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Faculty of Business Economics

Master of Management

Masterthesis

Customer co-creation in SMEs

Leena Awni Issa Haddad
Thesis presented in fulfillment of the requirements for the degree of Master of Management, specialization International Marketing Strategy

SUPERVISOR :
Prof. dr. Wim VANHAVERBEKE

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Preface

With this master thesis, I finalize my studies of Management with the specialization in International Marketing at Hasselt University. The realization of this master thesis required a great deal of effort from myself, but also from several others assisting me during this whole process. In particular, I would like to thank my earlier Promoter Prof. Nadine Roijakkers for her continued support and input, and my promoter Prof. Wim Vanhaverbeke for his kind support and input. And Mr. Hamzeh Obieid also for his support. And a special thanks to Dr. Wouter Faes who have supported me a lot during this master's journey. Thank you all for the encouraging words and the constructive criticism you gave me.

Furthermore, I would like to thank all the respondents I interviewed for sharing their experiences and insights. I greatly appreciate they made time for this study. Without their willingness and contribution this endeavor would have been much harder.

Finally, I would like to thank my Mother, Brother and Sister, and my friends, for the great support they gave during my whole education and during the finalization of this master thesis.

Leena Haddad
Hasselt, August 2017

Abstract

The Open Innovation (OI) literature has focused only recently on SMEs and has researched mainly on outside-in processes in development by many different partners, but not so much on end customers. This master thesis aims at gaining a deeper understanding of the customer co-creation practices and more particularly how they are employed by some European SMEs. OI could serve to compensate for the lack of financial resources as well as the lack of internal specialized knowledge, which typically characterizes SMEs. When engaging in OI through an inbound practice with customers, SMEs gain several advantages according to literature, which will have a positive influence on the innovation performance of SMEs. Therefore, the purpose of this master thesis is to identify how customer co-creation enhances the innovation performance for SMEs and to formulate guidelines for SMEs in order to make the best use out of this practice.

Data were collected through semi-structured, in-depth interviews. In total, five cases were incorporated and two expert opinions. Based on the full transcripts of the interviews, case study research methodology was employed to analyze the data in depth. First, a within-case analysis was performed for each individual case, indicating processes which are specific for a given case (i.e. SME). In addition, the findings from the different cases were compared by means of a cross-case analysis, revealing commonalities as well as disparities between the cases.

The findings reveal the main advantages SMEs gain by using customer co-creation, as well as certain factors, processes and preconditions that affect the co-creation process. How customer co-creation enhances the innovation performance is shown as well.

We have identified certain factors that affect the customer co-creation process which are: the role and the type of customers and the motivation for customers to co-create with the SME. We have found that most of the roles of customers in co-creation are very important and actively used such as co-ideation, co-development and co-testing, whereas other roles such as a co-launching are less actively used. Certain motivational factors are very important like the psychological and social ones, whereas others are much less mentioned by our respondents, such as financial ones. We have distinguished several pre-conditions that are crucial to the customer co-creation process, which are: the mindset of the SME, the mindset of the stakeholders, the involvement of whole value chain, a good problem definition and optimal internal communication in the SME. Furthermore, we have also found certain processes to be

imperative for the co-creation process which are: hiring an agency to help with co-creation process, using help from scientific studies such as university research studies, the importance of a good team effort and most importantly the fact that SMEs rely on an iterative process of co-creation.

Positive elements for success have been shown also such as: the environment type, selecting the right co-creator and a good communication with customers. For the SMEs, gaining the ability and the knowledge of how to make products and services tailored to the customer's needs, in which new processes and developments are enhanced and actively put to use is seen as the most important impact of customer co-creation processes on innovation performance. It also marks the possibility of gaining a competitive advantage over competitors, albeit in a short period of time. It has to be repeated and continuously done over and over again. Finally, a set of guidelines was formulated in order to make the best use of the customer co-creation in SMEs.

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Chapter 1   Introduction

Customer co-creation can be defined as an "Active, creative and social collaboration process between producers (retailers) and customers (users), facilitated by the company" (Piller and Ihl 2009).

Through this process customers become active participants in an open innovation process of a company and take part in the development of new products or services.

In this research project, the reasons behind using the customer co-creation model in SME's will be explained as well as how SME's can create value through customer engagement designs and activities to enhance their innovation performance.

In this introductory chapter we will shortly describe the importance of co-creation for SME's, define the research questions and give a short overview of the existing literature. Then we will indicate the research questions which guided us in our research project and give a short description of the chosen methodology.

1.1 The importance of open innovation and co-creation in SME's

Small and medium-sized enterprises (SMEs) are crucial economic actors within the economies of nations (Stanworth and Gray 1993, NUTEK 2004, Wolf and Pett 2006). They are a major source of job creation and often represents the potential for the creation of future large companies and cooperations (Castrogiovanni 1996, Monk 2000).

Open innovation is more beneficial to small and medium sized firms than to large firms. Companies' age and stage in the organizational life cycle is assiciated with degree of openness, and thus the usefulness and performance impact of open innovation. Open innovation thus presents greater benefits to young firms than to more established ones (Theyel and Cosh, 2012). One of the three core processes of open innovation process is the outside-in process, which enriches a company's knowledge base with those of its suppliers, customers and other external sources, thus helping to increase innovativeness (Gassmann, Oliver and Enkel, Ellen, 2004).

Customer co-creation is increasingly becoming valuable because customers are becoming part of the innovation experience. Customers indeed have the power to create products in cooperation with the firm and to share their capabilities with the company. Customer co-

creation is nowadays becoming the role model for many entrepreneurs (Piller, 2011). And many entrepreneurs are calling for more and deep co-creation cocreations.

By successfully implementing and managing customer co-creation, in large firms context these firms can create two significant sources of competitive advantages: (a) productivity gains through increased efficiency (e.g., by reducing operational costs) and (b) improved effectiveness (e.g., through an enhancement of a product value, innovativeness and learning capabilities, and a better fit with consumer needs), according to Hull (2004); Payne, Storbacka, and Frow (2008); Prahalad and Ramaswamy (2000), where we have found that this subject is of great importance, hence studying it in SME's would be very important.

Customer co-creation, as an open innovation practice, has not been thoroughly investigated in the context of SMEs, especially regarding the impact it may have on the SME's innovation performance. This study addresses this gap by exploring some factors and processes that affect the co-creation process, and how they may impact the innovation performance of the SME's. More particularly the role of customers, the type of customers, and the motivations for customers to co-create, as well as other processes and pre-conditions.

The Contribution of this research is an exploration of how SME's co-create with customers and how this co-creation enhances the innovation performance of SME's in that sense. Where we will be able to have a clearer vision on how this customer centric process happens in SME's, and what are the benefits of the process on the innovation performance in SME's.

As customer co-creation in SME's is a relatively recent development in businesses, and it would be very difficult to research these questions by using a quantitative approach. Thus, we chose to build our project around a number of well-chosen cases. We used a case study methodology because we wanted to explore the mentioned research questions profoundly and in addition to that, receive additional information and clarification about the researched issue, where we used a multiple case method, in order to get as much as deep data from a number of cases, in order to understand how this phenomenon works in these SME's. In total, five cases and two expert interviews were documented through semi-structured, in-depth interviews. the data sample comprises SMEs operating in different sectors in three countries, The Netherlands, Begium and Germany. Analysis of the full transcripts of the interviews led to a qualitative overview. All interviews were tape recorded with permission of the interviewees, written out and later analysed.

2. Short Literature Review

This section reviews the open innovation concept in SME's and specifically highlights the value of considering customer co-creation to understand the changes of customer needs, as well as how customer co-creation enhances SME's performance.

2.1. Open innovation or OI

"Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively. [This paradigm] assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology." (Henry Chesbrough, 2006). Open innovation is characterized by cooperation for innovation within wide horizontal and vertical networks of universities, start- ups, suppliers, customers, and competitors. (F. Piller, Ch. Ihl and A. Vossen, 2011).

It prescribes that companies should become more open to external knowledge and ideas (Chesbrough, 2003). Open innovation is as such the opposite of closed innovation, in which companies use only ideas generated within their boundaries, characterized by big corporate research labs and closely managed networks of vertically integrated partners (Chesbrough, 2003). Where the innovating company relies entirely on its own internal knowledge base to create new ideas and its development capabilities, to bring them to market. In a closed innovation world, the firm's boundaries are impermeable.
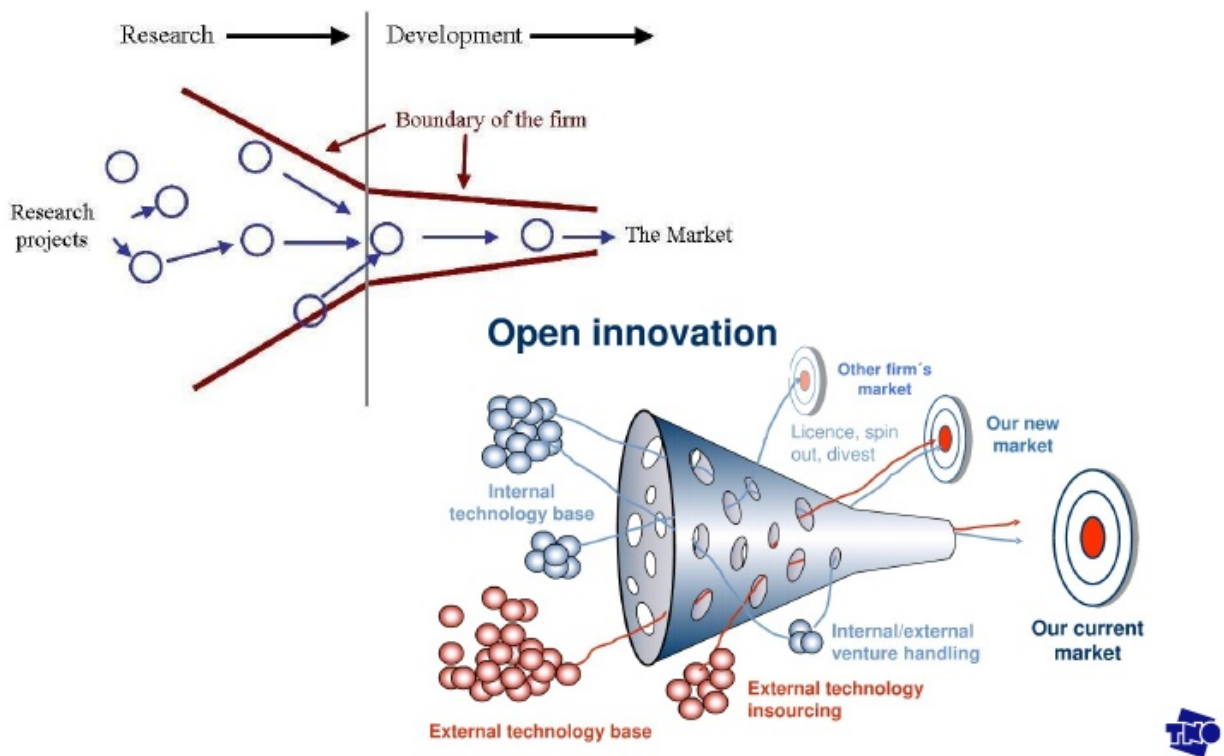
Figure 1: *The closed Vs open innovation paradigm, (Chesbrough 2003).*

In contrast to Closed Innovation, the Open Innovation Model shows that ideas that were spawned within the internal technology base do not necessarily stay within the company. First, ideas can flow out a company's boundary at any stage and could be pursued by another company (Inside-Out). Possible inside- out mechanisms are spin-offs, out-licensing, free revealing of ideas, etc. (Chesbrough, 2003). Second, externally conceived and developed ideas are allowed to flow into the company for commercialization (Outside-In) Acquisitions and in-licensing, for example, are outside-in mechanisms. (Chesbrough, 2003).

These two fundamental mechanisms, Inside-Out and Outside-In, can be pursued concomitantly, for example by cross-licensing technologies, joint ventures, private-public partnerships, strategic alliances, co-marketing arrangements and so forth (Chesbrough, 2012).

In essence, firms who engage in open innovation, they actively utilize and exploit inward and outward exchange of knowledge and technologies (Chesbrough, Vanhaverbeke, and West 2006).

Purposive outflows of knowledge, or technology exploitation, implies innovation activities to make best use of existing technological capabilities that are outside the confines of the organization. Purposive inflows, as technology exploration, relates to innovation activities to reap the benefit from external sources of knowledge to promote, and reinforce existing technological developments, (Van de Vrande, V., de Jong, J. P. J., Vanhaverbeke, W., & de Rochemont, M. 2009).

In a comprehensive open setting, firms make use of both technology exploitation and technology exploration to reach superior value from their technological capabilities or other competencies (Chesbrough and Crowther, 2006; Lichtenthaler, 2008).

We will pay attention on what is called outside in flow of knowledge and information (technology exploration) in this study and therefore, below is an explanation of this kind of information flow, where customer co-creation is part of this discipline of knowledge search.

Technology exploration

Technology exploration refers to those activities which enable enterprises to acquire new knowledge and technologies from the outside. five practices were featured related to technology exploration: customer involvement, external networking, external participation, outsourcing R&D and inward licensing of IP (van de Vrande et al., 2009).

Open innovation theorists recognize that customer involvement is one important alternative to inform internal innovation processes (Gassmann, 2006). According to the work of Von Hippel (2005) where users are increasingly referred to as not only passive adopters of innovations, but they may rather develop their own innovations which producers can imitate. Firms could make use of their customers' ideas and innovations by proactive market research, or by engaging customers to propose and provide their designs to be used for product development and evaluating what may be learned through them (van de Vrande et al., 2009).

2.2 Co-creation in Open Innovation

Recognizing that the traditional system of closed innovation is becoming obsolete, many firms are already testing the new business assumptions recognized by OI. In the emergent economy, competition will center on personalized customer experiences, resulting in value that is truly unique to each individual (Prahalad and Ramaswamy, 2004). Active participation in the design and development of new ideas and products by customers (co-creation) is a prerequisite for this.

Co-creation was originally defined in the late 1990s by Kambil and his co-authors as co-creation of value by a firm's customers (Kambil, Friesen, G.B. and Sundaram, 1999), (Kambil, Ginsberg, and Bloch 1996).

This meaning has been gradually extended toward autonomous individual initiatives. With the technologically enabled wide movement of individuals into productive activities, it is worthwhile to study the strategies, methods, and technologies of co-creation in an integrated manner (Zwass, 2010).

 "In relation to consumers, open innovation aims to attain a rich understanding of their objectives and the way they use the firm's products, and to garner the creative ideas they have about their needs (rather than only regarding currently used products). Binding consumers to the brand is a clear objective as well" (Zwass, 2010).

Co-creation is thus a "management initiative, or form of economic strategy, that brings different parties together (for instance, a company and a group of customers), in order to jointly produce a mutually valued outcome". (Prahalad and Ramaswamy, 2004).

Co-creation is about using customer knowledge as a valuable resource (Tijmes, 2010). Customer knowledge is valuable for firms since the exploration of new ideas (Roberts, 1988), which can result in innovation, may be started by interacting with the customers in different functional business areas. It presupposes engaging different customer's roles that benefit the innovation process (Lengenick-Hall, 1996). The deepest form of co-creation is achieved through using qualitative, interactive, dialogue oriented and informal interaction, leading to a situation where knowledge can be effectively shared between customers and firms (Salomo, Steinhof & Trommsdorff, 2003).

Today, there are many examples of companies attempting to collaborate with their customers in what is commonly referred to as co-creation (Lusch et al., 2007).

Researchers agree that there are significant valuable benefits from co-creation and these include:

- harnessing the active involvement of participants (Prahalad & Ramaswamy, 2000) in co-creating value (Vargo & Lusch, 2004);

- sharing resources and knowledge that enhance new product development (Herstatt and Von Hippel, 1992, Lagrosen, 2005, Von Hippel et al., 1999 and Walter, 2003);

- enhancing innovation processes (Namibian & Baron, 2009);

- providing network solutions (Jaakkola and Hakanen, 2013 and Tuli et al., 2007);

- contributing to the well-being of a service system (Spohrer et al., 2008 and Vargo et al., 2008).

2.3. Customer Co-creation activities

Customer co-creation, in summary, is open innovation with customers. It is a product (or service) development approach where users and customers are actively involved and take part in the design of a new offering (Kaulio 1998; Piller 2004; Tseng, Kjellberg and Lu 2003). More specifically, customer co-creation is defined as an "active, creative, and social process, based on collaboration between producers (retailers) and customers (users)" (Piller and Ihl 2009). where the point of co-creation is to actively "involve customers in the design or development of future offerings, often with the help of tools, provided by the firm" (Piller, Ihl and Vossen, 2011).

Co-creation activities are performed in an act of company-to-customer interaction, which is facilitated by the company. The manufacturer is either empowering its customers to design a solution by themselves, or is implementing methodologies to efficiently transfer an innovative solution from the customer into the company.

Many examples of types of co-creation activities with customers are reported in literature as many firms are building capabilities and infrastructures that allow customers to perform activities in their innovation process (Reichwald and Piller 2009; Tapscott and Williams 2006; Seybold 2006). They are:

- user idea contests (Ebner et al. 2008; Piller and Walcher 2006; Sawhney, Verona and Prandelli 2005; Terwiesch & Xu 2008),

- consumer opinion platforms (Hennig-Thurau et al. 2004; Sawhney, Verona and Prandelli 2005),

- toolkits for user innovation (Thomke and von Hippel 2002; von Hippel and Katz 2002; Franke and Schreier 2002; Franke and von Hippel 2003),

- mass customization toolkits (Franke, Keinz and Schreier 2008; Franke and Piller 2004),

- communities for customer co-creation (Franke and Shah 2003; Sawhney and Prandelli 2000; Henkel and Sander 2003; Benkler 2002; Howe 2006 and 2008; Füller, Matzler and Hoppe 2008).

The evolutionary nature of the customer co-creation paradigm thus reflects newness and experimentation in practices in the field.

Customer co-creation and innovation is becoming easier as several factors facilitate its implementation (Prahalad and Ramaswamy, 2004). Indeed, users' ability to innovate is improving radically and rapidly because of the steadily improving quality of computer software and hardware and due to improved access to easy-to-use tools and components for innovation and access to a steadily richer innovation commons (Eric von Hippel, 2005). Dissatisfaction with available choices also leads consumers to be willing to interact with firms for the co-creation of value. (Prahalad and Ramaswamy, 2004).

Firms and customers can exchange information and knowledge regarding their needs and solutions requests, through communicating with each other, in an iterative manner (von Hippel, 2005). Where the two parties are involved to offer each other, what is missing and complement each other with what they have from knowledge, and through visualization of solutions that can

come up through these communications. Where customers are provided, a given solution space to share what they have, customers can develop new product ideas which meets their desired needs (Franke and Piller, 2004).

Firms provide their customers feedback on proposed ideas and, together, obtain solutions that they often have not thought about before (Kristensson et al., 2002). Integrating, and taking this novel knowledge into account and implementing it, results in a superior and special product features that enhances customer adoption (Henard and Szymanski, 2001; Im and Workman, 2004).

During experimentation and the iterative process of trial and error activities through customer co-creation projects, members gain new, unexpected, creative knowledge that might contribute to the learning reservoir of other projects (Blazevic and Lievens, 2004).

Any firm using customer co-creation is capable of creating better value because of its capability to better fulfill customer needs, which promotes the likelihood of new product/service success (Kristensson et al., 2004; Magnusson, 2009; Poetz and Schreier, 2012; von Hippel, 2001). Marketing theory and practice have both recognized the increasing importance of customer participation as the new frontier of competitive advantage (Prahalad and Ramaswamy 2000; Vargo and Lusch 2004).

Where Customer co-creation can be seen as an application of customer centric management in the innovation process (Piller, Ihl and Vossen, 2011).

"Customer centricity means that the organization as a whole is committed to meet the needs of all relevant customers. At the strategic level, this translates to the orientation and mindset of a firm to share interdependencies and values with customers over the long term. At the tactical level, companies have to align their processes with the customers' convenience as the utmost importance, instead of focusing on the convenience of operations. Of course, sufficient infrastructural systems and mechanisms have to be implemented to reach this state. These changes include a customer-centric organizational structure". (Piller, Ihl and Vossen, 2011)

2.4. Information transfer and Customer co-creation

Building on a framework created by Dahan and Hauser (2002), Piller et al. (2010) provide a structure of three different modes of how information can be acquired from customers and used in new product development. It involves listening to, asking, and building as separate ways of co-creating value. They can be explained as follows:

1. "Listen into"– Producers design products on behalf of the customers, basing their product development decisions on customer information that is derived from channels such as sales feedback, sales data analysis, third party consulting, reviews of existing product performance and so on.

2. "Ask" – Producers explicitly ask for customers' opinions In the early stages of an innovation project, customer preferences or unmet needs ("voice of the customer" methods, Griffin & Hauser 1993; Green, Carroll & Goldberg 1981) on product development via surveys, interviews or focus groups, use the information to support their innovation process and later test their products in cooperation with customers.

3. "Build" – True customer co-creation, where companies integrate their customers into their innovative processes by empowering them to innovate new solutions by themselves and/or implements initiatives to transfer innovations from the customer into their own domain, where the focus of this study will be about this mode.

