to express their existing experience about the current development process and expectations for future. At first 15 questions were created in the interview guide but to keep the discussion only to the relevant subject only 5 questions were shortlisted for the final interview to keep the length of interview to a maximum of 1 hour. As Portigal (2013, 126) suggested that for most of the people an hour of interview is good enough.

The interview data was analyzed thoroughly after all interviews were done. Described below is the brief description of the analysis.

6 out of 8 interviewed partners think that the case company is in immediate need of transformation for its development process. They argue that even though current process has been working for several years in the past but based on the rapid changes in the current technology landscape case company won't be able to cope up with the speed of change using the existing processes.

5 out of 8 interviewed partners suggested that business unit X need to innovate new ways for customer oriented development. The current feature development is mainly done based on what already existed in market. Due to this, customers have plenty of options to choose from while buying a solution for their needs. They further added that if case company want to become front runner in the technology business then the product management has to think ahead of competition and possibly together with the customers to understand their real needs.

All 8 interviewed partners believe that business unit X has to speed up the release cycles of products to either outdone or at least match the output speed of their competitors. One requirement that was highlighted by all the partners is the need to involve partners as early as possible in the development process. They argue that this will allow partners to provide case company's product management with immediate feedback if there is something in the release pipeline that is of lower importance compared to something that is planned to be developed later.

These interviews with partners added to the insights gathered from desk research and focus groups and also confirmed that case company is in immediate need of transformation of product development process and quite soon.

4.2.4 Outcome of Understanding phase

During SD understanding phase in the development project case company's problem domain was discovered based on the insights gathered from desk research, focus group discussion and partner interviews and objectives of the study were established.

As agreed during the kick off session, a meeting was organized for internal stakeholders to present the findings of the SD understanding phase to keep everyone informed about the progress of the project and also to get their feedback on the outputs of executed phases so far. I really liked the idea of summarizing the insights at the end of each phase as it gave me time

to go over all the findings once again and update the insights if there is something missed. Also, presenting the insights gave me confident that the project execution is going on in the right direction.

In this meeting, findings from focus group discussion with internal stakeholders and findings from partner interviews were mapped to find out if there is anything common between the thinking of internal and external stakeholders. To everyone's surprise it was discovered from the mapped data that both the groups are on the same level of understanding.

Table 2: Insights from discover phase

Insights from focus group	Insights from partner interviews
lack of customer oriented development	immediate need of transformation for development process
lack of validation of the development feature with partners prior to development	need to validate the feature development with partners and customers
need change in development process	need to innovate new ways for product development
not involving partners in development process	need to involve partners early on in the development process

Table 2 shows the mapping of insights from focus group discussions with internal stakeholders and partner interviews. The lack of customer orientation and validation experienced by the internal stakeholders is confirmed by partners who want case company to transform the development process to become more customer oriented and involve them in the development process and listen to their feedback. Both internal stakeholders and partners want case company to transform the development process and start involving partners in the development process.

After presenting the insights from SD Understanding phase, the focus of the meeting was steered towards establishing the main objective of the development project. Well defined objectives are the first steps towards a successful development project. Also, defined objectives help in finding the solution for the discovered problems only and avoid losing focus of research. See the *"Objectives of the thesis"* section for the list of objectives of the development project.

The next stage in the development project was to move from problem space to solution space as the objectives were set. This stage also marked the beginning of next phase in the service design framework. From this stage onwards focus of the research was directed towards find-

ing as many solutions to the given objectives as possible. The next section explains the SD thinking category of the development project.

4.3 SD Thinking

The tasks under this category gives strategic direction for the development. It requires information gained from SD understanding about client's context, goals, constraints etc. SD thinking tasks gives direction and control to the whole development process. The tasks under this category includes identifying - the criteria, problems, focus and underlying motives, setting - objective, goals, vision, planning and feasibility of requirements, analyzing – competition, content, reviewing – insights, related components, direct- time plan, guidelines, specifications (Moritz, 2005, 130).

Insights gathered during early stages of the development project highlighted the requirement in the case company to create new ways for implementing the development process and also to become customer oriented by involving the partners and customers as early as possible in the product development process.

At this stage in the development project, it was clear for the case company stakeholders that changes in the development process needs to be done to revert the partner's and customer's feedback from disappointment to satisfaction. From the outcome of research so far, the case company stakeholders have understood that partners wanted to be involved in the lifecycle of product development because they believe that they know better than the product management about the needs of customers and what is going on in the market and wanted to give that feedback to company as soon as possible in the process and also to influence the development decisions.

The only thing remained unclear at this point in the project was how case company was going to achieve this objective. After setting the objectives together with stakeholders, I started the investigation towards finding the possible ways to fulfill the objective. The process into solution space was started with the review of some literature topics that are relevant for the problem at hand. The next section describe how the analyzed literature approaches can be utilized for fulfilling the case company objectives.

4.3.1 Mapping theory with objectives

During this phase in the development project theoretical analysis was performed to find the solution for objectives of the research. *Chapter 3* of the report describes in detail the analyzed topics of *co-creation, open innovation* and *service design*.

Based on the partner and customer feedback from the earlier phases of development project, it was evident that case company required to open the product development process for the external world which includes partners and customers. It was also very clear from the interviews with partners that they are also interested in becoming a part of the development process and would like to be involved in the complete development process as early as possible. Based on these needs the concepts of co-creation and open innovation were analyzed which helped in involving external resources in a company's development processes.

The first objective of the research was to find new ways for customer oriented development in business unit X. In this context, analyzed concepts of co-creation and open innovation provides the solution since both approaches suggests firms to use internal and external ideas and involve external stakeholders to advance in the business. According to Ramaswamy et al. (2010), co-creation is a practice where products are developed in collaboration with external stakeholders and by innovating together with customers, companies can increase their understanding of customer's needs and requirements. Based on this insight, co-creation development process with external stakeholders can be implemented in the business unit X of the case company where product management and r&d can invite partners and/or customers to co-create new ideas for products.