2.5. Customer Co-creation and stages of innovation process.

Co-creation is defined as a value creation route in innovation processes. Reviewing the scientific literature on the innovation process, several innovation stages can be identified. Mostly three generic steps of the innovation activities are recognized. In the first phase or stage, ideas are collected or generated (idea generation), the second stage is to develop and specify those ideas further (development) and finally the third and last step is the period of time in which value creation takes place by transforming ideas into products (commercialization) (Vaisnore and Petraite, 2011).

Emphasizing this step-wise process of innovation allows to look at the different roles customers can take as active participants of the open innovation process. In each of the stages their involvement will indeed be different.

The first stage of **idea generation** process focuses on the identification and generation of opportunities, fresh ideas and novel concepts. External resources in this stage are for example: inventors, lead users, designers, engineers, other innovative community members or heavy users (Vaisnore and Petraite, 2011). Their contributions can be added to the work and suggestions created by company's employees. The collection of ideas and concepts has then to be evaluated and refined in the following stages. Again, internal and external resources can be consulted. Following this iterative process, the most promising ideas and concepts can be selected out of a range of alternatives and then be further processed (Fuller and Matzler, 2007).

The second stage of the innovation process is the **development phase**, where the customers can take a role as co-creators. As some scholars (Fuller and Matzler, 2007) indicate that an active lead user role is limited to the idea generation stage, other researchers (O'Hern and Rindfleisch, 2008) consider the lead user approach also to be a part of the whole co-creation process. According to Fuller and Matzler (2007) a customer role as co-creator or co- designer can be discerned in both the idea generation and development stages of the innovation process.

In the final **commercialization** phase Fuller and Matzler (2007) consider this stage as the test and launch phase of the idealized innovation process where the process members, thus also the customers may take on the roles of testers, end users or buyers (Fuller and Matzler, 2007).

2.6. Outcomes of customer co-creation in different innovation process stages

Previous research has shown that the early stages of the innovation process are vital for the success of New Product Development projects (Cooper 1993). A high degree of consumer co-creation in the idea generation and product concept development stage can have significant effects and contribute greatly to new product and firm performance (Gruner and Homburg, 2000).

New technologies related to the World Wide Web that enable consumer-firm and consumer-consumer interactions have drastically changed the value co-creation landscape, (Sawhney, Verona, and Prandelli 2005), as in the case of CX-workout website which facilitates now the co-creation process and provides a frictionless experience for co-creation with customers.

In the idea generation stage companies can use social media and certain types of collaboration platforms to increase the scope and to deepen the inputs taken from consumers at a very low cost (Evans and Wolf 2005; Hull 2004). In the concept development phase customers can be engaged easily through communicating and sharing the concept with them and by taking in their inputs (Grewal, Lilien, and Mallapragada 2006). In general, engaging consumers in the early stages of new product development can give firms several benefits such as saving both time and costs, as well as reducing the risk of failure of the new product.

Also in commercialization and post-launch stages, the co-creation with customers is becoming more popular (Nambisan and Baron 2009). There are examples of software products like SAS and Stata available now on the market, that have made use of customer participation in their development after launching (O'Hern and Rindfleisch 2009). Many successful computer game modifications being developed by players (Jeppesen and Molin 2003) are another example of this.

The outcomes of customer co-creation in each stage of the product development can thus be different but always useful to the company's value creation process.

2.7. Open innovation in SME

Small and Medium-Sized Enterprises

Small and medium-sized enterprises (SMEs) are non-subsidiary, independent firms.

They represent 99% of all businesses in the European Union. The EU has a guideline how to see which firm is an SME, based on numbers of staff, turnover and balance sheet. This is shown in table 1.

Small firms are the vast majority of business enterprises in all countries. Research efforts are focused on stimulating and supporting SMEs, both at a national and at a European level. (L.J., Schmid, R., Habisch, P.A. 2003)

For SMEs, it is very different to acquire information and other resources. They are more relying on personal tips and informal mechanisms of information exchange, as these companies have limited access to costly professional information. To own a network of intra-sectoral and cross-sectoral relations is very helpful in this case (L.J., Schmid, R., Habisch, P.A. 2003).

Company category	Staff headcount	Turnover	Balance sheet total
Medium-sized	< 250	≤ € 50 m	≤ € 43 m
Small	< 50	≤ € 10 m	≤ € 10 m
Micro	< 10	≤ € 2m	≤ € 2m

Table 1: *Description EU for small and medium-sized enterprises.*

Many small and medium-sized enterprises (SMEs) are dependent on their abilities to be innovative in order to gain and sustain a competitive advantage. Yet these companies often depend on themselves for creating innovations and thus can't reach well their desired expectations. The complexity of markets and products, the high level of risk and the uncertainty interwoven in the innovation process as well as the speed with which actual development has to be handled (Cooper, Edgett, and Kleinschmidt 2003; Koufteros, Vonderembse, and Jayaram 2005; De Toni and Nassimbeni 2003; Pittaway et al. 2004) are at the basis of this fact.

But compared to large companies SME's also face a number of disadvantages or limitations when developing new products. They are by definition small in size, but also have limited financial resources for R&D (Chesbrough and Crowther 2006; Lichtenthaler 2008a; Madrid-Guijarro, Garcia, and Van Auken 2009). These are big challenges to a successful innovation process (Freel 1999; Grando and Belvedere 2006). The insufficiency of their multidisciplinary competencies and the limited structuring of their innovation processes (De Toni and Nassimbeni 2003; Vossen 1998) adds to this. Thus, SME's often only show poor levels of innovation capability and as a consequence low competitiveness.

SMEs on the other hand are usually less bureaucratic than large companies, they are more likely to take risks and might even possess more specialized knowledge. Moreover, they react quickly to changing market demands. These factors will make them more likely to take more advantages from open innovation activities compared to larger firms (Christensen, Olesen, and Kjær 2005; Stam and Elfring 2008; Vossen 1998). Researchers have also found that firm's age and stage in the organizational life cycle contributes to its openness and the achieved impact of open innovation— where open innovation offers greater benefits to young firms than to established ones (Theyel & Cosh, 2012).

According to (Vossen, 1998; Acs and Audretsch, 1990) who found that SMEs need to highly draw on their networks to find the missing innovation resources, and because of their smallness, they will be faced with the boundaries of their organizations sooner than they will expect. Where in these days they will be facing again with the heightened complexity and knowledge extensive world with shortened product life cycles, thus such networking behavior and attitude has become even more important than earlier.

One of the helpful ways to address and solve the challenges SME's face, is indeed by opening up the innovation process so that they can engage with external partners and actors, which will give them a lot of benefits and external resources they need. Previous research largely supports the idea that utilizing open innovation activities can render SMEs strategic benefits (Chesbrough and Crowther 2006; Chesbrough, Vanhaverbeke, and West 2006; Gassmann 2006; Laursen and Salter 2006; Lee et al. 2010). By this opening up SME's gain access to the much needed knowledge and technologies that are available in many different resources, distributed, and existing in different firms and institutions (Bianchi, 2010; Frishammar, Lichtenthaler, and Rundquist 2011). Partnering and collaborating with these external parties and customers is an attractive and important strategy for NPD in SME's (Frishammar,

Lichtenthaler, and Rundquist 2011). As such this is just an example of the multitude of advantages of OI identified by Van De Vrande et. al (2009) who mentioned that collaboration and co-creation with customers and users allow SMEs to gain from the competence of enthusiastic people such as skilled programmers from around the world, and compensate for the limited in-house capabilities and resources (Henkel 2006).

In the literature, open innovation activities fall into two different categories: inbound open innovation and outbound open innovation. The former refers to the practice of exploring and integrating external knowledge for technology development and technology exploitation, whereas the latter is the practice of exploiting technology capabilities by utilizing not only internal but also external paths of commercialization (Chesbrough 2003; Chesbrough and Crowther 2006). In this study, we focus on inbound open innovation activities, as we focus on customers' involvement in SME's innovation performance.

Inbound open innovation indeed includes networking or collaborating with other firms or universities for product development, involving customers or end users in product development activities, and licensing-in of intellectual property (IP) from other organizations (Chesbrough, Vanhaverbeke, and West 2006; Gassmann 2006; Henkel 2006; Lichtenthaler 2008b, 2011; Van De Vrande et al. 2009).

SMEs also differ in how they combine different types of sources of external knowledge. While some SMEs openup only along the value chain, others rely on universities and research organizations (Cosh & Zhang, 2011; van de Vrande et al., 2009b; Brunswicker & Vanhaverbeke, 2010). Baum, Calabrese and Silvermann (2000) called this vertical downstream collaboration. In the context of open innovation, multiple studies regard vertical collaboration with present customers, potential customers, and end users as one of the key alternatives for an improved internal innovation process (Chesbrough, Vanhaverbeke, and West 2006; Gassmann 2006; Henkel 2006; Von Hippel 2005).

Open innovation in SMEs is directly related to the business strategy and the firm's comprehensive strategic objectives and goals (Vanhaverbeke, 2012). Where on the other hand large firms do not have to perform any strategic changes when implementing and using open innovation, the move towards and implementation of open innovation in SMEs is parallel with a strategic change (Vanhaverbeke, 2012).

At the end of this review on open innovation and SMEs, we can conclude from research that, if SMEs can utilize and use open innovation activities, they can reduce the impact of the many challenges they face in innovation such as their small size and their scarce resources.

Previous research on the topic in SME's:

Previous research on this topic of customer co-creation in SME's have found that vertical collaborations along the supply chain with customers and end-users positively affect radical innovation in high-tech industries of SME's (Parida, Westerberg and Frishammar, 2012).

Other studies which have focused partially on technology exploration as an inbound open innovation practice in SME's; where they have found that most SMEs in their study somehow try to involve their customers in innovation processes by tracking their modifications in products, proactively involving them in market research, where they found that customer involvement and external networking are informal, unstructured practices which do not necessarily require substantial investments (van de Vrande et al., 2009).

(Piller, Ihl and Vossen, n.d.) who have heavily studied the subject of customer co-creation, but without studying it affect SME's and how it influences their innovation performance.

Therefore, even though prior studies have made important contributions to the literature and management practice alike, by addressing inbound open innovation activities, by involving customers in the innovation process in the SME context, and studying how does it impact on the innovation performance, there is clearly a need for more qualitative studies that can advance our understanding regarding the effects of customer co-creation as an open innovation activities in SMEs.

To this background, our study will focus on customer co-creation as an open innovation discipline for SMEs to capture the benefits of opening the doorway at the end of value chain or even in the middle to reap the benefits of adaptation and customization to the meet the needs of users, or customers, in order to make the best use of these techniques.

3. Research questions

The main research question of this project on co-creation in SME's is: "How does customer co-creation improve innovation performance in SME's? ".

This research question does have a number of subquestions however:

1. Which factors influence the customer co-creation of products and services in SME's?

2. Is there a difference between the different roles customers may play in the co-creation process of SME's with regards to the performance of the co-creation process?

3. How do they influence the performance of co-creation in SME's?

4. Which elements facilitate the customer co-creation process? How and in which way do they facilitate the process of customer co-creation in SME's?

Chapter 2 Developing the research model and research hypotheses

In this Chapter, we will formulate the conceptual model that we want to research into. It describes the relationships between the role of the customer, the type of co-creator and motivations for co-creation as independent variables with customer co-creation performance and innovation performance as dependent variables. Stimulators of the process of co-creation are used as moderating variable. The model depends mainly on previous research. Thus in this chapter, we will systematically indicate the research hypotheses derived from this model on the basis of previous research results.

2.1. Development of the hypotheses

The different hypotheses are derived according to the following ideas from literature.

2.1.1. The different roles of customers

The roles and responsibilities of customers in a value chain go much further than only the consumption of the offering. Customers also have to be involved in the creation and delivery of the said offering. Bowen (1986) and Mills and Chase and Margulies (1983) argue that if the customers have a clear idea about their expectations while others (customers as well as producers) have a way to meet those expectations, they can be successfully integrated into the value co-creation activity.

Various roles of customers have been described and identified in the value co-creation process. They are the roles of co-innovator, co-ideator, co-producer, co-designer, co-developer and co-promoter (Agrawal and Rahman, 2015). This is very well comparable to what Russo-Spena and Mele (2012) have developed in their study as a five "Co-s" model on co-innovation, which includes co-ideation, co-valuation, co-design, co-testing and co-launching. In this model each of the co-roles of customers represents a specific phase in the joint innovation efforts of customers and the company.

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The most important various roles of customers enumerated in value co-creation literature are described below and ordered according to the steps in the process of new product development: idea generation, evaluation of the potential of new ideas, designing new products, testing and market launching.

2.1.1.1 Co-idea generator or co-ideation

Idea generation is the first step in any innovation process.

Customers and their communities are flourishing on social media, which create a platform that can be turned into a source of co-ideation by companies or by customers themselves (Agrawal and Rahman, 2015). However not many ideas submitted to the company have business potential. Nevertheless, some have the potential to turn or be turned into valuable propositions.

Strong collaboration and exchange of ideas between the company and the customer could help encourage other customers to participate (Agrawal and Rahman, 2015) by amongst others setting up web sites as connecting space for actors to other ideas and can sometimes comment on them (Russo-Spena and Mele, 2012). When co-ideation is stimulated by website actions, there will be no space and time constraints that are usually present in traditional idea generation practices like brainstorming. Actors are free to take part according to their preferences.

Examples are numerous. Dell for instance launched its IdeaStorm project to identify offerings and solutions required by their customers and were successful in tapping into about 400 new ideas. Threadless.com, Infosys and Starbucks all invited customers to submit new ideas ranging from product ideas (design, colour, taste) to ideas on experience (location, ordering, store ambience and delivery) and ideas on involvement and engagement (Brand communities, Virtual communities and social responsibilities) (Russo-Spena and Mele, 2012). Procter & Gamble utilised external ideas to develop more than 42 per cent of its new products.

Investigated companies co-generate ideas in three main ways (Russo-Spena and Mele, 2012):

  . (1) free proposals;

  . (2) co-ideation within categories and;

  . (3) co-ideation within specific projects.

In the first two methods, idea generation is not an event but a process continually practiced by the actors.

Companies try to widen individuals' interactions (the "Co-") through the involvement of social networks (e.g. Facebook) and communities, which are seen as interesting tools to foster the social creativity of the actors who participate in the creative process. The website "MyStarbucksIdea" has a community link through which actors can view proposed ideas and comment on other proposals. In this context the, actors learn to co-generate ideas through the use of images, tools and designs. Companies offer them a software tool to convey their ideas about possible products. Starbucks for instance used images to enable people to convey their ideas and comments. These elements are considered to be ressources, assisting in the development of innovative actions (Russo-Spena and Mele, 2012).

2.1.1.2 Co-evaluator

Any new product idea has to undergo evaluation for judging their value potential. Also in this process customers can play an important role.

Customers acting as co-evaluators can vote for new ideas for instance. A higher number of votes for any idea, product or service than for others represents the fact that a larger number of people appreciate the idea. Customers enjoy being co-evaluators very much. It gives them the special feeling of being part of the evaluation process along with the firm's representatives. Moreover, this activity when generated by the company creates supplementary and free publicity and word of mouth, because co-evaluating customers will spread the idea within their social circles and further ask their friends and family members to join the evaluation process (Füller et al., 2011; Russo-Spena and Mele, 2012).

The number of votes determines the idea that is most popular among those submitted. It is possible to comment on the ideas submitted, to describe the reason for the vote and suggest improvements to the proposed idea (Russo-Spena and Mele, 2012). The company finally announces the ideas that received the most votes. This co-evaluation process however needs to be kept in hand by the company by setting well-defined and transparent rules that are clearly explained to the participants. Otherwise customers will be doubtful of some of the decisions taken, certainly if a contest is attached to the evaluation process. That again could bring about

a bad reputation for the company when customers start posting their resentment in the form of negative feedback on social media sites and blogs. They might even encourage their friends and family to do the same (Füller et al., 2011; Russo-Spena and Mele, 2012).

These selected ideas will then enter the internal evaluation cycle of company, which consists in two stages (Russo-Spena and Mele, 2012). A first evaluation phases the number of votes determines the idea that is most popular among those submitted. It is possible to comment on the ideas submitted, to describe the reason for the vote and suggest improvements to the proposed idea. The company finally announces the ideas that received the most votes. At MulinoBianco for instance this phase lasts approximately six weeks (Russo-Spena and Mele, 2012). In a second stage, the idea will be assessed in terms of its costs and benefits. Depending on the characteristics of the idea, this phase may require a time period ranging from small to relatively large; Only ideas that receive a positive "go" after both stages will enter the cycle of in-depth analysis and development (Russo-Spena and Mele, 2012). Ideas developed through co-evaluation are indeed not always meant for action. These ideas are further analyzed on their cost-benefit merits. Legal matters are considered as well as the fit with the existing catalogue of products.

In the Starbucks example for instance the ideas chosen by voting by the customer community will be evaluated by company experts and they will announce the different stages the ideas go through in this evaluation on the website as "under review, reviewed, coming soon, launched or initiated". The most pioneering and innovative ideas suggested by the users are finally presented to the key decision makers in the company for ideal implementation.

The most important fact emerging from the customer being a co-ideator and co-evaluator is that the firm learns to understand the tastes and preferences of their customers and to plan to develop popular ideas into future value propositions accordingly. In summary, companies and actors set up an active conversation mostly through use of the internet to express their preferences about potential products.

Crowdsourcing, that is, outsourcing the entire idea generation phase to a crowd of users is becoming increasingly popular (Poetz and Schreier 2012). Internet-based innovation communities for open source projects is yet another example (von Hippel 2005), as is innovation contests on internet or idea competitions (Soukhoroukova, Spann et al. 2012).

The common characteristics for all this research are the focus on large companies and

corporations and on consumer products with a large crowd of users. Therefore, the internet may for instance be a suitable tool for these companies to co-create with customers.

There seems however to be only limited research involving SMEs which can offer products and services in the business to business (B2B) sector, and business to customer (B2C) sector. Hence this study will explore how SME's can use inbound open innovation to improve and boost their innovation performance, using the different roles of customers and looking at how these respective roles can add and contribute to the new product development by these SME's.

2.1.1.3 Co-designer

Co-design is mostly referred to as "the customization of products or services with the help of customers" (Franke and Piller, 2003 2004; Franke and Schreier 2002; Wikström, 1996). Customers as co-designers are a part of the process that requires the integration of their product knowledge for realizing the physical product (Von Hippel, 1988; Piller and Walcher, 2006). The customer as a co-designer acts as a collaborator in different types of co-design environments such as architecture and software system design (Ulrich, Anderson-Connell and Wu, 2003).

In co-design practices, the roles of designers are shuffled. Every user is engaged and assigned the role of an "expert" based on the knowledge and experience they have. Users, on the basis of their interest, passion and effort, play a large role in concept and knowledge development. The firms, on their part, have to look for different ways to sustain their customers in the co-designing process (O'Hern and Rindfleisch, 2010).

Few customers can be co-designers however because co-designing needs a lot of physical, social and cultural contribution from their side. Co-designer customers indeed need to have a wide experience and specific knowledge to be able to help the firm with the new product contents or design as they need to interact very deeply with firms (Agrawal and Rahman, 2015). The category of co-designers is thus usually smaller as compared to the number of customers assisting in selecting designs to be finally adopted by the firm (O'Hern and Rindfleisch, 2010).

Therefore, firms have to look for those customers who can really help in transforming well evaluated ideas with a lot of market potential into affordable solutions. Piller and Walcher (2006) indicate that a co-design strategy is a pre-requisite to a mass-customisation strategy.

Thus, they recommended a collaborative customer co-design environment instead of a one to one relationship.

Thus, a distinguishing characteristic of co-design practices is the high level of interactive learning content. As case studies show, there is a need to support "experts of their own experience" in generating user insights, and to elicit their knowledge in a way that is useful to firms and others (Russo-Spena and Mele, 2012). The co-design is not seen as only an output from revelation but also, as a reasoning, intellectual process which comprises different activities, like speaking, writing, drawing, showing, modelling, constructing and documenting.

To make users a part of the design team as "experts of their own knowledge and experience," companies should supply the users with the needed tools, softwares, knowledge support, multimedia, and kits to help them in the putting of their knowledge and experience to work. The experience of Electrolux for example shows, that for an individual to be not only a creative participant but also a designer, he or she needs to possess the right expertise/knowledge, interest/passion and effort but also the right capacity and resources to work (Russo-Spena and Mele, 2012). In many cases, this practice opens the documentation and experimentation process for all participants, supporting them to contemplate on these practices contributing new ideas.

The advantages of co-designed solutions are two-fold. First, the product will show a better fit with customer expectations as compared to a standard product. Secondly, it gives a sense of satisfaction to the customers because of their active involvement in designing the solution according to their needs.

2.1.1.4. Co-tester and co-launcher

The co-testing activity is strictly related to the later launching of products and services on the market. It is used to support the improvement of prototype products or services before they are actually marketed. It thus tests the marketability of a product or a service. Customers as co-testers will give feedback on offerings, which could help companies in further enhancing and upgrading the features and attributes of the offerings, Involvement of customers as co-testers can increase the odds of product success (Agrawal and Rahman, 2015).