The feedback from partners also revealed that they felt their needs are not well understood and product management was just making decision of development based on their own perceptions. According to Piller et al. (2009), open innovation adds to company's knowledge of customer's needs but it does not substitute it. He further adds that both company and its customers who wants to participate in co-creation needs competence in different areas to successfully contribute to the project. Based on this, it was also decided in the case company to involve only few selected key partners in the process who have the skills to contribute in the process. This will improve the quality of output from the process as well.

Both co-creation and open innovation are strategic concepts and does not provide any linear step by step process to follow and if a company wants to open its development processes and implement co-creation then they have to first define a process which can be followed to co-create with external stakeholders. This requirement of co-creative open innovation was corresponding to the second objective of the research which was to define a framework for the business unit X for working together with the partners and customers during product and service development.

As suggested by Bhalla (2011), successful co-creation requires tools and processes for executing the project. See figure 4. During the theoretical research, service design approach and

service design tools and methods were analyzed to find out if these can be used for the new co-creation framework of product development process in the case company. According to Polaine et al., (2013,41), service design is all about designing with people and this is what case company wants to do as well. Service design also provides tools and methods that helps companies understand the context of their customers and a well understood context helps in knowing the needs of customers. Based on the insights gathered, the case company also wanted to involve partners and customers and develop solutions together with them. The co-creative and human centered principles of service design approach satisfy this need quite well.

4.3.2 User survey

A survey is a simple method for gathering information about a context that is well known to the people being surveyed. It is a great way of quantifying a context. Before creating a survey, it is necessary to find out the major decision point of the survey i.e. what is main question of the survey.

Based on the analysis in the previous stages, it was quite clear that case company have to involve partners and customers in the development process. Although, it was also clear from the partner interviews that they are interested in participating in development process but the interviewed group was a fraction of the total number of partners of case company. Hence, it was necessary to validate the finding with some other key partners before proceeding with the development of framework. For this purpose, a user survey was conducted in the form of a questionnaire with selected partners. The main objective of the survey was to find out how many other partners are interested in the idea of participating in the product development process of business unit X. The output of this survey was very important for the next steps of the project. The reason for using user survey and not any other design tool was that at this point in the development project knowing the quantity was necessary because case company is interested to know how many partners are interested for co-creation. Using user survey for this quantitative survey is found to be more efficient than any other design method.

The survey questionnaire was prepared in collaboration with one marketing person of business unit X who was familiar with the user survey technique. 150 partners were selected from the CRM system based on the size and type of their business and revenue generated by the partner for case company in last one year. Survey was sent as an email using the marketing tool used already in the company for similar needs.

A thorough analyses of survey output was performed in collaboration with marketing team.

Following is the participation statistics and result of the survey:

90% partners open the email of survey out of total of 150.
74% partners responded to the survey out of the possible 135 who opened the email.
67% partners out of a possible 99 responded positively to the idea of participating in the product development process of business unit X.

As it was confirmed in the survey results that several partners are interested for participating in the development process, the development project was continued towards finding the new ways of product development including partners and customers in the process.

4.3.3 Insights from SD Thinking

At the end of SD thinking phase another internal stakeholder meeting was organized to present the results of the SD thinking phase of development project.

The meeting was kick started by presenting the theoretical research concepts of co-creation, open innovation and service design followed by description of co-relation between the analyzed topics and the objectives of research. The purpose of the presentation was to distribute the knowledge of the analyzed concepts among members of management and marketing groups. The third and final objective of the development project was to facilitate the knowledge creation among internal stakeholders for the new development process because the developed framework will be implemented in practice by these members and it is necessary to distribute the knowledge early on in the process so that quick results can be achieved once the framework is conceptualized and put into use in business unit X.

In this meeting, results of user surveys were also presented and discussed. The stakeholders were pleasantly surprised by the high number of positive response than anticipated, about the readiness of partners to participate in the development process and were happy about the decision to execute the development project. In the end, everyone agreed to continue with the development project after having seen the results so far.

The meeting continued with the discussion about the next steps of the development project. As during kick-off of the development project, plan related to only first two categories of service design framework was drafted, it was required to elaborate the plan to include the next two categories of SD generating and SD filtering for the project. I had worked on elaborating the plan by including the tools and methods to be used in the final two phases of development project beforehand and presented the updated plan in the meeting to stakeholders.

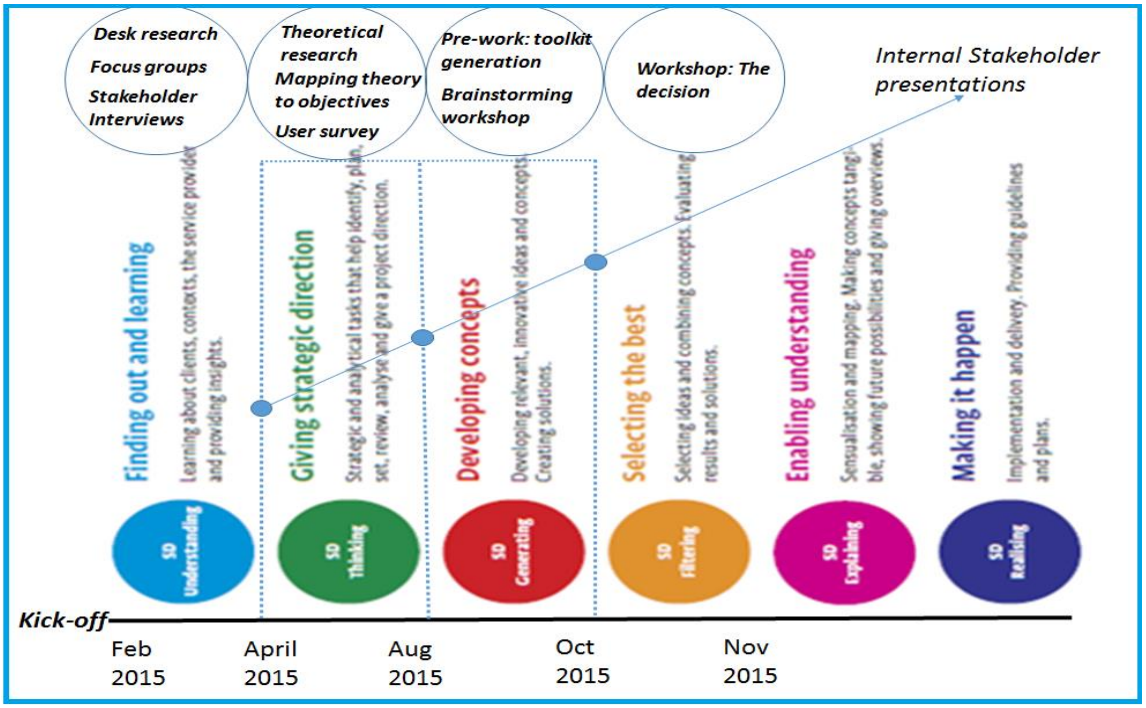

Figure 10: Complete Service design process for the development project

Figure 10 is the visual representation of the complete service design development project including already executed stages and the next stages of the project. SD generating is the category that involves generating new ideas for the problem at hand and I suggested in the plan to use brainstorming workshop for it. From this workshop toolkit for service design based development process was the expected outcome. The last and final phase of the development project was to filter out the ideas to implement in reality. A workshop involving all the stakeholders was organized to achieve this. The next section describes in detail all these methods executed during next stages.

4.4 SD generating

The tasks in this category are all about generating new relevant, intelligent ideas and concepts. SD Generating is based on the insights and in line with the strategy. The tasks include developing- ideas, solutions and processes, creating – concepts and scenarios, finding – environment, inspirations, new ways of working, implementing - corporate design, crafting – evidence, touchpoints, interface and experiences (Moritz, 2005, 134).

This was the stage of development project where we have to generate solution for the identified objective of new framework for product development process for co-creation in case company's business unit X with external stakeholders such as partners and customers. To get better results from this final stage, it was decided to involve all the internal stakeholders in this stage.

Brainstorming was selected as the method for generating ideas for the new development process. According to Moritz (2005, 210), brainstorming is a technique for generating large number of ideas with a group of stakeholders. The session is required to be facilitated to make sure that objectives of the session is attained. He further adds that it is encouraged to be vocal and have as many wild ideas as possible which are then written down for further selecting the best idea. Osborn (1953) suggests that brainstorming is useful for generating solutions but should be used in conjunction with other methods.

Adam (1979), suggested that no criticism, evaluation or judgement should be allowed for the generated ideas and main objective of brainstorming sessions is quantity of ideas rather than quality. Osborn (1953) also stressed the need for the process to be fun and open and only positive comments for the generated ideas should be allowed.

4.4.1 Brainstorming: pre-work

As suggested by Moritz (2005, 210), a brainstorming workshop needs to be facilitated to attain its objectives. Also, from my past experience of conducting such workshops, I have learned that it is valuable to know beforehand the context of the session, so that participants can prepare in advance if there is any such need.

All stakeholders except me were unfamiliar with the service design tools and methods and in order to make sure everyone participate actively during brainstorming workshop; an introductory presentation was organized few days before the workshop. The main objectives of this presentation were to prepare everyone for the brainstorming workshop and to familiarize them with the tools and methods they are going to use in the session.

Various service design tools and methods found relevant for the to be made product development framework based on the review in the theoretical analyses phase of research were presented to the stakeholders in this session in the form of a toolkit. This was necessary because if participants have joined the workshop without any prior understanding of the tools and methods, then the result would not have been as effective as it was. For developing the toolkit, I did brainstorming on my own and analyzed some service design tools and methods which can be utilized for the framework. The toolkit consists of service design methods of contextual interviews, what-if and scenarios in addition to focus groups (4.2.2), interview (4.2.3), user survey (4.3.2) and brainstorming (4.4) which are already discussed in earlier sections of this chapter. Below is brief description of remaining service design methods.

Contextual Interview

According to Curedale (2013, 174), contextual interviews helps uncover implicit needs which are otherwise unknown to the people about their own context. In Contextual interview customers are interviewed in the relevant environment. Contextual interviews tend to be more natural and are more realistic as a result of that. They are less formal and usually don't rely on a script.

Moritz (2005, 187) suggests that in a contextual interview, it is important that interviewer is familiar with the domain of the interview, this helps interviewer finds out why users are behaving in a certain way and what their expectations are. According to Stickdorn (2010, 163), contextual interviews allow researcher gain better understanding of needs of customers. This generates holistic understanding than is possible in non-contextual interview.

In the required product development process for business unit X contextual interviews can be used to understand the real needs and requirements of the partners and customers in their own context. As it was brought up during discussion with partners that they know better than the real needs and market trends, so product management can use the contextual interviews to enquire with the partners for a new feature or product development and also for feedback discussions.

What if?

What-if analysis is a data intensive simulation whose goal is to inspect the behavior of a complex system, such as the corporate business or a part of it, under some given hypotheses called scenarios. In particular, what-if analysis measures how changes in a set of independent variables impact a set of dependent variables with reference to a given simulation model. It is used to explore wide ranging changes rather than specific service experiences. What if? questions need to make participants to discover potential future scenarios without involving them in everyday concerns. (Stickdorn, 2010, 182-183.)

What-if analysis is an effective way to generate new scenario hypotheses with reference to an existing point of reference and this technique can be used in the new product development process for prioritization purpose when there are multiple features to be developed but there is time for only few. By doing the what-if analysis the best potential feature can be chosen.

Scenarios

Scenarios are the way of summarizing the future research and the foresight process (Meristö, 2009). They are the end product of all the future research methods. A story about alternative future possibilities having different probabilities of occurrence (Bell, 2009, 317). According to Kuosa (2012, 38), scenarios provide a way to systematically explore, create and test the alternative future environments and help build long-term policies, strategies and plans. Scenario building is a long-term proactive process that works from outside to inside (Meristö, 2009). The decision makers of the company need to be involved in the process of scenario building. One limitation of scenario building is that it is time consuming.