The customer is engaged as a co-tester by many industries such as the automotive, software,

video-games and fashion industries. Gaining access to customer competence through deep interaction with them is the major reason behind a compny's initiative to involve customers as co-testers (Prahalad and Ramaswamy, 2000). Where the testers are customer-rated, and are motivated by the potencial of using the information to help, refine and optimise their user experience (Russo-Spena and Mele, 2012).

Even when a product is new to the market, firms are looking for lead users, being the first ones to actually consume and use the product. They identify the need for a particular offering much earlier than others and give suggestions for adaptation (Kaushik and Rahman, 2014). The involvement of these lead users could help the firm in gaining quick promotion through word of mouth and thus help in launching the product. It is the role of the customer as co-launcher.

In addition, the customers' input is used more in the launching phase; As such customers also take over some market risk as well. Customers assume some responsibility for advertising and photographing for catalogues and certainly in motivating new customers (Russo-Spena and Mele, 2012).

2.1.1.5. Conclusion

The different potential and actual roles of customers in the co-creation process define various contributions of these actors in the value co-creation. The degree of contribution rests on the co-creation environment and the expected co-created value to be achieved from the co-creation process.

We believe that increased customer participation and involvement in joint value creation can bring about significant changes in the traditionally established structures and mind sets of companies and customers alike. An effective co-creation process needs explicit but controlled contributions, and customers need to be involved; As customers evolve in multiple roles during the co-creation process, organisations should find out ways to channel this outside resource effectively and integrate it at best (Agrawal and Rahman, 2015).

The efficiency and effectiveness of any co-creation process thus depends on submitted customer inputs and the processing of their outcomes. A highly efficient co-creation process would be an iterative process built on consistent support from both customers and firms (Agrawal and Rahman, 2015).

Agrawal and Rahman, (2015) have proposed that their framework could be used for developing research hypotheses that then should further be tested. They have suggested that an empirical analysis of each of the co-creation roles, various motivational drivers, barriers, pre-conditions and outcomes of co-creation are all worthy of further study. We have considered the different roles of customers to worth a further investigation and want to test them here.

Based on the role listed by the study of Agrawal and Rahman, (2015) and by Russo-Spena and Mele (2012), we have chosen to test the effect of these different roles on the value co-creation process, in SME's. Basing this investigation on their recommendation, "Therefore any future research agenda should consider the effects that roles and contributions of customers would have on the four components of value co-creation which are: fellow customers, organisation, process and outcome". We have focused on the effet on the process. (Agrawal and Rahman, 2015)

We thus want to investigate whether more involvement of customers in their respective and different roles in new product development will lead to positive outcomes on the process of co-creating value and in the form of co-created value (Agrawal and Rahman, 2015)

Therefore, our first hypothesis reads as follows:

H1. The different roles of customers in new product development have a significant positive effect on value co-creation.

2.1.2. The influence of the type of Co-creators

Co-creators are other actors who are involved in the process of co-creation. Earlier, Von Hippel (1986) suggested that firms should collaborate with lead users. Lead users are users who are at "the leading edge of each identified trend in terms of related new products and process needs, and who expect to obtain a relatively high net benefit from solutions to those needs". Thus, the likelihood that they will develop new or modified products has been found to be high (Morrison et al. 2004). In 2004, Prahalad and Ramaswamy have proposed that firms should co-create with these empowered and informed lead customers.

This is still a very limited view on the type of co-creators than can be involved in developing products. When researchers started to propose that firms could benefit by collaborating with a global network and with several communities of individuals inside and outside a firm (Ramaswamy, 2009) this changed considerably. The list of co-creators has been expanded since to suppliers, firm partners, and other value chain actors (T. Roser et al., 2013).

In this stream of research, co-creators are not limited to present customers only. They also encompass potential customers (Zwass, 2010). Potential customers can indeed make up a large segment of co-creators. Therefore, it is important to distinguish between several types of (potential) customers (Zwass, 2010) that can be and are involved in co-creation. The typology of Zwass (2010) looks as follows:

The world. Any individual can contribute to the best of his or her ability. Therefore, anyone could participate regardless of their skills and profile.

Prequalified individuals. "An opinion provider may be prequalified by a previous episodic experience (e.g., "Have you stayed at the hotel within the last month?"), a consummated transaction (as on eBay), or, more demandingly, an accumulated experience (as in the Zagat guide)" Zwass (2010). The individual's profile will have to be tested in this prequalification in order to be sure that a company can get valuable benefits from his or her data.

Community members. A member of a specific community bearing the same characteristics or having an interest in the same field is considered to be another type of co-creator. Community members are bounded by the values and mission of the

community. Therefore, they exhibit a level of mutual trust which might be used in lending weight to their contributions.

Skilled contributors. An individual need to have certain skills which were predefined by

It has been found that the higher the intensity of lead user characteristics is displayed by an innovator, the greater the commercial attractiveness will be of the innovation that the lead user develops (Franke and von Hippel 2003a).

Although this seems to be the most interesting road for companies to take, innovation by users thus tends to be more widely distributed than previously thought and not concentrated among just a few very innovative users (von Hippel, 2005). Both individual customers and the customer community have been viewed in literature as innovators.

Lead users are considered to be more knowledgeable about the technicity of the products developed whereas potential users are more interested and knowledgeable about the use they will make of the products (Ramaswamy, 2009; Zwass, 2010). Thus, lead users and potential users as mentioned in the classification of Zwass (2010) tend to know different things. As a consequence, we believe that their contribution to the co-creation process will be different and they will also tend to be involved in the development of different types of innovations. This is probably also the case for the different categories of potential customers enumerated by Zwass (2010). Thus, different types of co-creators will influence the value co-creation process and its effectiveness and efficiency differently. We believe the influence will be positive, but the intensity of it will vary.

Therefore, our second hypothesis reads as follows:

H2. Different types of co-creators have a different effect on the value co-creation process

Companies foster motivation mainly through knowledge and training rewards. They also entice the socialization of users by promoting and challenging their creativity in a way that is often outside the realm of conventional thinking and traditional innovation.

2.1.3. Motivators, Stimulators and Customer Co-creation

Motivation refers here to the reasons for which customers are willing to participate in co-creation activities with companies. Consumers often vary highly in their interest and ability to participate usefully in co-creation tasks. Even among firms with millions of consumers, only a few will have the willingness to be fully engaged or have the required skills to be of much use in the product development and launch processes. (Etgar 2008; O'Hern and Rindfleisch 2009).

An important description of human motivations comes from Herzberg (1968), who differentiates extrinsic motivational factors from intrinsic ones. When people are intrinsically motivated, they experience interest and enjoyment, feel competent and self- determining, and hold an internal locus of control. They perceive themselves as the masters of their destiny through their behavior. When people are extrinsically motivated on the other hand, they need external factors such as money or verbal support to motivate them to act. Thus, intrinsic factors are inherent to the person/actor, whereas extrinsic factors are facilitated outside of the person/actor (Heath, 1999). Compared to extrinsic motivators, intrinsic motivators are found to bind more tightly. A customer driven by a more intrinsic motivation to the co-creation process will most likely show a higher level of commitment on the co-creation activity (Hoyer et al. 2010).

Researchers have identified several types of consumers who might be especially willing and able to participate in co-creation activities. These include innovators, lead users, emergent consumers, and market mavens. Innovators in this context are those consumers who are "the earliest ones to adopt new products" (Moore 1991). Lead users are individuals "who face needs that will eventually be general in the marketplace, but who face these needs prior to others". Therefore, they are well positioned to solve these needs themselves (von Hippel 1986).

Fernandez and Remelhe (2015) have suggested a model to subdivide the motives of customers which positively influence their willingness to engage in co-creation activities with companies. It looks like Figure 3.
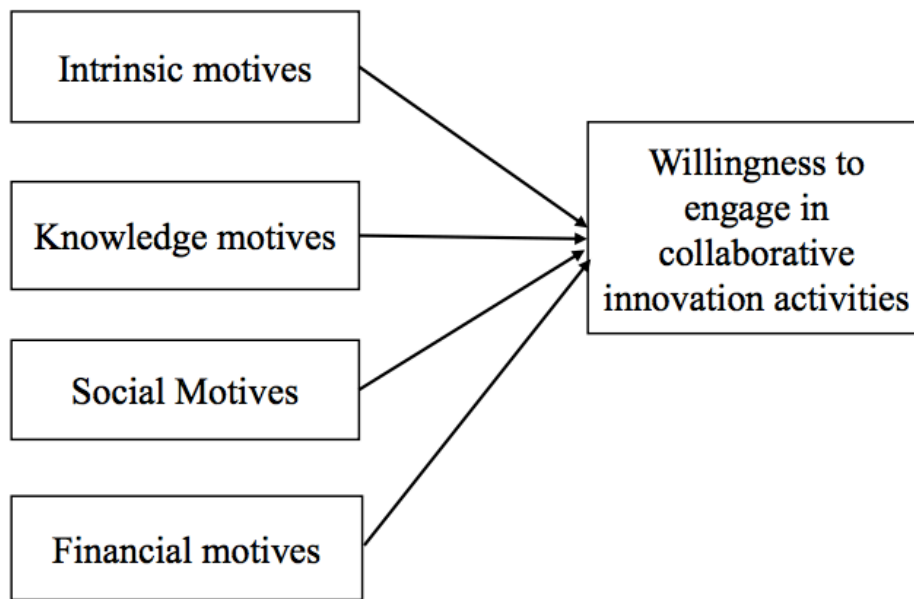
Figure 2: *Model of Fernandez and Remelhe of motives leading to co-creation (2015).*

Their results show that the positive influence is present for all these motives except for the financial motives. The study also illustrates that the most important motivator for users' participation are knowledge acquisition and intrinsic motivations. Socialization with other users sharing common interests also emerged has a relevant value, while being financially rewarded for their participation was not considered to be very important and received mixed reactions from customers.

Similar results were found by Füller (2006) and Wu et al. (2007) in their studies on co-design, NPD and open-source software projects for technology- based products, given their rich and complex set of features (Nambisan & Baron, 2007). Intrinsic motives, such as curiosity and enjoyment, were also major drivers of customer engagement (e.g. Füller, 2006; Wu et al., 2007). Inversely, these studies also found that financial rewards, clearly an extrinsic motivator, had the smallest influence on the willingness of customers to engage in co-creation (Füller (2006). Frey et al. (2011) even showed that it might have a negative impact on the co-creation willingness of customers.

Some interest has to be devoted to explaining the different rewards hidden behind the labels in this model.

According to Hoyer et al. (2010), Some co-creating consumers were indeed motivated by financial rewards, either directly in the form of monetary prizes or profit sharing or indirectly, through the intellectual property that they might receive or through the visibility that they might receive from engaging in (and especially winning) co-creation competitions. Others however were not so much motivated by money: they chose to freely offer their efforts also in later ideation stages of the co-creation process (von Hippel and von Krogh 2006). They were more motivated to receive social benefits from titles or other forms of recognition that a company might offer to particularly valuable contributors.

The most important social benefits from co-creation are indeed increased status, social esteem, ''good citizenship,'' and strengthening ties with other people relevant to the co-creator. Amazon.com's ''Top 100 Reviewer'' for example is a formal form of recognition as such and can be a source of pride to many of the recipients, because it is a metaphor for being a special and unique customer (Nambisan and Baron 2009).

Other customers are motivated by a desire to gain technology (or product/service) knowledge by participating in forums and development groups run by the manufacturer. Co-creators can gain important cognitive benefits of information acquisition and learning (Nambisan and Baron 2009). Blackberry, Lenovo, Thinkpad, and many other brands in the high tech-sector of industry attract and engage users, who want to participate in all stages of co-creation process because they want to benefit from the knowledge they acquire through the exchange of technological ideas in the community.

Finally, there are indeed the psychological reasons that incite customers to co-create. They are intrinsic in nature and range from sense of self-expression and pride to being creative itself (Csikszentmihalyi 1996; Etgar 2008). Acting creatively (Burroughs and Mick 2004) is indeed a source of joy (Evans and Wolf 2005; Nambisan and Baron 2009). Enrique et al. (2013) also asserted that these social and community-related factors are especially important in motivating people to collaborate and co-create in innovation and lead customers to ignore potential financial incentives attached to the co-creation process (Zwass 2010; Phang et al., 2009).

Last but not least there are also customers who may co-create because they genuinely believe in the objectives of the NPD effort or highly dissatisfied with the existing products (Ernst, Hoyer, Kraft, and Soll 2010).

Thus, literature shows that a diversity of motivational factors influences the co-creation process and that most of them are positively related to the efficiency and effectiveness of the co-creation effort. And according to the classification and work of Hoyer et al. (2010), on the four motivational (Financial, Social, Technological, and psychological) factors and their positive effect on co-creation. This leads us to formulate the third hypothesis as follows:

H3. Motivational factors have a significant and positive effect on customer co-creation.

2.1.4. Stimulators of Customer Co-creation

Even consumers who are otherwise predisposed to active participation in co-creation activities may not engage in such activities if the benefits involved are too low or the costs involved are too high. Thus, according to (Hoyer et al. 2010), for a given level of consumer motivation for co-creation, companies have two generic options available to them to stimulate the co-creation process.

Firstly, companies can stimulate consumer co-creation by increasing the benefits that consumers receive from participating in the process. An approach that targets several of the motivators (financial, social, technological, and psychological) indicated in the previous paragraph in a combined way will be most effective.

Secondly, companies can also stimulate co-creation by reducing the costs (in terms of time, effort, and foregone opportunities) to consumers, participating in the consumer co-creation process. In this respect stimulation may be achieved by for instance providing user toolkits and marketing materials for potential participants, which ease the process of creating new ideas, products, (von Hippel and Katz 2002). Another possibility is to modularize the NPD process, so that consumers are assigned to or selected for participation in co-creation of specific modules. As such they can focus precisely on the particular components of the NPD process for which they have the greatest expertise and passion, which by increases the likelihood that they will be more effective and incur less costs in performing the co-creation task (Hoyer at al., 2010)

According to Hoyer at al. (2010), on the level of the company, consumers can be influenced to more positively co-create in the NPD process by using these two forms of stimulation. These

stimulators do not directly influence the co-creation process however, they only increase the motivation of customers to participate.

Therefore, we formulate our fourth hypothesis accordingly and it reads as follows:

H4: Stimulators have a moderating effect on the relationship between the motivation of the customer to participate in co-creation and the customer co-creation process itself.

2.1.5. Customer co-creation and innovation performance

As we have seen, the term *customer co-creation* denotes a product development approach where customers are actively involved and take part in the design of a new offering (Kaulio 1998; Piller 2004; Tseng, Kjellberg and Lu 2003). Their co-creation activities are performed in an act of company-to-customer interaction which is facilitated by the company. What is its impact on innovation performance?

In order to answer this question, we have firs to determine how innovation performance can be measured. Two major streams of research have formed: the strategy stream and the type of innovation stream. They are not mutually excluding each other.

Using Schumpeter's (1934, 1939) classification system, the strategy stream of research indicates that innovation performance measures can be grouped into five different categories: new products, new methods of production, new sources of supply, exploitation of new markets and new ways to organize business. Most of the literature has focused on the first two: product, and process innovations (Avlonitis et al., 1994; Cohen and Klepper, 1996; Fagerberg, 2006). Therefore, understanding the distinction between the related terms product technology (product innovation) and production technology (process innovation) is crucial for understanding innovations (Schmookler, 1966). Product innovations represent the invention and commercialization of entirely new products or services, whereas process innovations describe changing the production process of products and services through the adoption of new technology and innovations (Roberts, 1988, 2007; OECD/Eurostat, 2005).

According to this strategy paradigm, this study focuses on product and process innovations as measures of innovation performance. Since the share of sales of newly developed products and

services is also considered to be an accurate indicator of innovation performance (Smith, 1992, 2006), this third measure will also be taken into account.

The innovation stream of research uses another classification of innovations. These researchers distinguish between two extreme types of innovation: incremental and radical innovations. Incremental innovations build on existing competences in companies and are related to minor technological changes. In contrast to that, radical innovations accompany fundamental technological changes and can therefore be competence destroying (Tushman and Anderson, 1986; Green et al., 1995). Some other researchers consider this dichotomy to be the two ends of a newness continuum, ranging from radical to incremental (Ettlie, Bridges, and O'Keefe 1984; Laursen and Salter 2006; Sher and Yang 2005).

Radical innovations on the one hand are ground-breaking developments that require significant resources to materialize. Moreover, the time lapse from development to profitability will be relatively long (Chaney, Devinney, and Winer 1991; Veryzer 1998). Although radical innovations could thus enable existing SMEs to establish a dominant position in a new niche market, it could also expose these firms to an increased level of risk.

Incremental innovations on the other hand range from the development of new products (that are known to the market) to minor improvements in existing products and services (Atuahene-Gima 2005; Laursen and Salter 2006). They require less resources as they build on existing successes and have a shorter time lapse from development to profitability (Chaney et al., 1991). Incremental innovations will use the insights from customers or others to develop better and more attractive solutions to their needs and add to the profits from the existing products (Pavitt 1998; Xin, Yeung, and Cheng 2008).

In theory, firms adapting open innovation activities should be able to support both innovation out- comes. However, it appears that certain open innovation activities might be more favorable to incremental innovation, whereas others are better suited to radical innovation. Thus, we will not focus on this research paradigm that subdivides innovations in incremental and radical ones. Co-creation can indeed be at the basis of both types of innovation.

When we limit ourselves to the measures of innovation performance we selected in the above paragraphs, we want to see what relationship research has so far discovered between co-creation of customers and product and process innovations and sales share of the products involved.

Fernandes and Remelhe (2016) have found that both idea co-creation of new ideas and co-development tasks by customers have a positive impact on product innovativeness, thus innovation performance. The study also found that product innovativeness is more strongly affected by co-creation tasks in the idea generation and design stages of the NPD development process than in the commercialization stages. Overall, this study has provided some empirical evidence that customer co- creation leads to better and more novel products.

Inauen and Schenker-Wicki (2011) have observed that the openness of the outside-in process towards customers is crucial for product innovations and sales of new products. This is consistent with the results of von Hippel (2007, 2009) who emphasized the role of customers and lead users in product development. All these researchers also stressed the importance of practices like open source software for the contribution of customers to product improvements and innovations.

Brunswicker and Vanhaverbeke (2015), indicated that engaging in external knowledge sourcing is a sensible move for SMEs as it offers performance benefits and can improve innovation performance in two dimensions, exactly the success of launching an innovation and the appropriation of financial value from new products and services.
As they termed customers engagement as an external knowledge sourcing type and reffered to it as: Application-oriented sourcing (which heavily relies on distant partners along the value chain, such as indirect customers) and They consider indirect customers and users (which are not direct customers) as the most important input source in relation to other sources. And they have found that it can significantly improve the success in commercializing individual innovation projects. In addition, "as an alternative "smart" move to enhance innovation success." (Brunswicker and Vanhaverbeke, 2015).

Inauen and Schenker-Wickin (2011) also found that companies with a larger openness towards customers and universities are more likely to increase their number of product innovations. Thus, co-creation with customers has a direct and positive impact on innovation output. Indirectly, customer and university cooperation also seems to increase the percentage share of sales of the products developed.

These findings indicate that, openness towards external sources can result in a higher level of innovation performance.

Hence customer and user centered innovation is an important driver of innovation performance, certainly when it starts in the early stages of the product and process devlopment process and leads to increased sales of the newly developed and differently produced products.

Thus our fifth hypothesis would normally read as follows „Customer co-creation has a significant and positive effect on innovation performance. " However, since we are testing all these hypotheses in SME's it read more specifically as:

H5: Customer co-creation has a significant and positive effect on innovation performance in SME's

2.2. The Conceptual Model
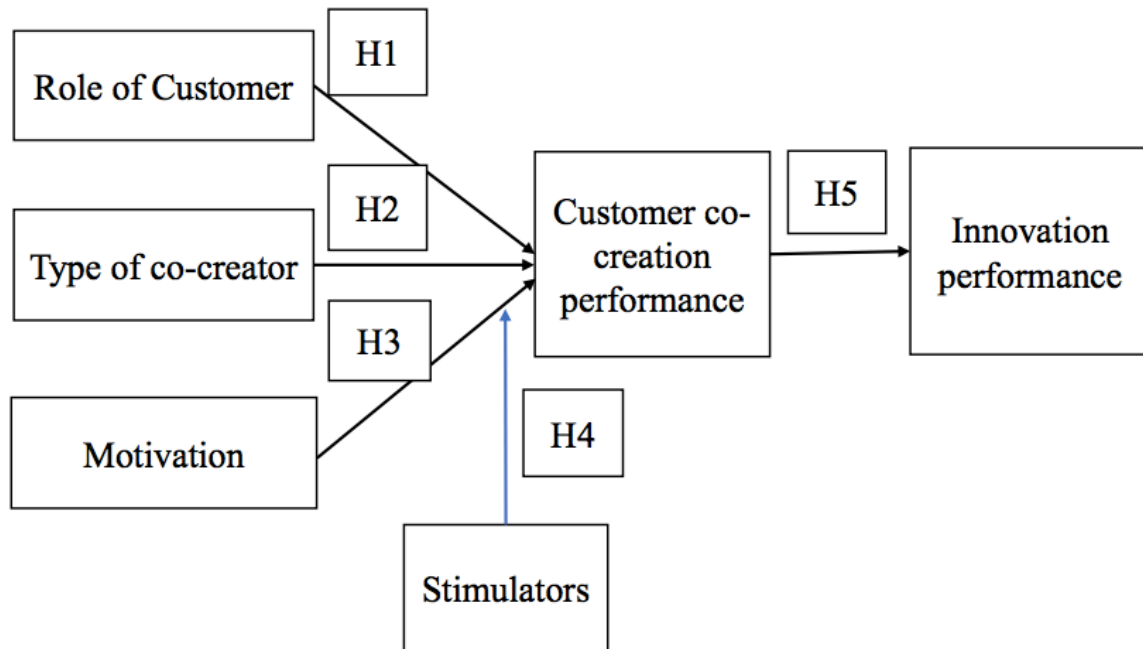
Figure 3: *The Conceptual Model.*

CHAPTER 3: DATA COLLECTION AND METHODOLOGY

In this chapter, we will indicate which strategy we followed in collecting the data needed to answer the research questions formulated in the first chapter and the hypotheses mentioned in chapter two. We will talk about the data collection method used and the interview guide and how these fit into the research questions and hypotheses. Finally, we will briefly describe the research sample.