The output from the scenarios building can be directly used by the decision makers, leadership team as an input to the strategic decisions of the company.

In the context of development process scenarios can be used by product management to validate with partners and customers the future development plans about specific existing products or even new development ideas as well. Scenarios are useful tool for communicating future ideas.

In addition to service design tools and methods a brief overview of existing product development process of the business unit X was given because people from different departments were joining the workshop and some of them were not aware of the complete development process. This was necessary to make everyone aware of the context they need to deal with in the brainstorming session and to make the best use of time in the actual brainstorming session because without having prior understanding of development process there was no way to execute the session effectively.

Although the development process was known to some participants in the meeting, but still to everyone's surprise going through the steps was a revelation that how independently business unit X was developing the products till now. The presentation continued by presenting one by one the selected service design tools and methods and giving some hands on examples. I was positively surprised to hear so many questions from stakeholders which indicated their commitment to the process.

4.4.2 Brainstorming workshop with internal stakeholders

A full day workshop was organized with internal stakeholders to brainstorm the possible new frameworks for development process. 2 persons each from Product management, marketing and r&d were invited. In total 7 stakeholders including me participated in the session.

The objective of the workshop was to generate in the end two possible options for the product development process of business unit X which were to be presented to a larger group of stakeholders including Directors of product management and marketing teams as part of the next phase of the development project.

Brainstorming session was kick-started by giving a brief overview of the existing agile product development process and already presented service design tools and methods in pre-work phase. This was done to bring everyone in the context and trigger the thought process.

Being the only person with service design experience and also as a product management member I facilitated as well as participated in the session. As a pre-work for the workshop I have created individual set of materials containing the toolkit and existing product development process prints. The prepared material was given to each member together with the tools to use based on their own preferred method of writing on post-it notes, drawing on whiteboard, drawing on flipchart or invent their own way.

The workshop was kick started by assigning each member a number from 1-7. In the first phase each member was asked to conceptualize a modified version of the existing development process by incorporating the service design tools from the toolkit. The objective set for the output was to generate ideas to involve customers and partners in the existing product development process. 1.5 hours were allotted for this first task. The members were instructed to keep the ideas in a rough drafted version to avoid spending too much time on refining the initial ideas. At the end of this first task the participants were asked to present briefly the roughly drafted idea of new development process framework to rest of the members.

During presentations, the objective for presenters was to listen to the feedback from other members and record it for the remaining workshop phases; the objective for other members was to scrutinize the presented framework as much as possible and ask what comes in their mind even if it does not make sense in their point of view. This was asked to keep the discussion alive and hear the very first thoughts.

The second phase of the workshop was started with a twist when the members were asked to switch their drafted product development process framework with the member whose number is next to them. They were then asked to implement the feedback gathered by the switched member during previous phase presentation. Time allotted for this phase was 1 hour and the same objectives were given to present the progress in the developed process framework at the end and record the feedback given by other members.

This same cycle of switching the drafted idea with next numbered member was repeated 2 more times during workshop with allotted time of half of an hour each. The main purpose of this exercise is to get inspiration from each other's ideas and improve collaboration during the process. At the end of these cycles, we have successfully generated 7 ideas for improving the development process using service design tools for involving partners and customers in the process.

The next task during the workshop was to shortlist 2 most favorite ideas of new development process framework out of the possible 7 from each person in the workshop. Final version of the 7 developed ideas were discussed one by one along with the pros and cons, if implemented in the business unit X of the case company. After this discussion 2 ideas were unanimously selected as the best ones to be presented in the next stage of SD filtering.

The next phase in the development project was to finalize one idea out of these two selected ideas of improved product development process. The next section describes the process executed for making the final selection and also the detailed description of the final selected product development framework for case company.

4.5 SD Filtering: The decision

After generating ideas in the SD generating phase, the tasks in filtering category includes selecting the best among those and evaluating results and solutions. Ideas, concepts and solutions are measured against different performance criteria. It is important to involve key decision makers in this phase. The tasks include selecting – ideas, concepts and solutions, Test and measure – quality and performance of ideas, evaluate ideas and concepts- subjectively, economically, technologically, heuristically and legally. (Moritz, 2005, 138.)

The last and final phase of the development project was to select one idea of product development process framework out of the two possible ideas for the co-creative product development with partners and customer. As part of my project, I documented the results from the SD generating phase and prepared a presentation for showing the results of workshop to a wider audience. A meeting was arranged for internal stakeholders who participated in the development project and Directors of product management and marketing groups. In addition, four new members from r&d were invited to this meeting. The Directors of product management and marketing were invited since they are the decision makers to give the final go ahead for the implementation of the new product development process in the business unit X of the case company.

As new members were participating in the meeting, the presentation was started with a brief description of the overall development project including description of co-creation, open innovation and service design approach, tools and methods. The presentation had the same view as before of first presenting the existing agile development process and then explaining one by one the two ideas generated from the brainstorming workshop.

Other internal stakeholders who participated in the brainstorming workshop also joined me during presentation explaining about the selection of different tools and methods and the overall process. The meeting was very interactive and positive response was received from all the stakeholders including the directors of product management and marketing regarding the overall development project and the developed ideas. After some further discussion about the two choices, the idea selected to be implemented as the new product development process framework was chosen. The next section describes the selected idea in detail.

4.5.1 Service Design based co-creation framework for product development

Based on the service design development project work, the final idea selected for trial was a modified version of the agile product development process used in the business unit X. The main objective for creating the new development process framework was to involve partners and customers throughout the development cycle in order to get their input or feedback in phases wherever applicable. This section describes in detail the new developed framework including description about how it influences the current process.

Figure 11 depicts the new conceptualized service design based product development process framework for co-creation, created as a result of the development project.

The existing development process starts when Product Owner together with Product Manager decides what needs to be developed based on their understanding of user's needs and also sometimes based on the feedback given by sales personnel. Based on the NPS survey, this has in some situations resulted in the disappointment of partners and customers because what was released at the end of one development cycle does not fulfill the immediate needs of the customers.

There are two different paths how a release cycle can be initiated based on whether it is a complete new product development or it is an enhancement release of an existing product. Depending on these two paths the new product development process framework suggested two different ways for kicking off the development cycle for a release.

In the new development process a validation phase was introduced in the beginning where it was suggested to Product Management to first validate their idea of new product or a feature enhancement release with few selected key partners before adding the requirements in the product backlog for r&d teams.

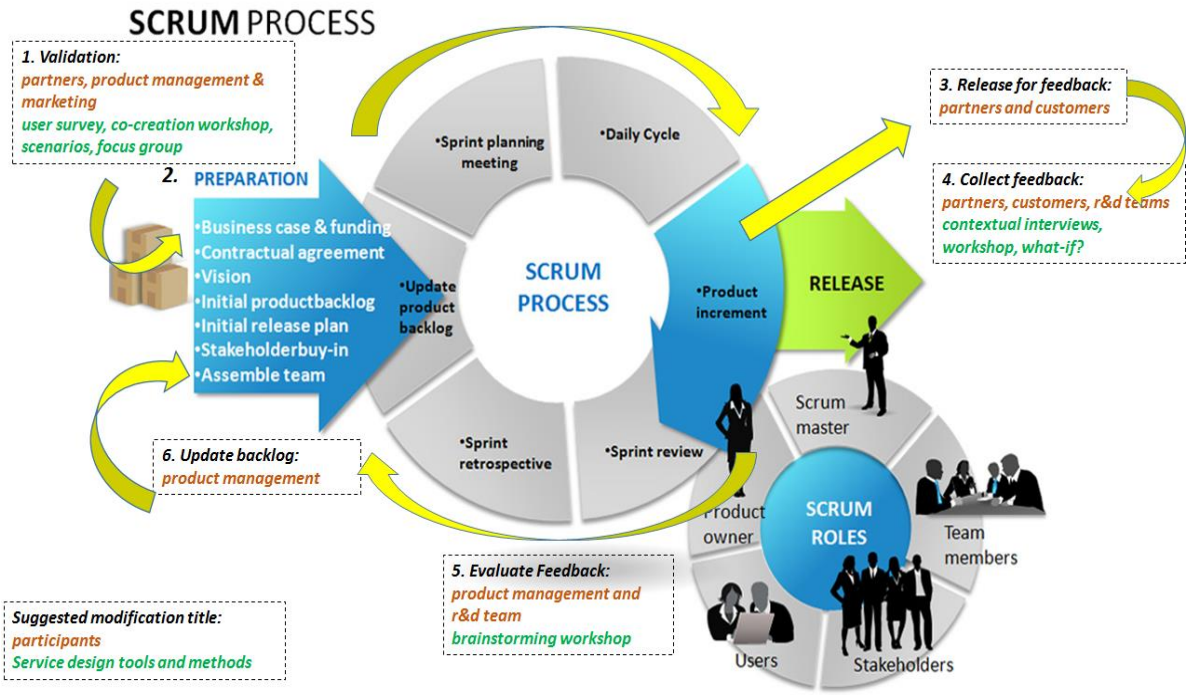

Figure 11: New service design based co-creation framework for product development

For a product enhancement release where new features are introduced to existing products, user survey was recommended as the method to get the feedback from partners and customers. The main problem revealed during the investigation phase of research for product enhancement releases was that the immediately required features were most often delayed in comparison to not so needed features. Using user survey to validate the need of selected features would allow partners to give the feedback in time about the immediate needs and necessary action can be taken accordingly by product management to prioritize features which are rated highly by partners. Also, by doing validation through user surveys, product management can get early feedback and can avoid developing features into the products which are not needed for now. One suggestion documented explicitly for conducting user survey was that the key for a good user survey is to avoid asking close questions and instead ask open questions with options to give customer the opportunity to provide free form feedback so that they can speak their mind and give honest answers instead of answering closed questions with yes or no.

For a new product development release conducting a survey is not enough, as more risks are involved if products are released without evaluating first the need in the market. Also, introducing a new product to the existing product portfolio of business unit X is a big decision towards the strategic direction of the company and so the decision has to be made after more thorough validation.

The service design process recommended for validation of a new product development suggests product management to first perform some pre-work to create the hypothesis of the new product idea. If there are several different good ideas, then more than one hypothesis can be created using what-if? or scenario generation techniques. These generated hypotheses are then suggested to be presented to few selected partners in a design workshop. It was recommended to provide good design tools to participants in the design workshop. Open space must be provided to allow people to be creative in addition to tools such as whiteboards, post-it notes, flipcharts etc. Since design workshop is a time consuming process and requires knowledge of the context to participate effectively, it is suggested to select few key partners based on their knowledge and skills for the context in hand. Some other service design tools like customer journey map etc. can be used based on the context of new developed product or service.

In the new product development process framework, the validation phase is suggested to be followed by preparation phase of the existing agile product development process where product management and product owner's task is to define the requirements of the product development for the r&d teams and add the business goals to the product backlog. After this phase the r&d's development process of scrum will still follow the same cycle of planning and development.

The second modification to the existing development process was recommended based on the feedback that partners and customers were only asked their feedback about a developed product in the form of a beta release only 1 month before the public release, when the product is fully developed and there is little to no scope of implementing the changes based on their immediate feedback. In the existing development process, the beta releases were done 1 month before the public release to the market where almost ready version of the developed product was given for testing and feedback to partners and customers. In most of the cases the beta feedback was either partially or completely left out of the scope of release mostly due to release schedule commitment. In the modified development process, it was suggested to provide the developed product in case of a completely new product or then feature complete product in case of enhancement releases as early as possible in the development cycle to selected partners and if some customers are interested to try the intermediate product then involve them as well. This was introduced to allow customers and partners sufficient

time to try the product and provide feedback and also leaving sufficient time for the r&d to implement the suggested changes if the feedback is given early on in the development cycle instead of waiting for the beta release after which implementing changes were mostly avoided to avoid lowering the quality of implemented features because changes done at the last minute without complete quality assurance can introduce new problems into the developed product.