3.1 Data

Our research approach will be a multiple-case study design in which we use an open ended, semi-structured interview. The respondents will be managers in SMEs. These participants were chosen from several levels, both strategic and operational in the company. Company co-founders on strategic level and product managers, (co-creation) design managers, co-creation team leader, innovation strategist, in these SMEs, on operational level were considered as potential respondents. Brief description of the cases is in Appendix A.

3.2 Research Setting

The data for this research were acquired from a sample of German, Dutch, and Belgian SME's. In total, five companies, and two experts were interviewed, one expert from the mentioned five companies and one from Flanders DC. In order to identify how customer co-creation enhances innovation performance in SMEs, and to gain insights in the way that SMEs best engage and most benefit from it. The selected SMEs were chosen to operate in comparable industries. Furthermore, both start-ups as well as more established businesses – i.e. businesses that have been in operation for a longer period of time, were included.

One of the enterprises has been in operation for ten years which is Flare Innovation, Blink has been in business for 7 years, where Lab folder and Brand exist for around 5 years. The youngest of the companies in our sample is Pridictive with the age of 2.6 years. Of these small firms (i.e. employing less than 50 employees), also micro firms (i.e. employing fewer than ten employees) were included. Blink is somewhat an exception with less than 250 employees, but including a lot of freelancers (non-employees). The table below table shows each of the companies in the sample in more detail.

3.3 Research Method

The case study research method is used, because it is suitable for novel research areas, which have not extensively been researched before (Eisenhardt, 1989). Since the identification and study of customer co-creation and its influence on the innovation performance of SMEs, is a relatively new and contemporary phenomenon, a multiple case study research was applied to generate data based on the empirical evidence from the cases (Eisenhardt, 1989; Eisenhardt and Graebner, 2007).

Yin (1994) defined a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident". According to Eisenhardt, a case study strategy is "a research strategy which focuses on understanding the dynamics present within a single setting". A case study can consist of just one case, as well as of multiple cases. Furthermore, this type of research includes multiple data collection methods, such as observations, interviews, questionnaires and archival records and the output of these therefore can be either quantitative or qualitative (Eisenhardt, 1989).

Case study research has to pay attention to contextual conditions as the focus is on contemporary events, and the experience of the actors is important. Eisenhardt (1989) has developed a roadmap for building theories based on case study research.

The first, and perhaps the most important step in case study research is defining the research question(s). The research questions have arisen from the literature review which was performed in the previous chapter. In this thesis, case study research is employed for explorative purposes, as the thesis aims to identify and explore how and why customer co-creation enhances innovation performance in SMEs.

Next, the cases are selected. The SMEs selected in this multiple case study are situated in the Netherlands, Belgium and Germany, and as indicated in the previous paragraph we tried to be as much diversified as possible with regards to experience with OI, age, size and activities of the selected sample of cases. Multiple-case research was chosen because it is believed to generate more robust, generalizable, and testable theory than single-case research, where it enables the researcher to explore differences within and between cases. (Eisenhardt & Graebner, 2007; Yin, 2014).

The third step concerns crafting instruments and protocols, Where the choice of data collection

methods is made. Case studies can include various data sources, like interviews, observations, archival material, survey data etc. (Eisenhardt, 1989). As in this thesis, semi-structured in-depth interviews were conducted in English via Skype. We were using a check-list to guide us during the interview process so that uniformity and consistency is assured in the data. We paid attention to asking enough open-ended questions to have more case based data than only responses to structured questions.

Also, available information about the company and its innovation strategy is taken from the insightful members, to enrich the data resources, which could include facts, opinions, and unexpected insights. As recommended by Yin (2014), a case study database was created, consisting of an introduction letter, the interview questions and the transcripts of all the interviews, All the interviews were tape recorded and typed out and later analyzed.

In this data collection stage, it is according to Eisenhardt (1989) possible that amendments to the initially foreseen questioning process are made to allow for emerging topics to be integrated and for amendments to the presupposed answers (based on the literature review) to be made. These adjustments or amendments are necessary to keep the data collection on. In this research, there were no amendments performed during the data collection process.

The fifth and probably the most challenging step in the process concerns analyzing the data. This step consists of two parts. First, a within-case analysis for every individual case, based on the transcripts of the interviews, is needed. This method of analysis allows the identification of special characteristics and patterns for each case, before the generalization of patterns across the different cases can be made (Eisenhardt, 1989). Thus, later a cross-case analysis is performed. This technique is only applicable when considering a multiple-case design. In this master thesis, the findings across a series of individual cases were aggregated.

Within-group similarities, as well as intergroup differences between cases were examined. Eisenhardt mentions different ways to do this. One way is to select categories or dimensions, which are for example mentioned in the existing literature or chosen by the researcher, and look for within-group similarities and intergroup differences. Another way is to pair cases and to find out the similarities and differences between each pair. A third way is to divide the collected data by data source. The intention of all these ways is that the researcher looks deeper into the cases and tries to find patterns amongst them, where in this research the within case and cross case analysis were used.

After analyzing the data, the next step is to test and/or shape hypotheses, which entails a constant comparison between theory and data. A close fit between the theory and data is of major importance in order to build a good theory (Eisenhardt, 1989). In this thesis, we have formulated a hypothesis in the research model in chapter two and we will after analyzing the data see whether our data confirm them or not in the conclusions chapter. This will be the basis for indicating new avenues for further research.

3.4 Questionnaire Design

The questionnaire was constructed to obtain information about how customer co-creation dimensions affect innovation performance in SMEs. Thus, the questionnaire will reflect the opinion of the managers in SME's. On the other hand, the questionnaire helped in obtaining the basic information about those managers such as their, age, gender, and the scope that they work in, the education level, and so on.

The types of questions used, in the questionnaire, are:
1.   Open questions.
2.   Closed questions.
3.   Single or Multiple questions.
4.   Rating questions.

However, this study focuses on open-ended questions and the ranking questions. The interview questions were designed to explore how the role of customer, type of customer and customers' motivators, stimulators affect the customer co-creation process, and thereafter the effect on innovation performance.

The questionnaire is in Appendix B.

3.5 Interviews

We conducted open-ended interviews (see Interview guide in annex 1) with key members of each organization using a check-list to guide the interviewer during the interview process. In this way some uniformity and consistency can be assured in the data collection process, which could include facts, opinions, and unexpected insights.

Open-ended questions produce answers that need to be subsequently coded (ibid).

The interview schedule has five parts that were identified in accordance with the research question and used from the theory of customer co-creation, such as customer motivation (Fernandes and Remelhe 2015, O'Hern and Rindfleisch 2009), type of customers (Zwass, 2010), and role of customers (O'Hern and Rindfleisch, 2010). The five key interview sections are as follows:

Specific biographical questions to the interviewees and about the firm

Role of customer

Type of customer

Motivation

Firm stimulators

The following table indicated the relevance of the interview questions for obtaining data on the proposed research questions and hypothesis.

Research questions …	Questionnaire questions ….
1. **Which factors influence the co-creation of products and services in SME's?**	We have asked several questions in the questionnaire: such as 1.How much does the role of customer affect the customer co-creation process? 2.How much does the type of co-creator affect the customer co-creation process? 3.Indicate now how much motivation affects the customer's willingness to participate in the co-creation process? 4.What are in your mind the most important factors for the success of cooperation with customers? The most important question however is: Can you talk about a couple of examples/cases of customer co-creation in your company.

		Subthemes to be adressed by the interviewee in this case were: - Type of product - Why chosen - How did it go: the story is important - Problems encountered - Advantages felt - Eventually any expectations that were not met By knowing these answers, we reached a level where we could formulate questions about which other factors affect the co-creation process from the interviewee's perspective.
2.	**Is there a difference between the different roles customers may play in the co-creation process of SME's with regards to the performance of the co-creation process?**	1.Do you think that certain roles are more important/ beneficial than the others in the co-creation process! 2.Why did you choose this/these roles? And 3.How much does the role of the customer affect the customer co-creation process?
3.	**How do they influence the performance of co-creation in SME's?**	When interviewees were asked this question: "Why did you choose this/these roles? Do you think that certain roles are more important/ beneficial than the others in the co-creation process?" (see previous RQ), they also explained how and in which way the roles they engaged customers in affected and influenced the co-creation process.
1.	**Which elements facilitate the customer co-creation process? How and in which way do they facilitate the process of customer co-creation in SME's?**	1.By answering the questions related to the motivations and stimulators we have the capability to see if these factors can facilitate the customer co-creation process, and the roles that the customers perform. 2.We have also asked about the motivation of the SME's to co-create with customers. By having their answers, we can know which other factors are important to the process, some of which can be facilitators from the

firm's perspective that affect the co-creation process and can facilitate it as well.
3.And again by asking our question of: "What are in your mind the most important factors for the success of cooperation with customers?", we gained some insight into what facilitates the co-creation process.

Table 2: *Research questions and the proposed Interview questions integration.*

Hypothesis….	Questionnaire questions ….

H1. The different roles of customers in new product development have a significant positive effect on value co-creation process.	1.What role/roles do customers take in the co-creation process in your company? like for instance:
	  1. Co-ideator,
	  2. Co-evaluator,
	  3. Co-designer,
	  4. Co-tester,
	  5. Co-launcher,
	  6. Others, which ones?
	
	2. How much does the role of the customers affect the customer co-creation process?
	
	3 Why did you choose this/these roles?
	4.Do you think that certain roles are more important/ beneficial than the others in the co-creation process?

H2. Different types of co-creators have a different effect on the value co-creation?	1.Which type of customers participated in the customer co-creation process? Like for instance:
	  1. The world, Any individual,
	  2. Prequalified individuals,
	  3. Community members,
	  4. Skilled contributors,
	  5. Others, which ones?

	2.Why did you choose this/these types? 3.How much does the type of co-creator affect the customer co-creation process?

H3. Motivational factors have a significant and positive effect on customer co-creation.	1.Please indicate now how much motivation affects customer's willingness to participate in the co-creation process?
	
	2.To motivate your customer to cooperate, and co-create what do you do? Like for instance do you use any kind of the following:
	
	  1. Financial motivation benefits (monetary rewards)
	
	  2. Technological motivation benefits (offering knowledge acquisition)
	
	  3. Social motivation (focusing on the social statuses of customers, Social rewards and acknowledgement)
	
	  4. Psychological motivation (enjoyment level in the co-creation activities- positive experiences)
	
	3.How did you do that?
	4.Which motivational factors affect customers most to engage in the co-creation process?

H4: Stimulators have a moderating effect on the relationship between the motivation of the customer to participate in co-creation and the customer co-creation process itself.	1.Do you stimulate your customers in order to co-create, (Means to save cost and time for customers) like for instance: 1. Increasing customers's motivational benefits (financial, technological, social, psychological) 2. User idea contests 3. Consumer opinion platforms 4. Toolkits for user innovation (make innovation cheaper for users, lead to higher customer value) 5. Mass customization toolkits (reduce cost for customers) 6. Modularizing the new product development process (Facilitating engagement by having specific modules that each customer can match with his experience) 7. Others … which ones 2.From your experience, how much do you agree that stimulating customers will affect their motivation to participate in co-creation process?
H5: Customer co-creation has a significant and positive effect on innovation performance in SME's	1.How much did the customer co-creation process improve your innovation performance? 2.Do you have new producs, or process innovations, or is there an increase in the number of these innovations. 3.How would you summarize the overall impact of customer co-creation on your firm's innovation performance? And finally, also we asked: 4.How would you summarize the overall impact of customer co-creation on your business?

Table 3: *Hypothesis and the proposed Interview questions integration.*

Chapter 4. Case Study Findings

In this chapter, we will indicate the major results of our contacts with companies and experts about customer co-creation. The first section will depict a case of co-creation that illustrates the process but can for one reason or another not be used directly in our observational basis. The second section contains the results of interviews with experts about customer co-creation, the third one deals with real life cases. In each case, we briefly describe the case and the interviewee before dealing with the results. Specific literal quotes of the interviews are indicated between brackets.

Full and comprehensive summaries of the interviews are available in annex 2. Whereby these summaries have a complete description of the co-creation process that is fully mentioned by the respondents.

Next, a cross-case analysis will be performed whereby the findings of the cases are compared in order to identify patterns and contrasts.

4.1 A Short case that illustrates customer co-creation

In this paragraph, we include a case that we couldn't take into account for the section with our conclusions because the interviews were too short and not applicable as the market was not always to be seen as a business-to-customer market. Yet the example is a valuable example of customer co-creation and therefore included in this separate section of the results chapter.

4.1.1. *Bliep

We had a short interview with the marketing manager of Bliep and initially he agreed to co-operate with us, later stating that it was not possible anymore. Yet his answers in the first interview were valuable enough to let this case figure as an example in this section.

*Bliep is a case study example of complete Co-creation. *Bliep was created by teenagers as a response to telecom providers not delivering the services they teenagers wanted. What these customers hated most was a standard telecom service with a lot off small print, pushy commercials, offering discounts that become smaller and smaller, as most providers do. They also mostly don't trust these advertisements and are thus "unsatisfied with current options". A typical complaint is: "Many of us spend more than their bundle, I simply want to call and SMS as much as I want. To make sure that I know what I spent, keep track and don't spend too much!" (www.bliep.nl).

They launched their own telecom provider *Bliep in Amsterdam as a response to this. A year ago, it was still an idea, then they got together. Like this they came with great idea. For instance, 'sharing your credit'. And it really became a great product. The teenagers are working together with 'Joost Van der Plas' who have experience in the telecom industry. He is the director of the company and takes care of running the daily business.

What makes Bliep special is that teenagers decide; they decide on every aspect of the product, what it looks like, their partners, the name, everything really. The roles have formally ben defined as board of commissioners; So, these six teenagers together are the board of commissioners of Bliep. This resulted in a very successful mobile phone provider that the target group relates to (www.bliep.nl)

Bliep is mainly focused on internet and SMS. Bliep is a sim card with unlimited internet and SMS. They let customers decide for a fixed price per day what they want. So, for instance they can pause and don't pay anything, but can still be called and receive SMS. So, at Bliep unlimited really means unlimited: where customers have unlimited internet and SMS. The provider doesn't have its own network, so it uses the network of T-Mobile.

This is clearly a case where co-creation is the basis for establishing this company, which unfortunately does not do business in the same way anymore, they are still offering most of the same products, but their model is changed.

4.2. Expert opinions

In this section, we report the results of two interviews with people who are not directly involved in customer co-creation or not anymore, but provided us with more general insights on the process of co-creation and the effectiveness and efficiency of it.

4.2.1. Flare Innovation

<u>Company Profile and Contact Person</u>

Flare Innovation is a ten-year-old service company that offers other companies help with their innovation trajectories. The company has 8 employees and is active for customers in both B2B and B2C markets.

We had two interviewees in the company. The CEO, **Pieter P**. talked about the process of co-creation in open innovation and can be considered as an expert opinion on how to structure customer co-creation successfully. It gives insight in the pre-conditions needed to make the co-creation process into a success and talks about some challenges often encountered.

The other interviewee was Lauren Y, who works as an innovation strategist for the company and talked both about open innovation and co-creation in general and about a specific case the company was working on. talking about innovation and co-creation in concrete examples. This second interview is treated as such in the case section, and hence is illustrated in the cases section.

Full summary of interview in Appendix C.

Flare innovation Expert opinion, Pieter P.		
Process factors	Obtaining a Clear goal and vision	An acute awareness of the SME of its strengths, passions and weaknesses has to be present, has to be checked over and again to avoid that unexpected problems pop up later. "we try to find a match between, the strengths of a company and the passion and the needs of the end users, and then we have distilled a point on the horizon, and when we have that, that is our foundation to ideate. "
	Iterative process	The ideation process is iterative in nature. Co-creation has to be embedded in a structural process which comprises six stages (aligning everyone with the process and

		getting rid of different opinions, making a blueprint of the strengths, passions, and weaknesses of the company, emerging stage in which the future direction of the company is laid out, ideation stage, funneling of ideas, enrichment of ideas).
Pre-conditions	Mindset of the SME and all the employees (in)	The internal structure has to be adapted to the needs of the customer.

Table 4: *Interview with Flare innovation 1.*

4.2.2. Flanders DC

Company Profile and Contact Person

Flanders DC is an independent non-profit organization, that acts as the 'front office' of the government agency Flanders Innovation & Entrepreneurship and actively supports creative entrepreneurs who want to build or grow their business. More Return on Creativity is what they aim for.

Flanders DC has entrepreneurs as their customer group and does some, but not participate in customer co-creation as they are mainly involved in design activities, not in marketing activities.

Our respondent at Flanders DC is **Tom Z.** He works as Project Manager Design and Co-Creation at Flanders DC. In his job, he investigates some co-creation and tries to implement as many as possible processes and methodologies of it (design co-creation methodology). Before working for Flanders DC; Tom Z. was a Design Manager as an independent entrepreneur and worked for different SME's in design management (managing the process around the design process).

He shared his knowledge and gave some insight into his co-creation experience and his advises to SME's about it.

Full summary of interview in Appendix C.

Flanders DC Expert opinion, Tom. S		
Positive elements for Success	Environment for co-creation	"It is important to control it so that no other factors can affect the co-creation process in a negative way." "The environment should stimulate a creative mindset." "The customer should be in a state that affects him positively and comfortably to co-create"
Process factors	Team effort	"Efficiency and effectiveness are increased through a number of factors like: it is a team effort with strict responsibilities, it should be organized rigorously and according to strict methodologies."
	Clear goal and vision	"There should be a clear goal and a downhill evaluation of the process" "I think the goal is the most important thing, the challenge that you want to continue with."
	Hiring Agency to help with co-creation	external agencies should better be involved to help the SME's in co-creation. "I think that the best advise I can give you; may be . Don't try to do it your self, certainly if it is an SME; ask someone to do it for you; because they have a different look on things." "And together with the company they will design a process, and facilitate a process."
Pre-conditions	Clear problem definition	"Good problem definition is needed." "Having a sharp goal, and a clear problem definition; or calling it the challenge is important, where the stakeholders should have a clear oversight on who the stakeholders are, the value chain map should be also there, where having a lot of information that defines the new challenge is very important, and then invite the first customers into the process"
	The whole Value chain	"The whole value chain should be involved."
Co-creation factors	Motivation types used	Technical knowledge (B2B) and to a lesser degree social motives (B2C) play a role. "If they are stakeholder beside being customers, they all have an agenda, sometime of course gain new knowledge." services, and products." "Preparation upfront is important, but making them feel special afterwards as well."

		"That their input that the thing they do, that's very important for the company, that they are really adding to the quality of the company's "sharing note, document or movie to prove them that their input really had added value."
	Role of customer	Starting early from the beginning is important. Co-testing is most important
	Type of customer	Differs from case to case and should be based on the definition of the target segment, at best on the basis of lifestyle characteristics.

Table 5: *Interview with Flanders DC.*

4.3. Cases

4.3.1. Lab Folder

Company profile and contact person

Lab folder is a private company with 25 employees, developing software applications for laboratory scientists on notebook. This has the purpose to facilitate the daily recording of their scientific findings and to connect with another lab devises as well.

Our contact person is product manager at Labfolder, called **Priscilla. z** She is actively involved in developing new products, but is also responsible for innovation research and customer contact. And beginning of the UX and UI design, where not doing the design herself, but goes through the process of establishing the way the software looks, where this incorporates the structure phase. With more technical in nature, her managerial duties are also very important. She is considered a strong innovative member of this company.

Full summary of interview in Appendix C .