The third modification was the recommendation that each release cycle must be followed by a feedback collection phase in the development process. Depending on the type of release any service design method can be selected among contextual interviews, feedback workshop or what if? method. It was recommended to use contextual interviews because customers might be able to tell better about their feedback and experience while using the product in their environment rather than writing the feedback in the form of a survey. Feedback workshop can be chosen for a new product feedback collection where together with partners, product management and r&d can further brainstorm their feedback ideas. Partners and product management both can also use what if? scenarios to explain their requirements and suggestions in the feedback.

The fourth modification suggested into the development process was for product management to evaluate the feedback from partners and customers together with r&d team members. Brainstorming workshop was suggested as the design method for not only just evaluating the feedback but also to build their own ideas based on the feedback from partners and customers. It was also suggested to the product management and r&d teams that partner's feedback might not be 100% relevant and so build own knowledge with the feedback and create business goals accordingly.

The last modification to development process was for the product management to not just evaluate the feedback but use that feedback to build new requirements and ideas for r&d teams to develop in the products and add those to product backlog. One recommendation made in addition to the suggested modification in the agile product development process was to develop the features from partner's feedback if found relevant, with immediate effect in the upcoming iterations of the development cycle. This was necessary to ultimately provide partners and customers the products which fulfill their immediate needs and also to show partners that their feedback is really taken into consideration. If business unit X failed to implement the suggested feedback, then partners might not feel any need to participate in co-creation in future.

One important requirement for effectively implementing the suggested modification to the development process was to find out key partners and customers who would be interested to

participate in the co-creation process. This task was left out of the development project for internal stakeholders to decide later how they want to select those key partners. However, some suggestions were made such as select partners based on their skill set, availability of resources for participating in co-creation workshops and also for doing early evaluation, if possible select partners located close to r&d teams which will be convenient if there was a need to visit some partners for organizing feedback workshops and interviews. Also, it was recommended to present the new modified product development process framework to partners with information about what is in it for them and not only from business unit X's perspective. Partners and customers would feel more associated to the process if it was presented to provide them some kind of benefit. e.g. more business to partners with much more advanced and in the context products which fulfill the immediate needs of their customers and easy to use and advanced functionality products for customers.

5 Conclusion

Developing products and services based on the traditional market research techniques has resulted in decline in NPS and hence the satisfaction of partners and customers in case company. In a B2B business, a company's success is directly linked to ability of partners to sell its products to customers. In the absence of products and services to satisfy the immediate needs of customers, partners found it difficult to sell case company products to end customers which resulted into the decline in business unit X's growth. The business unit X was urgently in need to find out what is causing disappointment to the partners and customers.

The research expectation was to find the root cause as well as solution to the problem of lower NPS results and help case company in creating the new ways of finding customer requirements.

The research was executed as a development project using service design process based on Moritz's service design framework.

The main objectives defined for the project were:

1. Discover new ways of customer oriented development for Business-to-business segment of case company
2. Define a framework for working together with the business-to-business customers for product and service development
3. Facilitate the knowledge creation among internal stakeholders for the new framework

5.1 Framework for co-creation for B2B product development

The solution to the first objective of research were found within the concepts of co-creation and open innovation. Customer orientation is the essence of both co-creation and open innovation. According to Prahalad et al's. (2004), new frame of reference for value creation, customer's role is changing, where they wanted to be a part of the value creation process by influencing the process with their real needs and requirements. This is aligned with the requirements of partners of case company who wanted to be involved in the development process and be a part of it to help business unit X develop products to fulfill the real needs of customers and not based on the superfluous needs generated based on some quantitative market study.

As stated by Chesbrough (2003), open innovation is a paradigm for using external and internal ideas and resources for advancement in technology. Customers play a big role being the external stakeholders in open innovation and serves as the main guiding light for any future development based on the latent needs. Co-creation on the other hand guides the way how open innovation can be realized in the context of any business.

According to Prahalad et al.'s (2004) building blocks of co-creation, a successful co-creation process demands both company and its customers to make the necessary adjustments to meet their objectives. Based on the co-creation building blocks in figure 2, case company also have to open the co-creation channel with customers starting with a dialog to discuss what benefit this will bring for both. The customers also need to know everything about the company's objective for co-creation with them and also transparency needs to be maintained throughout the co-creation process to allow customer make informed decisions.

Based on Bhalla's (2011, 4) new profile of customer in Table 1, the changing role of customers is quite evident in the case company where partners want to be actively involved in the development processes and they want to give feedback, tell their requirements, so that company can deliver products based on those requirements. Also, the role of customer as a promoter of a company is very relevant for case company and its B2B business. This new role of customer as a collaborator formed the basis of second objective, which was to define a framework for customer oriented product development for the business-to-business customers. The new service design based co-creation framework for product development process satisfy this need in case company, where customers are given the central role in the development process. Service design approach was chosen to involve customers into the development process based on Moritz's (2005) ideas that service design helps in understanding the customer needs and expectations by allowing companies to co-create with them. According to him Service

design act as a moderator between organization and its customers as the ultimate driver of change.

The new co-creation product development process will not only help the case company to work closer to their customers but it will also help to grow company and its partner's business by creating products that customers are interested to buy because those are built with their feedback and real needs in the background. While using the service design tools and methods during the research development project the case company stakeholders have seen the process into action and are looking forward to using it in actual product development cycles with customers and partners.

The third and last objective of the research was to facilitate the knowledge creation among the stakeholders who will execute the new developed framework in the case company. This objective was executed from the very first stage of the development project by involving selected internal stakeholders from product management, marketing and r&d and also key partners throughout the process. At each stage in the service design project necessary knowledge sharing presentations and workshops were arranged for the stakeholders. Everyone involved in the project appreciated the knowledge shared and found it to be necessary as everyone except me was unfamiliar with the service design approach and tools. They also highlighted the pre-work and facilitation done during each of the workshop and meetings as absolute necessity for successful implementation.