Labfolder, Pricsila. Z		
Positive elements for Success	Good Communication	Excellent communication is needed. "sometimes the users do not know how to communicate clearly what is painful for them, you have to put yourself in their shoes and go to the environment and see, like what's going on."
Process factors	Team effort	The development team and the product team have to work together and communicate very thoroughly.
Pre-conditions	Internal Communication	Internal communication about the importance of the process is as important as outside communication "The developers who work for us are not having a scientific background; mostly no developer has. It was a tough job to try to explain to them in abstract, and in statements what are the customer's needs. It was like a communication challenge, because sometimes the developers do not care much about the need of the customers because they do not understand it very well." So, internal communication about the importance of the process is as important as outside communication.
Co-creation factors	Motivation of the SME to do co-creation	"The basic motivation would be to heal the process or the pinpoints that the scientists are facing, while doing laboratory work. " "So, the motivation is taking this technological step one way forward, and providing a digital solution for this (an organization problem) we solve the data management in the lab."
	Motivation types used	Mix of social and emotional motives will play a role and keep customers involved. "It would go into the direction of either social motivation; I think a bit more emotional in that sense; because they feel special on how we ask them to shape the software of the features, and the software that will help them, or not help them, but supports them to do things in a more efficient way, they are kind of pretty excited, because their ideas are somehow been heard and implemented."
	Role of customer	"Co-ideators, co-designers (on structure looks only) and also co-testers. Co- ideators Co-designer: because they shape basically the structure of how things are; not visual designers, but, structure designers; in our case, development design as we call it.

		The validation part is also important, so, when they test, Co-testers, so yes these roles."
	Type of customer	"Having inputs from different types of customers, influences you largely, because the user perception changes." "Several groups of customers may be involved (skilled contributing customers and non skilled regular users). 40 % Skilled users (Lab supervisors) - the remaining are not skilled users (students or regular users who will face the software) to see if our products are being usable or not and to test the intuition level of the product."
	Stimulators for co-creation	Increasing knowledge acquisition: "We offer free webinar or innovation sessions for the users and in this case (the lab managers; where they distribute it among other lab technicians)."
Strategic advantages to the company	Impact on Innovation performance	"It opened our eyes to things that we did not see before, so we of course were obligated to do a deeper research."
		"Yes, every knowledge that they have shapes the path that we are going through, of course if it is relevant."
		"Like from our side; we improved our workload in that sense."
		"The investigation efforts goes to the top, all of the time, so that means, that the innovation craving is there, and we are always curious to see what's out there. That's the impact."
	Impact on Business	"Obviously the number of customers is increasing, so the curve is really high."
Challenges	Communication challenge	Customers may face a language barrier to convey their ideas clearly during the process. "sometimes the users do not know how to communicate clearly what is at the moment painful for them in ou concepts and products."

Table 6: *Interview with Lab Folder.*

4.3.2. Flare Innovation

<u>Company Profile and Contact Person</u>

We had two interviewees in the company. The CEO, Pieter P. talked about the process of co-creation in open innovation and can be considered as an expert opinion on how to structure customer co-creation successfully. It gives insight in the <u>pre-conditions</u> needed to make the co-creation process into a success and talks about some challenges often encountered. This first interview is treated in the expert opinions section.

The other interviewee was **Lauren W**, who works as an innovation strategist for the company and talked both about open innovation and co-creation in general and about a specific case the company was working on. Talking about innovation and co-creation in concrete examples. It is treated here.

Full summary of interview in Appendix C.

Flare Innovation, Lauren. W		
Positive elements for Success	Environment for co-creation	"It is very important to create a nice atmosphere, in the beginning. And we also tend not to have a conversation in a very businesslike environment, but just very informal (the informalities are important)."
	Communication Types	"I think I approach them as human beings, and not as customers, and I make sure that I'm vulnerable myself in the conversation, I also talk about who I am, my private life (in my introduction). And we noticed that there will be more willingness, as all of a sudden you are talking from one person to another." "And we try to affirm what they say and the information they give."
Process factors	Iterative process	The implementation process is iterative in nature until the end of the process "So, we have 30 ideas, but we have no clue, which of them, would be the ones our customers would want. You know everyone have ideas, but it is in the implementation that you will find out whether it is a success. It is not the idea, it is how it worked out."

Pre-conditions	The Mindset of the SME	"And I also want to stress on the cultural change that is very important, of the mindset of the company, and you cannot do that overnight." This belief has to be integrated in the vision and the culture of the organization of the SME. " But if it's not, if underneath there is not the firm's belief of the necessities of it, and the importance of a client, of what they feel, what they want, and what they need, then it would be an instrumental tool; that I do not really believe in."
Co-creation factors	Motivation of the SME to do co-creation	"So, the translation of the product to the real world; that's where you need the end user, because he will tell you about their real world how he is using it, and if you cannot make that translation, then you will essentially will have a product that is worth not so much." "The overall thing is that, the implementation is a very decisive factor and a very important factor to consider, and the success of innovation is very dependent on that. "
	Motivation types used	Mainly psychological motivation will be helpful in B2C cases, knowledge motivation will also be important in B2B cases. "And sometimes of course there is knowledge to be gained of course, they are just interested to see where are you going, what are you planning, what are you doing. And so in B2B business relations, people are more opportunistic, and they will also sooner see that there is a business upside." "And we also try to make it very informal, very positive, and very open conversation. We always say, we talk to the people and not to their professions. So, I think making it positive experience also affects here." Considering the social reward as a consequence! "I think it is interesting, actually, and sometime it is kind of a consequence and when you see that you are creating you ambassadors in the process, they feel involved in the brand, because you involved them, then it becomes quite easy to make sure that they remain loyal and strong connected to your company, they appreciate that you take the time to listen to them, they appreciate that their opinion is worth something, especially when you get them in co-creation mode! Help us, think with us, they will be in a mind frame where they feel a sense of belonging, and afterwards: they

		have invested in this, so for them it will become an element for their social status, and a social reward, certainly if it works, if the idea that they have contributed to became huge success."
	Role of customer	"So, yes, we use, the co-ideator, co-evaluator, and co-designer, yes. But also, interesting, also it depends on the product, because sometimes the design is less important, and it depends on where are the most hurdles or obstacles are and where the most important aspects of the product are situated."
	Type of customer	"That depends completely on the project, it is hard to say, but sometimes you have a very very specific bullseye group, that you want to talk to, and then, it can be that along the way, you are zooming in more and more on specific groups." "And in another cases, we have a more varied group of people, that are interested in the product, and so yes, you could be more generic about the qualifications and you will create a large group of people with different traits, but, I think that it is also important, that you will find and that you will narrow down along the process."
	Stimulators for co-creation	"For me the status, and social reward that are to be gained, and the positive experience, we do that yes (increase)."
	Customers	Several groups of customers may be involved, as well as the stakeholders.
Strategic advantages to the company	Impact on Innovation performance	More innovative products will sooner be developed. "It is very clear sense of direction of what to do, it will give you hands on, and it is very concrete."
	Impact on Business	"So, I think you at least, what you can do is? you will be able and you know what to do, to make a tailor made product, that is tailor made to the needs of your customer."

Table 7: *Interview with Flare Innovation 2.*

4.3.3. Blink!

<u>Company profile and contact person</u>

Blink is an educational editor offering teaching methods for children aged 4 to 16 years of age. The private company exists for 7 years and has some 20 permanent employees, but uses up to 100 freelancers to develop products. They have a very specific philosophy. Their offering is developed in co-creation with children, teachers, parents, grandparents, in short everybody who comes in contact with their material. They are growing rapidly and steadily.

Our contact person is **Ron H.** He is team leader for the expert team in co-creation in the company. Actually, everything is done in expert teams. The company has an expert team in co-creation, an expert team marketing, an expert team design and concepts and several product teams. It is the publisher who assembles their team with people from the expert teams at Blink to develop the final products. But the publisher also works in identical teams as Blink. In this way, Blink tries to keep everything agile and lean, also by using freelancers when needed.

Full summary of interview in Appendix C.

Blink!, Ron .H		
Positive elements for Success	Communication Types	Continuous open, honest communication with co-creators, Based on Curiosity Never restricting the roles of co-creators
	Selecting the right customer	Selecting the right co-creators
Process factors	Iterative process	The process of developing something is really an iterative process until something is tested that is rated high enough according to the star system of the company. "All the steps (concept, content, investment and evaluation stage) involve co-creation activities." It is talking and observing customers in brainstorming sessions, but asking different things from them in different stages.

		Different methods are used in different stages (brainstorming, moonboards and power points in that order are mentioned). Idea contests and customer opinion platforms do not necessarily work- because it is not a deep way to gather information and ideas.
	Team effort	Working in expert teams and being always curious
	Clear goal and vision	Having goals and vision "we want to innovate and get better in the Netherlands, with our schooling programs, so that's our main reason why we do what we do."
	Hiring Agency to help with co-creation	"During the co-ideation, we always call Flare Innovation. It is the stage where we look for the key insights of what motivates the customers about a certain product because we want to make a new method. They help us as we talk with everyone. "
Pre-conditions	Mindset of all the employees (in the SME)	"It has to be in the mindset of all the people working in the company. It has to be in their DNA." "If they can't be open, they can't work at Blink." "Your personality has to be open, and you have to be curious and want to know, and you have to let go everything you know"
	Mindset of the stakeholders	It also has to be in the DNA of the stakeholders you are working with (sometimes customers, but also the community).
Co-creation factors	Motivation of the SME to do co-creation	"Finding and understand what motivates children to learn."
	Motivation types used	Social and psychological motives are mentioned (feeling of getting value and having fun, belonging to) come into play. "it is how positive is this experience for the teachers, and how do they feel when they are co-creating, and the value they feel by contributing to children education in the Netherlands, what they do in this process of improving and how fun the experience for them." "I always give them back, listen we did this, and this is the feedback, and then this is giving them back like a reward as the teacher gets some kind of meaning; (as I did something for all the children in the Netherlands); so yea the motivation you call it, stays at a high level."

	Role of customer	All roles are involved (from Co-ideator to Co-launcher) "They are partners and they are in everywhere in our company, so we use them in all those stages and we always look at what does this project needs." "So, we don't give them a role? It's a role that we take! Help us we don't know anything? "
	Type of customer	"Well, you know you can get around the table with community members, so I can have teachers where they all use groove me, and they are all fans of Blink and they are really excited? but I will never get to the imformation as quickly and as easy as I can get to the people who are not fans of blink, and who are not with grooveme and does not work with grooveme, yea not the same people, so if you can get those people together and let them sit on a table; and I just look at them and what's happening; and what are they using! Then can get new information. Yeah," "Depends on the case at hand and the phase of co-creation, and what do we need." "it depends on the project; what do we need, and in which stage of the project are we, so if we are researching a new product, that everybody can think with us." Has to be seen as very wide search and the selection of the co-creating customers is a factor of success
	Stimulators for co-creation	Is not really necessary. "A user idea contest doesn't always work, also the consumers opinion platforms."
	Customers	Several groups of customers (children, teachers, principals) They are skilled contributors and non-skilled users, but also the community at large Also negative oriented people can contribute
Strategic advantages to the company	Impact on Innovation performance	"Other companies existing for one hundred years; they can't do what we do? They can try but it's a culture."
	Impact on Business	"Well 25% of the children in the Netherlands work with groove.me, and so that's one of our biggest success, it's not that up to date, but every other product that we put in the market, we see the same line as with groovme."
Challenges	Finding the right people	Difficult to find people with the right mindset. Mindset the customer has to identical in terms of openness. You can't push them into something. "Its finding the right people, that is something really difficult, as we have got a few writers who do say, ohh, what do children know, and let me do my thing and I know what's good for them, and I know it better than a teacher, no! the

		teacher is also an expert, so its finding the right people who can get that mindset, quite hard"

Table 8: *Interview with Blink!*

4.3.4 Brand New

Company profile and contact person

Brand New is the technology that connects brands with creators. It is a 4.5 years old company specialized in "influencer marketing": they have an influencer marketing platform, mainly focused on solving the problems of Marketers as Brands, as on how do they influence on marketing campaigns by findings influencers on social networks, and how do they do campaigns with them. With 23 employees, they work with both influencers and brands, and by using their platform, brands marketers can find their best matches of target influencers to do the campaigns for the brands.

Our contact person is **M. Al Deek**, who is a UX designer, and had the position of managing the product, and managing design team and maintaining very healthy relationships with both B2B and B2C customers, and making sure that the product is going in the right direction.

Full summary of interview in Appendix C.

Brandnew, M. Al Deek		
Positive elements for Success	Environment for co-creation	"Reach them in an open mindset, a friendly environment during the meetings without any restrictions is good"
	Good Communication	"We listen more than pointing out solutions." "Trying to observe how do they come up with the solutions helps."
Process factors	Team effort	"Personal and Team initiatives to investigate and look for any pinpoints that the customers are facing in order to find solutions together with customers in the co-creation process."
	Iterative Process	"The process of developing something is really an iterative process until something is tested and approved. "

Pre-conditions	Mindset of all the employees in SME	Digging deep in an initiative mindset is needed. "We dig deep in the data and look for the pinpoints that the customers are facing, and look for any information that will help." "Keep asking them questions and checking their needs always, and digging deep."
	Excellent relationship with customers	"Customer success department that maintain excellent relationship with customers; which will increase the willingness of customers to cooperate and share their ideas when needed."
Co-creation factors	Motivation of the SME to do co-creation	"Stand out from the market, reach a better level of customer satisfaction, with the services that we are providing, also increasing the revenue. "
	Motivation types used	"Some groups want a financial reward in order to participate, but we wanted to go in another direction. The initiative has to come from the customer's side, and we had better results with that later." "The financial reward was something like an extended subscription, and sometimes Amazon gifts cards, and sometimes a 2 months free subscription. "
		"Also making the experience a positive one. We consider it as a Psychological motivation."
		"They always liked to participate when they have the appreciation of someone listening to them, and valuing their ideas." Social motivation.
	Role of customer	"They participate in the ideation, and then in the evaluation otherwise we are not sure that we are fulfilling and meeting their needs. Designers yes: sometimes they can come up with concepts that we did not think of and in some cases they had a solution in their own setting, so they influenced our concept and gave us the direction." "And, they test with us, and then evaluate it with us until it is ready to be launched." "The chance of getting word-of-mouth, as sometimes we didn't do any sales, where customers started to refer to other partners and customers to us." So, co-launcher is to be considered.
	Type of customer	"Skilled contributors, and prequalified individuals, like marketing managers and some people with technical background, or someone who have an influence on us, as they can provide us with high-quality inputs."
	Stimulators for co-creation	"The only thing I could think of is making the customers feel happy in the co-creation process."
Strategic advantages to the company	Impact on Innovation performance	"Positive change in the innovation process (innovation that starts with the customer and ends with the customer) Increased efficiency, Increased creativity, Lead the direction of what to focus on."

		"it was an eye opener on things that we did not see clearly or correctly." "Very positive impact."
	Impact on Business	"The chance of getting the word of mouth." "Higher return on investment."
Challenges		"Unusual ideas that customers wanted, due to technical possibilities cannot be achieved, but managed with in-between solutions."

Table 9. *Interview with Brand New.*

4.3.5 Pridiktive

Company profile and contact person

Pridiktiv.care is a service company that focuses on health care, more particularly on care for the elderly, thus on care homes and home care services. They offer mobile applications that allow nurses in these homes to leave out two thirds of the administration that they do today and to communicate with other care givers about their patients and finally gathers all medical history data from the patients on the application so that they always have a real time vision on what's happening with patients. These three solutions were developed on the basis of research data and co-creation efforts with the nurses (see later). The company was established in february 2015 and counts 6 employees.

Our contact person is **Thomas. V**. He is the cofounder of the company together with 3 other people since Feb. 2015. He is mainly in charge of working on the products from a non-technical side, where he translates the user needs, so what the care giver, and the care director have. He translates it into a very workable product or service. With a background in economics, and later having focused on health economics, with a marketing working experience, he has returned to the university of Brussels as a researcher in a department that focuses on digital health care applications. There he did two things: finding sustainable business models for these fields, and secondly focusing on user innovations, such as how can they include users and end users and intermediary users, into the creation of better services; It is there that he started working out what they do now at Pridikti. Where he admitted that:
"And it was great fun really."

Full summary of interview in Appendix C.

Pridiktive.care, Thomas.V		
Positive elements for Success	Good Communication	"Feeling involved and listened to."
Process factors	Team effort	"so, we decided that we are with the team of 4 or 5 people. We stayed in the care home, so we actually had our HQ in the care home. We talked to everyone, we talked to residents, and we talked to head nurses, nurses, for 3 days in a row. We slept in the care home as well, so that we experienced what is it like with the patients, what the day shift was, and what the night shift was."
	Using a university study	"What helped is that we used a study from the university of Brussels that showed, that we needed to focus on these points. That's my first. Of course two years into business, you cannot rely on something that you gained two years back, so that's why we keep on trying to co-create with our end users now."
	Iterative process	"With the 300 plus nurses, that was still for us the ideation phase (co-ideation). We finished ideation then, filtering out ideas and we started developing and then we tested and then we did the co-creation phase as well. Then we iterated on what we learned in the previous three phases. We did it back. So, they did not develop themselves of course, we developed something: then they tested it on the floor, they came back to us and said: this is okay, this is not useful, and this we don't want, and so we reengineered it, for them, and they tested again, and they found that it was a lot better than before."
Pre-conditions	The whole Value chain	"A co-created dashboard, was also made available to the higher levels of the management, in order to approve to pay for the users (nurse's application), because of buyer user decision making problems. The dashboard was found to be very useful and agreed upon by the upper management, because it saved time for them and increased their efficiency with working with the data transferred by the nurses through the application. So it presented a high value for them, then they were able to accept to pay for the application and the dashboard."
Co-creation factors	Motivation of the SME to do co-creation	"You can only develop something that works, that will be used if you listen to your end users. If you haven't listened to the people that work on the field today, you probably, would not be in business today." "We don't want to make things for our own, we are making things for end users, so that's why we co-create."

		Motivation types used	"We cannot give financial benefits today, not yet, probably because we are a small company, and we cannot make this contribution today."
			"So, we try to make every co-creation experience, as much fun as possible, we bring boxes of chocolates, and because these people like chocolate."
			"Secondly, so a cooking cook off, we try to do in the care home; next week, we are going to have a paella; to provide a fun atmosphere, so that's what we do." This is a psychological motivation.
			"So, we try to give them financial benefits, by saying, okay you (one care home) are the first one which we are piloting with. If this gets agreed upon, and if it's get payed for by the upper level, then we will make sure, that you will never pay for this in the future. It will always be your golden card offer and in this way. That is more for the directors of the care home, as we help them create a good image for their selves between all the 85 others, and the upper management, so they feel really contributing to all the organizations, and they are pushing the motivation button up, and this is a good image to the higher levels, and the CEO as well of course."
			So, a social motivation. with an indirect financial reward
		Role of customer	They were involved in all of them except the last one, the co-launcher stage.
			As they co-ideate where we co-ideated with 300+ nurses, and then they co-evaluate, and co-design: regarding the place of functionalities, as these people are health care professionals, and the testing of course to check if everything is right.
			And the testing was done in an iterative process, and usability is checked so that the final product matches their exact needs.
		Type of customer	"Every user who will be using and facing the application. Sometimes users did not like to use the application because they were not that used to digital applications, but they also participate with us. There were thus no restrictions or preconditions, on the type of the co-creator."
		Stimulators for co-creation	"No, actually we did not use any. Because we are a small and quick company today. We do not have a standard approach to co-creation today, and I know that there are lots of tools that I have used before, but it's a bit as how we go today. We will standardize this in the future, but today, that's not the case."
		Customers	Nurses, directors, regional directors.
			Also, non-users nurses can contribute.

Strategic advantages to the company	Impact on innovation performance	"Strong, innovation without real (user-driven) application is useless." "without customer co-creation, we wouldn't have been able to still exist."
	Impact on Business	"Very strong, it enables us to get to the market quicker and more accurately." "The adoption, I think the adoption of the product, we are very small company. We have two big competitors in Belgium, big old dinosaurs, and of course our users are working with our products, but as well with our competitor's products. But yesterday, we had a very nice email from the management of the care organizations, saying that they want to ditch all other products, and only want to work with ours, because they like it so much and that we were accessible 24/7 for them, and we want to help in the care process."

Table 10: *Interview with Pridictive.*

4.4 Cross-Case Analysis

In this section, the findings resulting from the individual case studies are compared and commonalities and discrepancies and highlighted.