The successful application of service design tools and methods for co-creation in B2B context in this development project is not restricted to the application in case company only. The output of this development project although very much centered towards the goals of case company can very well fulfill the needs of any other company with similar business goals where the objective is to gain better understanding of customer's needs and contexts and to become customer oriented. The application of service design tools in an ICT product development process can be also easily generalized for any company using the agile development approach.

5.2 Evaluation of the results of development project

The research was initiated with the goal of transforming the existing development process of case company from firm-centricity to towards customer-centricity. All the stated objectives were met at the end of project. The new service design based framework for co-creation will help the business unit in working closely with customers and partners and delivering products and services which will satisfy their real needs and solve their immediate problems. The knowledge of service design tools and methods obtained during the project will help company

not only in implementing the modified development process but also using these tools and methods in other projects in future. The participants already made comments that they had good ideas about using these tools for implementing the newly generated development process and also wanted to make use of some of these tools in their daily work.

The project was originated due to the lower NPS scores and satisfaction of the partners and customers. The final objective of the case company is to improve the current situation and hence the NPS. The scope of this project was limited to finding the ways of improving the situation and the objectives were met by developing the new service design based customer oriented framework for product development process. My personal goal for doing the research for case company was to implement the learnings from the master degree study in my work and also to distribute the knowledge among other personnel of the company about service design field. This goal was also achieved after the successful execution of the complete development project for this research. During this process, I played the role of a facilitator as well as a participant being the member of stakeholder group. Overall the experience was positive and it was even appreciated by the stakeholders during and also after the development project was finished. Overall, stakeholders were impressed by my knowledge and execution skills during the sessions.

Although implementation of the modified development process was not part of the project, but at the time of writing this thesis, business unit X already executed two successful product releases using the new framework for product development process. Short surveys were performed after each of these releases and has already shown improvements in partners' satisfaction with developed products and the co-creative product development process.

5.3 Evaluation of the execution of development project

The development project was executed using Moritz's service design framework and only first four categories were executed based on the needs in the case company. For execution of each category prior investigation and planning was done to understand the context of problem. Multiple service design methods were used during each category to validate the output from different perspectives and to improve the quality of understanding and results. The results from each stage were also analyzed thoroughly together with stakeholders of the project to validate the output before using into next stage. This validation helped in using only information which is relevant for the next stage and avoid using unnecessary information to reduce complexity and improve execution.

Although set objectives were achieved during this project but still more time could be spent on each stage to further improve the quality of output. Reflecting back into the complexity of

executed process and the time required in facilitation and participation, having more people with service design approach knowledge could also enhance the quality of facilitation and final output.

5.4 Prospects for future research

For improving the satisfaction of partners and customers and hence the NPS score, the modified product development process is just the start. The next challenge is to successfully transform the existing development process into the new co-creation process involving partners and customers. This transformation not only requires learning new tools and methods but much higher level changes are required in the organization culture towards openness and working with partners and customers so closely. Everyone from product management, marketing and r&d have to build new ways of accommodating the change in their work.

One future research idea could be a development project for transforming the organization to adapt to the new co-creative product development process. This research project was very focused for the case company and its ways of working. In future the developed idea can be researched further to be more generic that can be utilized by others in the same or different industry.

References

Chesbrough, H., 2004. Managing open innovation. Research-Technology Management, 47(1), pp.23-26.

Chesbrough, H., 2012. Open innovation: Where we've been and where we're going. Research-Technology Management, 55(4), pp.20-27.

Chesbrough, H.W., 2011. Bringing open innovation to services. MIT Sloan Management Review, 52(2), p.85.

Chesbrough, H.W., 2006. The era of open innovation. Managing innovation and change, 127(3), pp.34-41.

Chesbrough, H., 2010. Open services innovation: Rethinking your business to grow and compete in a new era. John Wiley & Sons.

Chesbrough, H. and Brunswicker, S., 2013. Managing open innovation in large firms. Fraunhofer Verlag.

CO-CREATION, T.P.P.O., 2015. USER-INVOLVED SERVICE INNOVATION.

Curedale, R. 2013. Service Design - 250 essential methods. Los Angeles: Design Community College.

Dahlander, L. and Piezunka, H., 2014. Open to suggestions: How organizations elicit suggestions through proactive and reactive attention. Research Policy, 43(5), pp.812-827.

Design methods for developing services *by Design Council*

Edvardsson, B., Gustafsson, A., Kristensson, P., Magnusson, P., Matthing, J. 2006. Involving Customers in New Service Development. Imperial College Press. London – Great Britain.

Enkel, E., Gassmann, O. and Chesbrough, H., 2009. Open R&D and open innovation: exploring the phenomenon. R&d Management, 39(4), pp.311-316.

European Commission 2009. Living Labs for user-driven open innovation, an overview of the Living Labs methodology, activities and achievements, January 2009.

Gassmann, O., 2006. Opening up the innovation process: towards an agenda. R&d Management, 36(3), pp.223-228.

Gassmann, O., Enkel, E. and Chesbrough, H., 2010. The future of open innovation. R&d Management, 40(3), pp.213-221.

Greer, C.R. and Lei, D., 2012. Collaborative innovation with customers: A review of the literature and suggestions for future research. International Journal of Management Reviews, 14(1), pp.63-84.

Hämäläinen, K., Lammi, M. 2010. Service Design as a tool for innovation leadership. (Edited by) Miettinen, S. Koivisto, M. 2010. Designing Services with Innovative Methods. Otava Book Printing Ltd. Finland. 180 – 195.

Hague, P., Hague, N. & Morgan, C-A. 2013. Market research in practice: how to get greater insight from your market. 2nd edition. Great Britain and the United States: Kogan Page Limited.