Cross case analysis

Co-creation factors & SME motivation to co-create with customers							
	Case 1 Lab Folder	**Case 2 Flare Innovation**	**Case 3 Blink Educatie!**	**Case 4 Brandnew**	**Case 5 Pridiktiv**	**Case 6 Expert Opinion Flanders DC**	**Case 7 Expert Opinion Flare Innovation**
Motivation types used	Mix of social and emotional motives will play a role and keep customers involved.	Mainly psychological motivation will be helpful in B2C cases, knowledge motivation will also be important in B2B cases. And social motivation as a consequence of co-creation	Social and psychological motives are mentioned (feelingof getting value and having fun, belonging to) come into play. .	Financial motivation, psychological motivation and social motivation	Psychological motivation, Social motivation, indirect financial rewards	Technical knowledge (B2B) and to a lesser degree social motives (B2C) play a role	-

Role of customer	Co-ideators, co-designers (on structure looks only) and co-testers	Co-ideator, co-evaluator and co-designer	All roles from co-ideator to co-commercialization although we don't call them like that.	Co-ideators, co-evaluators, co-designers, co-testers, co-launchers	Co-ideators, Co-evaluators, Co-designers (for place of functionalities only), co-testers.	Co-testing is most important	-
Type of customer	40 % Skilled users (Lab supervisors) - the remaining are Not skilled users (students or regular users who will face the software) to test the intuition level of the product)	Depends on the case at hand. But the target group is narrowed down the further you go in the process.	Depends on the case at hand and the phase of co-creation, and what do they need. Has to be seen as very wide search and the selection of the co-creating customers is a factor of success	Skilled contributors Prequalified individuals.	Everyone who will be using the applications, users, and also non-users who does not like digital applications also.	Differs from case to case and should be based on the definition of the target segment, at best based on lifestyle characteristics.	-
Stimulators for co-creation	Increasing knowledge acquisition by Offering free webinars.	Is not really necessary.	Is not really necessary.	Increasing the Psychological motivation by making the customer happy during co-creation	Is not really necessary.	-	-
Customers	Several groups of customers may be involved (skilled contributing customers and non-skilled regular users).	Several groups of customers may be involved, as well as the stakeholders.	Several groups of customers (children, teachers, principals) They are skilled contributors and non-skilled users, but also the community at large Also, negative oriented people can contribute	Several groups of customers Skilled contributors: people with technical background, and influencers in the technical area. Prequalified individual: marketing managers	Several groups of customers: (Nurses, directors, regional directors.) Also, non-users nurses can contribute	-	-

Motivation of the SME to do co-creation	The basic motivation would be to heal the process or the pinpoints that the scientists are facing, while doing laboratory work.	So, the translation of the product to the real world; that's where you need the end user, because he will tell you about their real world how he is using it, and if you cannot make that translation, then you will essentially will have a product that worth not so much.	having a better understanding of the clients needs and expectations and understanding what motivates children to learn.	Stand out from the market, because, reach a better level of customer satisfaction, with the services that we are providing, also increasing the reveniew.	Creating products for the end users, based on users needs not based on their own thoughts.	-	-

Table 11: *Cross case analysis of co-creation factors & SME motivation to co-create with customers.*

Strategic advantages to the SME (Impact on innovation performance, business)							
	Case 1 Lab Folder	**Case 2 Flare Innovation**	**Case 3 Blink Educatie!**	**Case 4 Brandnew**	**Case 5 Pridiktiv**	**Case 6 Expert Opinion Flanders DC**	**Case 7 Expert Opinion Flare Innovation**
Impact on innovation performance	Incites the company to perform even deeper market and customer research. Increased awareness of futures necessities to stay competitive Increased efficiency (improved the workload) Increased innovation	very clear sense of direction of what to do and hands on. More innovative products will sooner be developed.	It clearly is the basis for success and gives them a competitive advantage based on the fact that it is part of their culture. This cannot be mimicked as easily.	Positive change in the innovation process (innovation that starts with the customer and ends with the customer) Increased efficiency Lead the direction of what to focus on.	It is the basis of their business, without customer co-creation they can't be still existing in business now.	-	-

Impact on Business	Increased numbers of customers	Being able and having the knowledge and requirements, to make a tailor-made product, or service that is tailor made to the needs of your customer.	Having products, that cannot be mimicked as easily.	Increased return on investment, Word of mouth gains.	Ability to get the market quikly, with high accuracy	-	-
Problems (Barriers to success)	Customers may face a language barrier to convey their ideas clearly during the process.	-	Difficult to find people with the right mindset. Mindset the customer has to identical in terms of openness. You can't push them into something	Unusual ideas that customers asking for, but was managed with in-between solutions.	Some functionalities in the product are not being developed, because of delays from external factors, but its is not major, and needs time.	-	-

Table 12: *Cross case analysis of strategic advantages to the SME (Impact on innovation performance, business).*

Positive elements for success, pre-conditions and process factors							
	Case 1 Lab Folder	**Case 2 Flare Innovation**	**Case 3 Blink Educatie!**	**Case 4 Brandnew**	**Case 5 Pridiktiv**	**Case 6 Expert Opinion Flanders DC**	**Case 7 Expert Opinion Flare Innovation**
Positive elements for Success (good communication)	Excellent communication is needed.	Brutally honest conversation from human being to human being.	Continuous open, honest communication with co-creators. With lots of curiosity.	Reaching them in Open minset, listening more than pointing out solutions.	Making them Feel involved and listened to.	-	-
Positive elements for Success (Enviroment Type)	-	Creating a nice informal atmosphere is needed.	Never restricting the roles of co-creators	friendly environment during the meetings without any restrictions.	-	Controlled environment so that no other factors can affect the co-creation process. should stimulate a creative mindset.	-

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						The customer should be in a state that affects him positively and comfortably to co-create.	
Positive elements (Selecting the right co-creator)	-	-	Selecting the right co-creators	-	-	-	-
Pre-conditions (Internal Communication)	Internal communication about the importance and the process is as important as outside communication since the team consists of people with different backgrounds.	-	-	-	-	-	-
Pre-conditions (The Mindset of the SME)	-	The mindset of the SME has to be very open. The co-creation vision has to be integrated in the company culture, which often necessitates a cultural change or transformation	It has to be in the mindset of all the people working in the company. It has to be in their DNA.	digging deep initiative mindset	-	-	The internal structure has to be adapted to the needs of the customer
Pre-conditions (Mindset of the stakeholders)	-	-	It also has to be in the DNA of the stakeholders you are working with (sometimes customers, but also the community).	-	-	-	-
Pre-conditions	-	-	-	Customer success	-	-	-

(Excellent relationship with customers)				department that maintain excellent relationship with customers;			
Pre-conditions (Problem definition)	-	-	-	-	-	Good problem definition is needed.	-
Pre-conditions (The whole Value chain)	-	-	-	-	Working with the upper managemet of their end users, and offering them a product that met a valuable need for them, in order to accept the users's (nurses) application.	The whole value chain should be involved.	-
Process factors (Team effort)	The development team and the product team have to work together	-	Working in expert teams and being always curious.	Personal and team initiatives to effort to investigate and look for any pinpoints that the customers are facing to find solutions together.	Working in team and making their HQ in the customer's organization, and staying with users as much possible to understand their real and acurate needs.	To increase efficiency and effectiveness it is a team effort with strict responsibilities, it should be organized rigorously and according to strict methodologies.	-
Process factors (Iterative process)	-	The implementation process is iterative in nature until the end of the process.	The process of developing something is an iterative process until something is tested that is rated high enough according to the star	The process of developing something is really an iterative process until something is tested	The process of developing something is really an iterative process until something is tested	-	Co-creation has to be embedded in a structural process which comprises six stage (aligning everyone with the process and

			system of the company. All the steps (concept, content, investment and evaluation stage) involve co-creation activities It is talking and observing customers in brainstorming sessions, but keep asking in different stages. Different methods are used in different stages.				getting rid of different opinions, making a blueprint of the strengths and weaknesses of the company, emerging stage in which the future direction of the company is laid out, ideation stage, funneling of ideas, enrichment of ideas). The ideation process is iterative in nature
Process factors (Clear goal and vision)	-	-	Having the goal to pioneer always	-	-	There should be a clear goal and a downhill evaluation of the process.	The SME's must have a goal and vision based on an awareness of the sme's strengths, passions and weakness, and matching this knowledge with the needs of their customers.
Process factors (Hiring Agency to help with co-creation)	-	-	During the co-ideation, getting help from Flare innovation.	-	-	external agencies should better be involved to help the SME's in co-creation."	-
Process factors	-	-	-	-	Using a university	-	-

Using a university study					study, and based their ideation and research, on the results of that study. While Continuously co-creating for updated info regarding real time needs of the users.		

Table 13: *Cross case analysis of Positive elements for success, pre-conditions and process factors.*

The analysis of these tables is quite obvious. A number of observations are recurring in most of the cases and expert opinion interviews. We treat them in a logical order and thus do not sequentially relate them to our 5 hypotheses.

First, a number of pre-conditions have to be fulfilled for successful customer co-creation. They are all situated inside the SME and are related to the structure of the company and the involvement in the co-creation process. The company culture has to become aligned with the process of co-creation and thus open minded (Flare Innovation, Brandnew). Without this cultural change or transformation little results will be booked (Flare Innovation and Flanders DC) or results can only be booked if the culture is there (Blink). It has to be the DNA of the company and of all its employees (Blink) and also of its customers and partners (Blink). This is either mentioned separately by our respondents (Blink, Flanders DC) or as the initial step in the process of getting co-creation started (Flare Innovation).

Second, a basic element in doing so is internal communication in order to get a team with different backgrounds support a vision which is adapted to customer needs now and in the future (Lab Folder). Working in expert teams helps in creating this (Blink). This requires a good problem definition and a clear upfront goal (Flanders DC).

Third, internal communication has to go hand in hand with external communication. The fact that communication is mentioned as a barrier to success (language barrier for Flare Innovation)

or as a positive element leading to success (Lab Folder) and has to be supported by a creative and relaxed atmosphere (Flanders DC and Flare Innovation, Brandnew) is an indirect corroboration of this element. For Blink, which calls it connection with co-creators, communication is only the basis. You have in their eyes to feel and live with the co-creators and understand them deeply. The type of background of the staff of the company and the co-creators clearly plays a role (Blink and Flanders DC).

Moreover, most respondents (Lab Folder, Flare and Flanders DC, Pridiktive) indicate that the whole value chain SME (all stakeholders and intermediates, but also customers and end users) have to get integrated. For many SME's one of our respondents actually told us that help from an external agency will be needed to have an independent process not influenced by the most influential people in the SME (Flanders DC and indirectly also mentioned by Blink, which is using Flare Innovation).

Fourth, the process has to be managed effectively and efficiently. It is an iterative process (Lab Folder, Flare Innovation, Blink, Pridiktiv, Brandnew) that, after having straightened out the cultural change and alignment of the company, will gradually funnel all ideas to a manageable set of enriched ideas capable of covering customer needs conveyed in the co-creation process (Flare Innovation). It is always going back to the drawing table and digging deeper until finally the evaluation by the end users in co-creation efforts is positive (iceberg idea at Blink). Also, Brandnew and Predictive have mentioned how the iterative process is performed with the same mentality of digging deep, until the product is tested and evaluated by users. An effective and efficient process can according to one of the experts only be achieved through clear responsibilities and the application of strict methodologies and a rigorous process of checking whether goals have really been achieved (Flanders DC). These methods are not necessarily the traditional ones such as idea contests or customer evaluation platforms, but must be brainstorming sessions, moonboards and power point presentations (Blink). The methods may be different from stage of the process to another one (Blink).

Fifth, if these conditions and process elements are fulfilled, our respondents believe that several strategic results will be achieved, amongst others a clearer vision of the future needs of the customer (Lab Folder, Flare Innovation, Pridiktiv) in order to stay competitive (Lab Folder, Pridiktiv), leading to an increased awareness and need for deeper market research (Lab Folder), an improved way of achieving these goals more efficiently with less workload (Lab Folder, Brandnew) and in a more innovative way (Lab Folder, Flare Innovation, Blink). Two cases

(Blink, Pridiktiv) clearly indicated that the co-creation method and the culture it necessitates in the company safeguards them against larger competitors who might not have a staff that thinks in the same open user centric way. At Prediktiv it even leads to some customers leaving larger competitors for them. For all case interviewees, it is the real basis for success, not just a tool to get more competitive. It is their competitive advantage as such and leads to increased sales.

Although not in a quantitative way corroborated (apart from some sales figures and the exports by the Blink case), and the details around the case of Pridiktiv which indicates that the market wants to ditch other competitor's products and only work with them. our interviews thus lend support to H5, which states that "Customer co-creation has a significant and positive effect on innovation performance in SME's", but only on condition that the process elements previously mentioned and a creative internal and external communication atmosphere are realized.

Sixth, our respondents are relatively clear about the type of customers needed to obtain effective customer co-creation. They all mention that it will depend on the type of case and product, thus on the market itself, but are also in agreement with the theory stating that several types of customers have to be involved and that the right selection is a critical success factor (Blink). This was mentioned as "the value chain" or as "informed and skilled customers" and "less skilled regular users", but also "stakeholders" (like the teachers and parents in the Blink Case or the students and researchers in the Lab Folder case, and the directors of care homes and regional managers in the Pridiktiv case). For Blink and Prediktiv the "community" also plays a role. They clearly go further in selecting co-creators and involve non-positive oriented potential customers or non-users to get better ideas as well just companies that might be experts for some markets (for instance Disney and Lego in the National Geographic Junior case of Blink). For one respondent, the targeted market segment is the guiding principle in selecting the co-creating customers (Flanders DC).

This is clearly support for our H2, which states that "The type of co-creator will have a significant effect on value co-creation by customers", in the sense that the selection process of the right customers to be involved in the co-creation process will be an important element of the success of the process.

Seventh, the full list of motivational factors indicated in Figure 2 from the Fernandez and Remelhe (2015) model is not as such completely mentioned by our respondents. Most of them agree that intrinsic (psychological motives as mentioned by Flare Innovation, Pridiktiv, Brand new and Blink or emotional ones as mentioned by Lab Folder) and social motivations (Lab

Folder, Blink and Flanders DC, Pridiktive, Brandnew) play a role next to knowledge motives (Flanders DC, but mainly in B2B context), depending on the type of market. However, the financial motives were only mentioned by Brand new were they dislike this kind of motivation, and indirect financial rewards by Pridiktive, as a means of free product for one innovative group, and the knowledge motives not in a B2C context.

Our H3 stating "Motivational factors have a significant and positive effect on the customer co-creation process" is corroborated, but not for all different motives mentioned in the Fernandez and Remelhe (2015), and Hoyer et.al. (2010) models that was our guiding theoretical principle. Thus, this hypothesis is only partially supported by our case based research.

Eight, none of our respondents mentioned any stimulating factors for the customer co-creation process in SME's. One could discuss about the fact that the communication element previously indicated is one such stimulating factor, and one about knowledge gains (technological motivation), but we considered it to be more directly related to the motivational factors of H3.

This indicates that our H4 which said that "Stimulators have a moderating effect on the relationship between the motivation of the customer to participate in co-creation and the customer co-creation process itself." is not supported by our research. Clearly our respondents consider this element as one of minor importance.

Nineth, there is our H1, stating that "The different roles of customers in new product development have a significant positive effect on value co-creation". We studied five different roles in that respect, namely co-ideator, co-designer, co-evaluator, co-tester and co-launcher. There is a clear agreement among our respondents about the important role of the customer co-creator as co-ideator (Bliep, Lab Folder, Flare Innovation, Brandnew, Pridiktiv and Blink), but not for the other roles which are sometimes mentioned. Lab Folder and Pridiktive mentioned co-designing but in how things should look, and where some functionalities are better placed, and co-testing, Flanders DC co-testing, Flare Innovation co-designer and co-evaluator. Co-launching was never mentioned at all except by Blink, and brand new, which was also the only case (Blink) in which all the roles were explicitly mentioned. But as well Brandnew also mentioned a word of mouth gains which also indicate that a co-launcher role was used in that case, idirectly also Lab folder mentioned that they provide free webinars, for users, where these users distribute the webinars to other potential users, so that also may be considerd as co-launching. It seems obvious that the initial stage roles of the model of Russo-Spena and Mele (2012) are considered as important, but that the later stage roles solicit different opinions among

our respondents. The later in the process the role is situated, the less it is mentioned. In that sense, our hypothesis is only partially supported.

Finally, the advancement in the technology that were mentioned in the literature earlier is not very important to the SMEs or not totally used, and taking advantage of it. The observed SME cases are cases in which people focus on the personal communication and on focused groups or direct personal interactions more than on using the web tools and platforms for these purposes. In the Blink case, however these webtools were used for evaluating the lessons using the star system online (but this was only done in addition to direct communication and interaction, thus it was used only partially). As such the SME's focus, more on personal communication and on one-on-one evaluation.

A university study was also mentioned by our respondent at Pridictive, as it was used to guide and help the founders of the company in focusing on the points this study revealed about what a certain segment of users needed. This study was used hand in hand with up to date co-creation (starting from ideation to co-testing) with the users (nurses). This case and the fact that they used a university study corroborate the findings that were mentioned earlier in the literature by Inauen and Schenker-Wickin (2011), who found that companies with a larger openness towards customers, universities and public research institutions in the firms' outside-in process are more likely to increase their number of product innovations. It also allows for significant improvements in the production process, a fact that Schenker-Wickin (2011) also found in their study. Our respondent at Pridiktive indicated that they based all their products on co-creation processes and user centric innovations indicated partly in a previous university study.

Gaining access to customer competence through deep interaction with them is the major reason behind a compny's initiative to involve customers as co-testers (Prahalad and Ramaswamy, 2000), this confirms with what we have found in the cases about the co-testers (prediktiv, Brandnew, Flanders DC and Blink) in the process.

The deepest form of co-creation is achieved through using qualitative, interactive, dialogue oriented and informal interaction, leading to a situation where knowledge can be effectively shared between customers and firms (Salomo, Steinhof & Trommsdorff, 2003). The exact result was found by our researched cases, as they all spoke of the same methdology in our research, and this confirms the above literature.

Few customers can be co-designers however because co-designing needs a lot of physical, social and cultural contribution from their side. Co-designer customers indeed need to have a wide experience and specific knowledge to be able to help the firm with the new product contents or design as they need to interact very deeply with firms (Agrawal and Rahman, 2015). This is what we have found also in the results of our study. Customers which were in the scientific and healthcare background only are not very much involved in the design in terms of technichal design. They however are knowledgeable on how the design is supposed to look from the outward. The reason for the lesser engagement as co-designer is thus because they do not necessarily possess the needed advanced technical knowledge. The availability of the needed tools and software can also affect this co-design process. In general, this is a whole subject to be investigated in SME's. We found that some of the companies in our cases were involving some users as partial co-designers as even as real co-designers (Brandnew, Blink and Flare innovation) but in these cases the customers and users were able to co-design and were aided by the needed environment and tools within the SME.

Our research results regarding the real objective of the open innovation with customers in the form of customer co-creation in SME's, confirms with what Zwass, (2010), mentioned previously "In relation to consumers, open innovation aims to attain a rich understanding of their objectives and the way they use the firm's products, and to garner the creative ideas they have about their needs (rather than only regarding currently used products)." Whereas binding consumers to the brand is a clear objective as well (Zwass, 2010). (prediktiv, Flare innovation, Brandnew and Blink).

In summary, the support lend to our hypotheses is thus as indicated in Table 14.

Hypothesis	Support?
H1	Partially supported
H2	Yes, supported
H3	Partially supported
H4	Not supported
H5	Yes, supported

Table 14: *Support for our hypotheses*

Chapter 5. Discussion and Conclusion

This dissertation intended to examine how customer co-creation enhances innovation performance of small and medium-sized enterprises.

5.1 Implications for Practice

The empirical evidence provided by this study has brought to light that processes or activities are very important to the co-creation process. If properly managed they will help SME's to make a successful co-creation processes. Below are some very important points to keep in mind, and hopefully they will be useful for the innovating SME's, especially when they engage in customer co-creation.

University studies related to user innovations, related to the business field of work of the SME will be helpful for the SME's in order to lead to or obtain some new ideas, that have been studied well. Moreover, they may lend a hand to the SME in organizing the co-creation process. It may go hand in hand.

What we have found in this research that most if not all the SME's have given a lot of attention to the environment of the customer co-creation process. The environment can indeed affect this process deeply, as a human to human conversation and a positive non-formal almost homelike environment are needed, enriched with creativity stimulators and guided by a sense of vulnerability. This way the customers and users feel at ease. Making them feel safe by giving them the constant assurance that they cannot do anything wrong, will enable them to share as much creative ideas and information as possible regarding their needs in the respective co-creation sessions. An important fact in co-creation which is very important is giving the lead effort to the co-creators in the sense of letting them give in what they have inside by keeping asking them the important question of: "What would be the right way, and when would it work for you? and what it would mean for you!" (Flare innovation). The observation of customers is another toolbox of itself. Observing is a very important skill to have in co-creation. It complements the communication between the co-creators (The SME and the users or customers).

Third party agencies can be used for help in the co-creation process. These third parties would have a whole new outlook on things, other than the usual people and members invoved in the

company. They can also provide their experience as well as their know-how on who should be in the co-creation sessions, on facilitating all the sessions and on gathering the right people around the table. Of course, this has to be done in collaboration with the company (SME) itself.

Co-creation sessions are the ideal way customer co-creation in SME's takes place as we have found from our researched cases. These co-creation sessions are important. Our respondents advised that if the sessions are small in size, 4-6 with a maximum of 10 customers, a lot of qualitative results can already be obtained. The effort needs to be consistent but not extremely large. It makes the selection of the co-creating customers obviously, an important success factor.

The mindset of the employees who perform the co-creations sessions is a very important factor. This mindset should be open: SME's should work with employees that have the iniciative, eagerness, curiosity, and are able to let go of what they know in order absorb users' needs and co-create new ways of developing products and services.

Internal communication in the team is very important to the co-creation process, because interactions with customers require constant deep interactions and the contact person from the company must have a background making him capable of communicating with the users and customers. On the other hand if other team members were most of their career time in a technical development team, they could not as easily understand the needs of customers so that effort in transferring the specific user's needs to reality might be hampered. This transfer requires a lot of accuracy especially during this process of transactions and communications between the members of the team within the SME. This is also reflecting that the team effort of the SME employees is to be considered as a success factor for co-creation.

On the customer's side as well as on the side of the communications with customers and users, it is better that the communication reaches as deep as possible, in order to keep the co-creation vibrant. The deeper the interactions are, the more SME's can reach knowledge of actual needs of customers. Sometimes these are not obvious and cannot be reached by web tools only. Going deep requires an iterative process and interactive. We have observed this in most of the SME's interviewed and this kind of iteration, helps the SME to have a product or service, that is well evaluated, tested by customers and users several times, until it fits and matches the exact customer's needs.

Regarding the co-creation factors which we mentioned in our cases' analysis, namely the roles of customers, the type of customers, the motivation and the stimulators for co-creation, a few comments are important to mention. An early involvement of customers in the beginning from ideation and in the development stages such as in the design stage, where sometimes this only refers to the outlook or structural look of the design, is really beneficial to the SME. Also in the testing stages, we have noticed a vital role for the customers to take part in. Thus, in the co-creation process as described in literature, an SME has to ensure that all steps are evaluated and performed in the right manner to the desired customer's needs.

Regarding the type of customers, SME's should reach for a search which is wide enough since ideas can be obtained from different parties, from customers, from value chain partners, from lots of individuals. Apart from the previous more general statement using both skilled and less skilled people helps. In the testing of certain products and services, involving negative oriented people in the process can sometimes give a whole new different perspective that would otherwise not be obtained from users and customers who like and work with the product or service. Thus, a diverse reservoir of inputs leads to a richer co-creation process.

Talking about motivation and stimulators for co-creation, the main point here and a very important one is that in motivating customers one aspect may not be forgotten. The customers themselves are motivated mainly by the feeling of being heard and being very considered special in the co-creation process. This has a very positive effect on customers and users: it affects them positively and enhances the co-creation process, they will be happy with you and for you. All our cases spoke of this attribute and all respondents have stressed that. Whereas for keeping customers engaged, keeping them updated with the results of their co-creation and the value that they have added, sometimes only in a document or a movie shared with them is very important. It is for them a perspective on how valuable their contribution was, which is rewarding for them.

A clear goal of the co-creation process should be set beforehand, if the SME wants to achieve something with the co-creation. This goal is very much related to the needs of customers. If there is one factor that we have to emphasize after our research it would certainly be the culture of the SME. This goal and vision has to be deeply integrated and embedded in the culture of the company, where a sense of strength and passion must be aligned with the customer's needs. It is not only a temporarily instrumental tool to achieve some results, then fades away. That

culture is what keeps the co-creation process sustained at the core. Then co-creation can revitalize the whole innovation process of the SME. It is the core of how customer co-creation enhances the innovation performance of the SME, in that sense. When this happens? It actually happens when the SME is able to co-create and innovate and knows exactly what to do in order to make a tailor-made product that is tailor made to the needs of their customers. That is one of the most important effects on innovation that the company can obtain from co-creation. To explain this a bit more: the company will have accumulated new ways and new processes of developing products that are tailored made to the needs of their customers.

5.2 Implications for theory and future research

H1 and H3 were partially disconfirmed and thus only partially confirmed and H4 was disconfirmed. Thus, new hypotheses with regards to the influencing factors are to be build, that have to be more specific than the actual ones, preferably in the sense that one takes into account that we observed some of these influences to be direct while others are more indirect. This may be due to intermediate factors not yet researched into. Theoreticians should carefully think about that.

Also with regards to the impact of processes, new hypothesis must be formulated. We didn't find them in the actual literature. Particularly with regards to the atmosphere needed to make co-creation by customers, successful research will need to confirm what we have mentioned in the previous paragraph as the results were only based on a few cases.

This leads us to elements of future research that can be undertaken as well. We observed 5 cases in specific sectors of industry and limited ourselves mainly to B2B contexts as well as to the perspective of the SME's involved. Thus, verifications of the hypotheses we tested under these circumstances are needed in several other settings and by asking other major stakeholders. Research in the future has to look at four different new axes and fields:

A) Verification by using more cases
B) In more diverse settings and sectors of industry. This could eliminate bias by the fact that one sector might in itself be more highly influenced by innovation than another and thus more obvious to be researched into

C) By talking to the often-forgotten stakeholder of the co-creating customers themselves as we only had one interview that shed some light on it. Yet their perspective might give more insight in, for instance the above-mentioned environment that maybe helpful to co-creation– only one interview

D) Verification in B2B situations in order to be able compare the experience there to the one in B2C settings. B2B will be characterized by less co-creating customers, but by more expert and professional ones, which might lead to different results. The customers are namely companies themselves influenced by the importance of the final business result of the operations influenced by the co-created items to be purchased by them.

Where could we find these new hypotheses?

Theoretically the fact that H1 and H3 are only partially supported is in our eyes due to the fact that we have focused on SME's, whereas the studies that led to our hypotheses were mainly performed in larger companies. In larger companies, we believe that the structure of the new product development (NPD) process needs to be cristal clear and clearly stepwise to be effective as too many people are involved in it in different departments, each with their specific functions and objectives. In SME's most of the processes have to go through the same steps, but do so in our eyes in a more organic way in which the demarcation between the steps is less clear.
We can indicate four arguments for positing this remark based on our observations:

1. Most of our interviewees indicated that the stepwise process is iterative in nature and that several loops are organized in time to dig always deeper with customers into what they really need and how products and services can be developed that lead to this. Although the traditional NPD literature also talks about this, it also states that a strict ordering of the steps is needed and that one step can only be addressed if the results of the previous one can be called rather conclusive. Thus, the literature we based ourselves on believes that there is a clear boundary between these steps and a clear set of different co-creation roles, more than our observations with feedback loops actually observed.

2. In some of our cases (Prediktiv, Blink) it is clear that the co-creation process did not immediately lead to a fully acceptable product for the customers. Thus, the NPD-process was run through too rapidly or not deep to yield positive results from the first time. The tradition NPD-process in larger companies will before going to market trial always include larger test markets to avoid this problem when launching. Smaller companies

do not have the resources to do so and have to go for it immediately on a smaller scale. This confuses the boundaries of the different steps in the process and of the different roles customers can take in the co-creation process.

3. One of our experts with a background in product development (Flanders DC) is the interviewee most focused on the necessities of having a clear development process, thus corroborating our previous argument and clearly indicates in his list of pre-conditions a number of elements like a clear problem definition, a clear goal and a devided role between technicians and marketers. Indirectly this observation corroborates our previous arguments.

4. The NPD-process in our SME's is an interwoven process, also seen from the internal point of view. The whole team has to work together. That is why the emphasis is so much put on the fact that co-creaton should be in the DNA of all the employees of the company.

Thus, in terms of theory, the co-creation literature should first look for literature on the process of developing new product in small companies specifiacally and on literature contrasting this with traditional NPD-literature in order to develop a better model of roles customers can take in the co-creation process.

We could also not find much support for H4, which is:

H4: "Stimulators have a moderating effect on the relationship between the motivation of the customer to participate in co-creation and the customer co-creation process itself".

Literature states that stimulators may consist of two elements, one is concerned with increasing the motivational benefits (Social, financial, psychological, technological), whereas the second one is about reducing the costs to consumers participating in the customer co-creation, in terms of time, effort, and foregone opportunities (Hoyer et.al, 2010). In the second category, the authors suggested an approach that would provide users with tool kits. They based their approach on the work of von Hippel and Katz (2002) which indicated that ways to make the process of creating new products, ideas and marketing material easy for the potencial participants was important. The SME's we have observed in general in an SME context, depending on such tools is in itself a costly and not evident approach.

The discrepancy may lie in the fact that social, psychological and technological benefits are

positive in nature. They stimulate by not being costly to the provider, the company itself, whereas cost-controlling elements and financial stimuli require resources to be allocated to processes, which is costlier in nature. Moreover, it is more the lack of it that would demotivate the cocreating customers than the fact that they are provided with them. In psychological terms, they are closer to "hiegenic" factors, but require again a lot of resources. This might be less interesting for SME's which would lead the to focus on the positive motivators.

Again, we can indicate some arguments for this from our data:

1. We found that in order to ease the process of co-creation, SME's depend and focus more or even solely on the deep interaction with customers in one-on-one communication than on using any tools. The help they provide customers with in the process is less cost-reducing and more stimulating positively. SME's do not use web tools and toolkits (as suggested in literature) to provide to co-creators to lower the costs of co-creation for them, but rely on communication with customers.

2. We also found that SME's think they do not need to do otherwise because they believe that personal interactions with customers, directly or indirectly, observing and talking to them in a dialogue and personal meetings is sufficient. This proves that they really think positive stimulation is more important than cost effectiveness measures for co-creating customers. Most SME's studied in our research, thus focused on making the co-creation process as fun and enjoyable as possible. one of the interviewees mentioned that in order to compensate for the time, we took from our customers and users, we brought them things we knew they like a lot, like chocolate, and prepared social activities for them to have fun, during and after the sessions. Others stated the same element in a more general way indicating how important the environment was for the co-creation process and stating that it should be cosy, warm and welcoming. The feeling of being heared and valued is in the eyes of the SME's the most important stimulator.

3. The different NPD process in larger companies, which we mentioned before might also play a role here. Previous research indeed talks about "Modularizing the new product development process" (see also our previous reasoning on the different roles of the co-creating customers), which would help in assigning customer into several modules for participating in the process of co-creation. This approach may well not be suitable or yet suitable to our SME's as we didn't find any positive confirmation of it in our cases. Apparently matching users experience with specific modules is not an easy procedure

for SME's. They comprehend the experience of their customers and integrate it smoothly without anykind of modularizations, based on personal experience, comprehension and comunication, which indeed showed a success results in our cases.

This lead us to the conclusion that the partial disconfirmation of two hypotheses and the disconfirmation of H4 are interlinked with one another. "The key benefits of using consumers to cocreate value at the commercialization and post- launch stages come from leveraging new technologies that enable social interactions." (Hoyer et.al, 2010). The fact is that the new technologies are enabling the transfer of information at a very high speed, where the word-of-mouth effect is made easy by the use of networking applications and platforms, and social interfaces. At the same time however these enviroments make the measurement of awareness a challenging job. SME's are not focusing a lot on this kind of new technologies in the commercialization stage, and are not making use of these environments to help in the launching stage, and that's why we only have found few of our cases, using customers as co-launchers, where some of them used regular word of mouth ways. This may lead us to the conclusion that in order to reap the benefits of co-launcher role, SME's may have to be more implementing and tuned to web networks and new technology enviroments, that enables social networking with more users and customers, to distribute the word of mouth, using customers help in that sense. and that only positive motivators are used, not cost-cutting elements for the co-creator where customers and users can assume and share responsibility with the firm as well, in advertising and in soliciting new customers according to Russo-Spena and Mele (2012).

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Appendices

A. Overview of Cases Investigated

Company	Age	Number of employees	Industry	Position
Flare innovation-expert and case	10	8	Innovation trajectories	- CEO, Expert - Innovation Strategist, Case
Blink	7	21-100, 100 freelancers	Educational publishing	Co-creation expert team leader
Flanders DC-expert	13	19	Flanders Innovation & Entrepreneurship	Project Manager Design and Co-Creation
Lab Folder	5	25	Digital science and health care applications	Product manager
Brand New	4.5	23	Digital marketing platforms applications	UX-designer/ design manager
Pridiktiv.care	2.6	6	Digital health care applications	Co-founder/ Product manager

B. Interview Questions

CASE STUDIES -INTERVIEW QUESTIONS

Filtering Questions

1. How many years has your firm been in business?

□ Less than 3 years   □ 3&<6 years □ 6&<9 years □ 9&<12 years   □ 12 years or more

2. Please estimate the number of employees in the firm
□ 1-5   □ 6-20   □ 21-100   □ 101-250   □ 251 or more

3. What is the type of your firm?

□ Manufacturing   □ Service   □ R&D   □ whole sales   □ Retailer

4.What is your job (position) in the firm?

□ Owner manager   □ Manager   □ Supervisor □ Employee

5.Is the company private or public?

□ Private   □ Public

6. What is Open Innovation in your opinion and what does it mean for your business?

7. Have you engaged in Open Innovation and what form did this engagement take?

8. Do you use customer co-creation in your business?

9. What are the motivations of your company to use customer co-creation? Open question.
Indications:
1. Collect new development ideas
2. Have a better understanding of the clients' needs and expectations
3. produce customized and commercially viable products.
4. Postlaunch gains through continuous product improvements
5. Improve your innovation efficiency
6. Reduce the risks of products failure
7. reduce the costs through the acquisition of consumer ideas and outsourcing of NPD efforts,
8. faster speed-to-market

9. **Can you talk about a couple of examples/cases of customer co-creation in your company.**

Subthemes to be aborded by the interviewee:

- Type of product
- Why chosen
- How did it go: the story is important
- Which types of Customer co-creation do you use in the innovation process?
1. Customer co-creation in the idea generating and evaluation (Ideation)
2. Customer co-creation in designing (Development)
3. Customer co-creation in testing and launching (commercialization)
- Problems encountered
- Advantages felt
- Eventually any expectations that were not met

Motivation for customer co-creation

11. Please indicate now how much motivation affects customer's willingness to participate in the co-creation process?

12. To motivate your customer to cooperate, and co-create what do you do? Like for instance do you use any kind of the following:
1. Financial motivation benefits (monetary rewards)
2. Technological motivation benefits (offering knowledge acquisition)
3. Social motivation (focusing on the social statuses of customers, Social rewards and acknowledgement)
4. Psychological motivation (enjoyment level in the co-creation activities- positive experiences)
5. Others …. Which ones

13. How did you do that?
14. Why did you choose this?
15. Which motivational factors affects customers the most to engage in co-creation process?

Motivation types	Very little	Little	Medium	High	Very high
Financial motives (monetary rewards)					
Technological learning (knowledge acquisition) motives					
Social motives (status, social esteem, recognition)					
Psychological motives (sense of self-expression, experiences enjoyment)					

Others?

Stimulators for Customer co-creation

16. Do you stimulate your customers in order to co-create, (Means to save cost and time for customers) like for instance:

1. Increasing customers's motivational benefits (financial, technological, social, psychological)
2. User idea contests
3. Consumer opinion platforms
4. Toolkits for user innovation (make innovation cheaper for users, lead to higher customer value)
5. Mass customization toolkits (reduce cost for customers)
6. Modularizing the new product development process (Facilitating engagement by having specific modules that each customer can match with his experience)
7. Others … which ones?

17. How do you do it? And why?

18. From your experience, how much do you agree that stimulating customers will affect their motivation to participate in co-creation process?

19. Please indicate how much do you think the following kinds of stimulators affect customer's motivation to participate in the co-creation process:

Stimulation types	Very little	Little	Medium	High	Very high
User idea contests					
Consumer opinion platform					
Toolkits for user innovation					
Modularizing the NPD process					
Increasing customer's motivational benefits					

Others?

Role of customers:

20. What role/roles do customers take in the co-creation process in your company? like for instance:

1. Co-ideator (in the ideation stage - collecting ideas)

2. Co-evaluator (in the evaluation stage – evaluating the ideas)

3. Co-designer (in the design stage – designing the concepts)

4. Co-tester (in the testing stage – testing the marketability of a product or service)

5. Co-launcher (in the launching stage- Help the firm in gaining quick promotion through word of mouth)

6. Other which ones ?

21. How much the role of customer affects the customer co-creation process?

22. Why did you choose this/these roles?

23. What other benefits certain customer's roles could provide to the company, to enhance its innovation performance?

24. How important is engaging customers in the following roles: in your mind?

Customer Roles	Not at all important	Not that important	Important	Very important	Extremely important
Co-ideator					
Co-evaluator					
Co-designer					
Co-tester					
Co-launcher					

Type of customers

25. Which type of customers participated in the customer co-creation process? Like for instance:

1. The world. Any individual

2. Prequalified individuals

3. Community members

4. Skilled contributors

5. Others, which ones?

26. Why do you choose this/these types?

27. How much the type of co-creator affects customer co-creation process?

28. How much the following types of customers are competent/effective in the co-creation process?

Customers types	Very little	Little	Medium	High	Very high
The world. Any individual					
Prequalified individuals					
Community members					
Skilled contributors					

29. What are the most important factors for the success of cooperation with customers, in your mind? Indications!

30. How much did the customer co-creation improved your innovation performance?
- Do you have new products developed, or new processes developed as well because of customer co-creation?

31. How would you summarize the overall impact of customer co-creation on firm innovation performance?

32. How would you summarize the overall impact of customer co-creation on your business?

33. Do you have any other comments or thoughts that you would like to share?

C. Within-Case Analyses (Summaries of all Interviews)

A Short case that illustrates customer co-creation
In this paragraph, we include a case that we couldn't take into account for the section with our conclusions because the interviews were too short and not applicable as the market was not always to be seen as a business-to-customer market. Yet the example is a valuable example of customer co-creation and therefore included in this separate section of the results chapter.

*Bliep

We had a short interview with the marketing manager of Bliep and initially he agreed to co-operate with us, later stating that it was not possible anymore. Yet his answers in the first interview were valuable enough to let this case figure as an example in this section.

*Bliep is a case study example of complete Co-creation. *Bliep was created by teenagers as a response to telecom providers not delivering the services they teenagers wanted. What these customers hated most was a standard telecom service with a lot off small print, pushy commercials, offering discounts that become smaller and smaller, as most providers do. They also mostly don't trust these advertisements and are thus "unsatisfied with current options". A typical complaint is: "Many of us spend more than their bundle, I simply want to call and SMS as much as I want. To make sure that I know what I spent, keep track and don't spend too much!" (www.bliep.nl)

They launched their own telecom provider *Bliep in Amsterdam as a response to this. A year ago, it was still an idea, then they got together. Like this they came with great idea. For instance, 'sharing your credit'. And it really became a great product. The teenagers are working together with 'Joost Van der Plas' who have experience in the telecom industry. He is the director of the company and takes care of running the daily business.

What makes Bliep special is that teenagers decide; they decide on every aspect of the product, what it looks like, their partners, the name, everything really. The roles have formally ben defined as board of commissioners; So, these six teenagers together are the board of commissioners of Bliep. This resulted in a very successful mobile phone provider that the target group relates to (www.bliep.nl)

Bliep is mainly focused on internet and SMS. Bliep is a sim card with unlimited internet and SMS. They let customers decide for a fixed price per day what they want. So, for instance they can pause and don't pay anything, but can still be called and receive SMS. So, at Bliep unlimited really means unlimited: where customers have unlimited internet and SMS. The provider doesn't have its own network, so it uses the network of T-Mobile.

This is clearly a case where co-creation is the basis for establishing this company, which unfortunately does not do business in the same way anymore, they are still offering most of the same products, but their model is changed.

Expert opinions

In this section, we report the results of two interviews with people who are not directly involved in customer co-creation or not anymore, but provided us with more general insights on the process of co-creation and the effectiveness and efficiency of it.

Flare Innovation

Company Profile and Contact Person

Flare Innovation is a ten year old service company that offers other companies help with their innovation trajectories. The company has 8 employees and is active for customers in both B2B and B2C markets.

We had two interviewees in the company. The CEO, Pieter P. talked who about the process of co-creation in open innovation and can be considered as an expert opinion on how to structure customer co-creation successfully. It gives insight in the pre-conditions needed to make the co-creation process into a success and talks about some challenges often encountered.

The other interviewee was Lauren Y, who works as an innovation strategist for the company and talked both about open innovation and co-creation in general and about a specific case the company was working on. talking about innovation and co-creation in concrete examples. This second interview is treated as such in the case section.

Major observations

The philosophy of open innovation and co-creation is that there are some things that need to be aligned and that need to happen in order to maximize the chances of successful and meaningful innovation. Therefore, a structured approach is needed. Our respondent talked about a six-stage approach.

The first step is to lay the foundation for the whole further process. In this stage, it is important that the SME's who are the real customers of a consulting trajectory are aligned with the process, which mainly involves their management team to believe in it and to get them willing to cooperate. That is the basis to be able carry the innovation. Usually or a lot of times there are smaller or bigger conflicts within the SME's or people having a different view of the future. If some old pains and sores between people rest unresolved and are not wiped out, there is not a good connection and team spirit, which is necessary to carry the change successfully. Therefore, this step is essential to start co-creation and innovation.

The second step is to get to know these people better and to talk to some of their peers and friends to know better what they are passionate about and what their strengths and weaknesses

are. In this stage, it is also important to know the strengths and weaknesses of the SME, for instance whether the company is horizontally structured which allows easy and direct communication between the staff members and excludes a stiff hierarchy making decisions slower in general, which mostly hampers innovation very much. It is thus the objective of this stage to develop a <u>blueprint of the SME's organization</u> and to better <u>understand what they are passionate about.</u>

Only in the upcoming <u>third</u> stage, the <u>emerging stage</u>, it is useful to involve the end users of the products and services to be developed and to really start with co-creation. In this stage it is highly important to get insights from as many different angels as possible. Therefore, not only end users are involved, but stakeholders in general. These are experts in the field the SME is working in or active in adjacent fields with parallel characteristics. The objective is to first list all the needs of the end user and then to analyze and filter them out. It is a funnel approach that brings down the list of needs of the end users to the ones that present the biggest opportunities for the company; these might be unmet needs or very strong ones that are only partially met <u>and fit the strengths of the company or are parallel to the thing the SME is passionate about.</u>

This is important because it has to be avoided, that companies engage in development activities their customers do not believe in (the customers do not give permission for it yet) or do not believe they might be good at (which do not match the strengths of the company). Thus, the <u>future direction</u> of the company is established. It is a summary of what the role is they want to play in the market, what their purpose is for a time horizon of at least the next 5 years, what they will commit to and what they will want and be able to offer to their end users.