Huff, A.S., Möslein, K.M. and Reichwald, R., 2013. Leading open innovation. Mit Press.

John P. Kotter, 2012. Leading change. Harvard business review press.

Kimbell L. 2010. Marketing: connecting with people, creating value. In Stickdorn, M. and Schneider, J. (eds.) This is Service Design thinking. Basics – tools – cases. BIS Publishers, Amsterdam, 46-51.

Krause, Willie, and C. S. L. Schutte. "A perspective on open innovation in small-and medium-sized enterprises in South Africa, and design requirements for an open innovation approach." South African Journal of Industrial Engineering 26.1 (2015): 163-178.

Kristensson, P., Gustafsson, A. and Archer, T., 2004. Harnessing the creative potential among users. Journal of product innovation management, 21(1), pp.4-14.

Kujala, S., 2003. User involvement: a review of the benefits and challenges. Behaviour & information technology, 22(1), pp.1-16.

Kuosa, T., 2011. The evolution of strategic foresight.

Laitinen, Meristö, 2009. INNORISK: The Fountain of New Business Creation Final Report. Corporate Foresight Group CoFi / Åbo Akademi University.

Leavy, B., 2012. Collaborative innovation as the new imperative-design thinking, value co-creation and the power of "pull". Strategy & Leadership, 40(2), pp.25-34.

Lichtenthaler, U., 2011. Open innovation: Past research, current debates, and future directions. The Academy of Management Perspectives, 25(1), pp.75-93.

Løvlie, L., Polaine, A. and Reason, B., 2013. Service Design: From Insight to Implementation. New York: Rosenfield Media, LLC.

Lusch, R.F., Vargo, S.L. and O'Brien, M., 2007. Competing through service: Insights from service-dominant logic. Journal of retailing, 83(1), pp.5-18.

Mager, B. 2009. Service design as emerging field. (Edited by) Miettinen, S. Koivisto, M. 2010. Designing Services with Innovatice Methods. Otava Book Printing Ltd. Finland. 28-42

Miettinen, S & Valtonen, A. 2012. Service Design with Theory, HansaBook, Vantaa.

Morgan, D.L. and Krueger, R.A., 1993. When to use focus groups and why.

Moritz, S. 2005. Service Design, Practical Access to Evolving Field. Köln: Köln International School of Design.

Ojasalo, K., 2010. The shift from co-production in services to value co-creation. The Business Review, Cambridge, 16(1), pp.171-177.

Oliva, R. and Kallenberg, R., 2003. Managing the transition from products to services. International journal of service industry management, 14(2), pp.160-172.

Osborn, A.F., 1953. Applied imagination: principles and procedures of creative problem solving. Charles Scribener's Sons, New York.

Paton, R., McCalman, J. 2008. Change management – A Guide to Effective Implementation. 3rd edition. SAGE Publications India Ltd.

Payne, A.F., Storbacka, K. and Frow, P., 2008. Managing the co-creation of value. Journal of the academy of marketing science, 36(1), pp.83-96.

Piller, F. and Ihl, C., 2009. Open innovation with customers. Foundations, Competences and International Trends. Trend Study within the BMBF Project—International Monitoring‖. RWTH Aachen University: Aachen (in print).

Powell, R.A. and Single, H.M., 1996. Focus groups. International journal for quality in health care, 8(5), pp.499-504.

Prahalad, C.K. and Ramaswamy, V., 2000. Co-opting customer competence. Harvard business review, 78(1), pp.79-90.

Revans, R., 2011. ABC of action learning. Gower Publishing, Ltd..

Rodríguez, P., Markkula, J., Oivo, M. and Turula, K., 2012, September. Survey on agile and lean usage in finnish software industry. In Proceedings of the ACM-IEEE international symposium on Empirical software engineering and measurement (pp. 139-148). ACM.

Rohrbeck, R., Hölzle, K. and Gemünden, H.G., 2009. Opening up for competitive advantage–How Deutsche Telekom creates an open innovation ecosystem. R&d Management, 39(4), pp.420-430.

Steen, M., Aarts, O. and Broekman, C., 2012, January. Benefits of human-centred design in open innovation projects. In ISPIM Conference Proceedings (p. 1). The International Society for Professional Innovation Management (ISPIM).

Stickdorn, M. and Schneider, J. 2010. This is Service Design thinking. Basics – tools – cases. BIS Publishers, Amsterdam.

Tang, T. and Hämäläinen, M., 2014. Beyond Open Innovation: the Living Lab Way of ICT Innovation. Interdisciplinary Studies Journal, 3(4), p.15.

Van de Vrande, V., De Jong, J.P., Vanhaverbeke, W. and De Rochemont, M., 2009. Open innovation in SMEs: Trends, motives and management challenges. Technovation, 29(6), pp.423-437.

Vargo, S.L. and Lusch, R.F., 2004. Evolving to a new dominant logic for marketing. Journal of marketing, 68(1), pp.1-17.

Vargo, S.L., Maglio, P.P. and Akaka, M.A., 2008. On value and value co-creation: A service systems and service logic perspective. European management journal, 26(3), pp.145-152.

Wallin, M.W. and Von Krogh, G., 2010. Organizing for Open Innovation:: Focus on the Integration of Knowledge. Organizational dynamics, 39(2), pp.145-154.

West, D., Grant, T., Gerush, M. and D'silva, D., 2010. Agile development: Mainstream adoption has changed agility. Forrester Research, 2(1), p.41.

Westerlund, M. and Leminen, S., 2011. Managing the challenges of becoming an open innovation company: experiences from Living Labs. Technology Innovation Management Review, 1(1).

Wendell, Bell, 2005. Foundations of Futures studies, history purposes and knowledge, human sciences for new era. Volume 1, Second Printing, Transaction Publisher, New Brunswick, New Jersey.

Electronic references:

Agile methodology in Software Development. Accessed 08.08.2015. http://crackjavainterviews.blogspot.fi/2014/09/agile-methodology-in-software.html

Figures

Tables