Once there exists a match between the SME's strengths and the needs of the companies on a number of highly important unmet needs, the <u>ideation stage</u> starts. In fact, this is mostly a brain storming session with a project team of several clients to get as many as possible fresh and original ideas. The process is repeated a number of times and always balanced with the future company direction established in the previous stage. It is checked with several panels of customers, each time bringing down the number of uttered ideas to a manageable and meaningful list. The final round is used to check whether the list developed in this <u>fourth </u>stage is really within the ballpark of the customers' concerns.

The next and <u>fifth </u>stage starts with something like 30 ideas and wants to bring them down to the ones that will be used in the development of a new product or service. In itself this is a three-round process in which first ideas are filtered and then finally in a <u>sixth stage enriched</u>. The purpose is to get the SME customer and the end users in one mode. This will help in making the ideas better. In the end, there will be only propositions that are fully embraced and with a solid foundation. This process works really well. It is rewarding and quite thorough.

<u>This whole process is not always needed with the same intensity though</u>. Sometimes customers (some SME's) are already very aware of their strengths, passions and weaknesses and have a very thorough understanding of what customers want. Then the whole process doesn't have to go as deep as described. Yet, it is the experience that even in these situations all kinds of

mismatches and problems still show up that have to be solved before starting the development of new products. Thus, the process is always necessary to a certain extent.

What do we learn from this expert opinion?

Most importantly, we can see that <u>success in co-creation always and absolutely has to be embedded in a structured process upon which the success largely depends.</u>

In this process, a number of success factors have to be checked or created, namely:
- an acute awareness of the SME of its strengths, passions and weaknesses has to be present and if present has to be checked over and again to avoid that unexpected problems pop up later;
- the internal structure of the SME has to be adapted and aligned to the character of the needs of the customers;
- a funnel process is needed to determine not only the future direction of the SME but also of the ideas that can eventually become new developments;
- the process of ideation has to be repeated a number of times and enriched with the ideas of the company and of stakeholders (experts and experts in adjacent fields).

Flanders DC

Company Profile and Contact Person

Flanders DC is an independent non-profit organization, that acts as the 'front office' of the government agency Flanders Innovation & Entrepreneurship and actively supports creative entrepreneurs who want to build or grow their business. More Return on Creativity is what they aim for.

Flanders DC has entrepreneurs as their customer group and does some, but not participate in customer co-creation as they are mainly involved in design activities, not in marketing activities. The SME customers are subdivided in 12 subgroups; Each of the groups is invited once a year in a round table talk. The SME's do not pay for what they might learn as Flanders DC is a non-profit organization. The talks center around the design activities' support and methodology offered by Flanders DC and how they can improve it for their customers.

Our respondent at Flanders DC is Tom Z. He works as Project Manager Design and Co-Creation at Flanders DC. In his job, he investigates some co-creation and tries to implement as many as possible processes and methodologies of it (design co-creation methodology). Before working for Flanders DC; Tom Z. was a Design Manager as an independent entrepreneur and

worked for different SME's in design management (managing the process around the design process). During that period, he sometimes also involved customers in the design process.

He shared his knowledge and gave some insight into his co-creation experience and his advises to SME's about it. Therefore, we treat this interview as an expert knowledge interview. It is mainly based on his experience before working at Flanders DC.

<u>Major observations</u>

<u>In general</u>, Tom believes that customer co-creation is a marketing terminology, not a design term at all. He believes that the value of the customer in the process depends on the moment they are involved in the development process of new products and services. Very often this much too late, thus the value of the customers is underrated.

> "Mostly marketing people are too late involved the process of designing, thus also limiting the influence of customers."

Our respondent sees <u>three challenges</u> for good customer co-creation processes.

Normally good design managers gather a team of people to develop new products only when a new need in the market is discovered or when there is a technical opportunity or market opportunity or when someone in the company sees a difficult or different need. The team gathered mostly consists of the product manager and someone from marketing certainly early in the first stages of the process. <u>Often customers are not included early enough. Our respondent thinks this is a mistake.</u>

> "I think customers should also be invited <u>to whatever tool that you</u> (the company) want to develop and use, for instance by arranging some focus groups. They should be available earlier in the process and not only for marketing purposes but also for design purposes, not later in the process when marketers start a campaign or a research project to define needs. Because the it is already too late."

This is <u>not the only challenge</u> in developing better and more customer tuned products for our respondent. The company should also have a <u>good problem definition</u>. In every co-creation process you need a very sharp goal. You should absolutely know why you want to go through the co-creation session. Otherwise you can use your business as usual processes.

> "Thus, it is imperative that you really organize it and that you have a sort of process or methodology for it."

A third challenge is that in the eyes of our interviewee <u>the whole value chain should be involved</u>, not only the customers in the co-creation process. All stakeholders should be there and get a

clear oversight, thus you should know who they are. Determining who should be involved should not be done on the spot, it should be strategically planned.

The roles of the users or customers should also be defined upfront and earlier in the process. If you want to involve customers, that is real people that are in the target group for a certain service or product and belong to the segment that you want to address, they all should have specific need that you want to fill in.

"So, I think it should be well prepared if you bring them in,
Give them a task, a target, but not define their roles. I think what I see is that, they focus on functioning well in that role, instead of focusing on the role you want to achieve with them. You should be flexible; define the roles upfront with the people who are facilitating certain sessions, if you talk about co-creation sessions, but not defining that clearly to the customers themselves, that they are a little bit flexible in their roles. But focusing on a certain role you want to achieve."

Our respondent thinks customers can play a role in the very early stages of design research and testing, market research, introduction, testing and implementation. So, he considers co-ideation to be less important due to his design background. How they can be active is different in each stage. Tom has no clear idea about how you can involve the customers really in co-creation activities about new ideas. He thinks there are a lot of techniques that you could use with customers without knowing that they are actively co-creating, such as shadowing customers and observing them to look for specific behavior around products or certain environments or delivering services. This is for instance the case when testing the use of certain interfaces.

> "I think this is co-creation because they are playing a very important role; but not a very active one as they are not directly invited to the process. But for me it is part of a co-creation process."

In later stages, you can also observe the behavior of your customers. In that case, you can organize some focus groups, introduce some solutions and ask customers to speak out loud, what they think about it. Tom finds this is also part of a co-creation approach.

But he doesn't pinpoint specific techniques at all because in his eyes there may be thousands of tools and ways of working around co-creation, helping in designing co-creation processes and methodologies.

> "Every single stage can have a whole tool box of tools, that can be used. And to book certain results to be used to end a certain phase and begin another phase, each serving a different objective."

The underlined_type of customers_ involved in the activities previously mentioned is important. The major criterion should be that the customers belong to certain customer segments for which you want to develop new products. So, defining these segments is very important. This can be done on the basis of a multitude of criteria according to marketing theory. Our respondent thinks the best segmentation criterion here is lifestyle. It is how they look at things, depending on the specific needs of this lifestyle.

> "It gives you the best idea about the use they will make of products, what role it will play in their lives and what the product should really contain as characteristics."

If there are more segments than one, specific co-creation sessions should be organized for each segment separately to keep focus. You should not combine emotional and functional needs if the segments are really different. This will lead to discussions of one group with another one, each of the groups of customers wanting to prove to the other that they are right. Once you try to experiment with concepts however, mixing segments is possible. The groups should be limited in number to 4 to 6 customers at a time, 10 maximum. The analysis of the data should thus be qualitative, not quantitative.

The environment under which any co-creation is happening is very important and it is important to control it so that no other factors can affect the co-creation process in a negative way. The customer should be in a state that affects him positively and comfortably to co-create and be willing to share ideas with the company. The environment should stimulate interactivity and creativity.

> "I think that the environment really controls how customers do react, and they should not be in a real customer environment or mindset. This mindset should be creative. Sometimes a fair can be such an environment as customers really want to experience new things when seeing you on a fair and bump into you, this will not be ideal for getting inputs from customers. I did not investigate this idea however in depth. "

The people involved in co-creation should be motivated in one way or another. According to our respondent, both customers and stakeholders involved in the process are mainly motivated by gaining knowledge from each other and from the company. Thus, the technical motivation is most important. For customers, there is a second important motive however to become a co-creator, namely feeling very special indeed because you are allowed to have access to insights on how new developments are going to affect your way of doing things before others who are also familiar with the company logo, brand, philosophy and culture. So, social motives also come into play.

 Also:
> "That their input that the thing they do, that's very important for the company, that they are really adding to the quality of the company's services, and products"

Because it is important to keep those customers actively involved in future co-creation processes, they also have to receive some kind of <u>self-assessment</u>. The company should share some kind of note, document or movie to prove them that their input really had added value and that they worked on it later and tried to integrate it in the development process. It is a <u>continuous process</u> of give and take between the company and the co-creating customers.

> "I think it is very important to keep them engaged for future projects. Thus, you should prove that you did not just use them for their information and then disappear. It would make them feel weird and being used."

Thus, preparation <u>upfront</u> is important, but making them feel special <u>afterwards</u> as well.

This theory fits very well, the methodologies are important and the continuous process as well. To be effective someone or a team should also be <u>responsible</u> to achieve the pre-determined goals and objectives. In this <u>team</u> people of the marketing and design department should be present, but maybe also people from sales or engineering and finance. The different functional backgrounds of the people on the team are important as a characteristic to be effective.

Although the co-creation effort in itself should always adhere to these rules, our respondent also stresses the fact that every co-creation is different and that the processes although necessary have to become <u>customized</u>. This customization has also the final goal to take into account, whether it is developing a new idea, a better product or a cheaper one. The goal is absolutely paramount!

For SME's there is one supplementary question. Can they organize this <u>on their own or should they look for help and advice from specialists</u> who can perform the co-creation sessions for them as a third party, which is hired. Our respondent has a clear view on this:

> "I think that the best advice I can give is: "Don't try to do it yourself, certainly if you are an SME". Ask someone to do it for you because they have a different look on things than the people who are working for more than a few years for the company itself."

And together with the hired company a better process can be designed, the process can be facilitated more and more creativity can be present. The SME can take part in the process as an active participant then and not as a facilitator and participant which is a dual and difficult role to fulfill. The quality of the outcome will be largely improved. Independent ideas can be formulated and the process itself better safeguarded against personal influences of the people working for the company. <u>Thus more and more independent ideas are gathered</u> as an external agency or person facilitates all the sessions and gathers the right people around the table, of course in collaboration with the company itself.

> "This is also the case because external agencies have a whole new look at how or who should be in the co-creation sessions. If you organize things yourself as an SME you

will mostly involve the usual suspects only who, most probably will be some creative people from the company, the CEO or a product manager and a designer. All these people unfortunately always have a certain kind of expectations about the outcome and do not necessarily see other important things that can affect the development and design of a new idea."

The external company finally also treats everyone as equal around the table and involves stakeholders otherwise left out. Their different background and ideas, their different roles and behavior will be important and give a fresh input to the co-creation process and make it more creative indeed. But also, more challenging.

"It is not that the CEO's things are more important than the concerns of someone working in administration or a customer and it should not be like that. If you are co-creating, everyone's opinion is equally important."

Certainly, in the early stages, the focus should be on a lot of ideas, a lot of new information and then only the focus should be on qualified things. Quantifying those things in the early stages is however whenever possible also important.

The most important conclusions from this expert interview are pretty simple indeed and focus on the efficiency and effectiveness of the co-creation process.

How can it be achieved or increased?

They main elements mentioned are:

- co-creation efforts should have a specific and clear goal;
- they should be organized rigorously and use distinct methodologies, comparable to design process methodologies. This is obviously a conclusion influenced by the background of the respondent;
- Co-creation will be important in all stages described in the theoretical part, but less in the co-ideation stage. This is also influenced by the design background of our respondent;
- it should be a team effort with clear responsibilities in which people with as many different backgrounds as possible should be involved;
- customers selected for the co-creation process should clearly belong to the segment of the market the company wants to address;
- their motivation for cooperation can be acquiring knowledge, but will mostly be that they feel special indeed;
- there should not only be a clear upfront goal, but also a downhill evaluation process and follow-up with the members of the co-creation effort;

- SME's should better involve external agencies to organize and facilitate the process as they will treat all people involved more equally, and where will also have a new outlook that the company did not see before.

Cases

Lab Folder

<u>Company profile and contact person</u>

Lab folder is a private company with 25 employees, developing software applications for laboratory scientists on notebook. This has the purpose to facilitate the daily recording of their scientific findings and to connect with another lab devises as well.

Our contact person is product manager at Labfolder, called Priscilla. She is actively involved in developing new products, but is also responsible for innovation research and customer contact. And beginning of the UX and UI design, where not doing the design herself, but goes through the process of establishing the way the software looks, where this incorporates the structure phase. With more technical in nature, her managerial duties are also very important. She is considered a strong innovative member of this company.

Major observations

In the view of our respondent, open innovation is a <u>pillar of companies' success</u>. It is highly important that the company is founded by <u>scientists</u> and that many scientists are working with them because it <u>eases the communication</u> with the customers and the understanding of their problems. Moreover, it helps them in "encouraging other scientists to participate with them and in developing different products according to their needs. These products can be either software pieces or just applications, that work on standalone servers. Most of the products so far are integrated solutions for specific fields of science (biology, physics and chemistry)".

Open innovation is a big contributor in shaping the direction the company wants to take in terms of developing customers integrated solutions. The scientists who are customers obviously know the failure s in their actual data to gathering and communication process and can pinpoint to the things that have to be "healed" or "improved" as such.

It is important that Priscilla can relate to that very well as a former chemist and thus related to the development process very well. Her words speak for her in terms of her involvement in open innovation:

"The only way that I can relate to be engaged to open innovation process, would be as a user contact and as a contact to our possible partners (customers or users). It involves taking into account their requirements and listening to their ideas, what they want to achieve and how they want to develop it. So, my thoughts are obviously oriented to how the product should look like, in that sense. I also collaborate in these sessions with the CTO of the company who is in charge of figuring out how from the technology perspective we can do that. So my role is to give shape to their ideas and how can we possibly integrate them in a solution."

This also motivates her.

"Her real motivation is to take the scientists one step further away from the stone age. They keep using paper notebooks to work and to record findings in the lab. We transform it into a platform where they can easily search for the results and collaborate, and share with colleagues. So, the motivation is yea taking this technological step one way forward, and providing a digital solution for this (an organization problem). We solve the data management problems in the lab".

The company has 17 product lines. We looked at the ones our contact person has been involved in and in which she co-created them with customers, knowing that most of their products are anyway co-created with customers. There were three of them: a messaging system within an experiment in a laboratory, a data element example (automated quick, smart and easy registration of laboratory results registered by machines) and a material data base product (this is basically an online inventory for lab managers to record and see what is actually in the inventory of the lab. So it's a system that consists of a list of requested items, purchased items, what is there, what is not there, the consumption volumes in several experiments, and all the consumption tracks).

Underneath is one example, namely the material data base product. The co-creation story of the Material data base product was described I n short as follows.

This is one product but it hard to find a user persona for it. It was difficult for them to choose what to tackle first, and from where to start. The fact that the company is small in size and that the development resources were constrained at that time, were a challenge for the company.

But after identifying and figuring who could use the material database software, they went to the targets which are students, lab technicians in charge of managing stocks and started identifying their needs. They are mostly the larger influencers within the use of this product specifically. The process followed by some interviews identifying what was useful to them in terms of how to categorize items.

After their input a huge process of investigation followed because the company had interviewed biologists, chemists, and also neurobiologists specifically. These came up with some really interesting ways to categorize their own stock. So they as customers gave the company the lead in seeing from where to start and how to model the data base that would help them comprehend the needs of the product users.

> "The structure was to have this dependency of creating an inventory and then the categories, that they could form".

Since the potential customers covered however a lot of different science settings and needs, which the company wanted to cover as much as possible, the challenge was to

> "really build a data structure that would apply for everyone. We received a lot of inputs from customers about what would be useful around that."

After around 17 to 25 sessions with different scientists, who provided completely different feedback, which was appreciated by the company, a first version was released.

> "When the first version was released, the potential customers were all really happy. There were some complains of course, but basically everything that they needed was there, so that's how we involved them in actually building the model or the structure that we needed, for the product."

Of course, the company has tried to incorporate everything that customers or end users presented to them as a need, but these requests followed a huge process of investigation and then prioritization. All the needs were evaluated with the development team on the basis of what was easy to implement and how do they saw things. So, reordering of the user's needs against the development efforts was compared, and that lead them to the final list of what to do first. So, the challenge was to look at the effort and segment size and based on that the company was able to prioritize.

Having the need to gain qualitative and not quantitative data from their end users, lead the company to put themselves in the shoes of their end users are and keep visiting the setting and the working environment. This took lots of time and effort. Communication efforts were immense because users somehow do not always know how to convey what they need clearly and precisely.

What can we learn from this example?

The example indicates that the customer co-creation for this company largely takes place in the ideation and later also in the testing stage of the co-creation process, as described in the theory.

The main advantage is that being scientist themselves, the company staff can easily relate to the customers. It proves that excellent communication is an essential element in co-creation of products because very often there is not only a language barrier in terms of language used, but also in terms of how customers, especially scientists can convey their ideas about real needs clearly to the company.

The example also indicates the advantage of co-creation very clearly. In the words of our interviewee:

> "There is no room for superstition, there is no room for theorizing things. So, it's very clear what they want, what they need, so there is no room for mistakes even, probably there is some but the need is stated. So, there is nothing that you can refute about it. The

path is very clear. I think that involving the customers, from the very early stage, is a very good idea because you can't hypothesize something anymore. You develop more effectively."

And having a successful product because of that is what she has added also as a clear advantage.

In general, communication is not only a challenge for co-creation in terms of communicating with customers, but also internally with developers. Sometimes expectations of customers are not met because of not clearly conveying the importance of certain needs to developers who then make implementation mistakes. Certain things are not being implemented, because of these development team issues.

> "It is a communication challenge, certainly where they could not get users' needs very well, but with time it becomes better when new versions of a product are developed. So it is a challenge in the early development stage."

Motivations for customers to cooperate in co-creation do exist. In the mind of my respondent a mix of social (focusing on the social statuses of customers, Social rewards and acknowledgement) and emotional motives (enjoyment level in the co-creation activities-positive experiences) works best. You have to make them feel special in the process.

> "Customers feel special when you engage them and ask them to shape the software of the features, which will support them to do things in a more efficient way later and improve their status within the lab".

They will also stay involved.

> "They are kind of pretty excited, because their ideas are somehow being heard and implemented, so that's actually makes them super okay with us, and they are always willing to participate, and even some of them are asking; when are we having another sessions; are you guys preparing something else, what's coming up, is there anything that we can help you with and so"

Offering a free webinar or innovation sessions for the users in that sense, can be considered as a kind of stimulation of co-creation, as knowledge acquisition, and as an exchange between users and potential customers. The company benefits from this because they also consider this to be a distribution channel for them.

Early in the ideation and development and further in the testing and validation, users had a role. This is the case for all the products of the company. Customers are co-ideators and co-designers but not visual designers. They are only involved in how the structure of the design should look like and in the validation part, which is also important. So, when they are considered as co-testers as well. The company considers this as important as they do not want to lose anything that their customers really need. About 90 % of the real needs are addressed correctly by the co-creation process. It is crucial and affects the product and its success directly.

Not all types of customers are however good as co-creators. The company takes mostly advantage of what they call <u>skilled contributing customers</u> as well as from some <u>regular users which are not or less skilled.</u> Choosing the skilled customers is necessary because they already have ideas in mind on how to improve the workload in the lab, and using the not super skilled users or <u>students </u>is done because they want to see if their products are being usable or not.

So, co-testing the product is done with the not (so) skilled users because you have to check the "intuition" level of the products. Users have to be able to understand it, but do not need to be knowledgeable on how and why things are made like that

> "The real validation comes with the people who are not skilled at it, but who have to understand it and to work with it"

The company considers this to be an extra strength.

> "Having inputs from different types of customers, influences you largely, because the user perception changes. This has an effect on decisions regarding how and why things are made." In that sense having no complaints tells the company after a while whether the product is successful, although they like to continuously get new ideas for improvement from customers.

The impact of customer co-creation on innovation performance was considered as important by our interviewee: "I think it definitely made us improve, because obviously the number of customers increases and the curve is really steep. The company is able in a way to anticipate what the customers will need. So, everybody knows their profiles. We improved our workload in that sense (and thus our efficiency)."

Most importantly however, the company feels that their experience of customer co-creation opened their eyes to things that they did not see before, obliging them to <u>do deeper research</u> into the needs of customers.

> "The investigation efforts always go to the top, all the time. That means that the innovation craving is there and we are always curious to see what is out there. That is the real impact of co-creation. We became more aware of it and use it more effectively."

<u>There is also a heightened awareness of the future necessities to stay competitive.</u>

"Not only the number of releases is influenced. This might be both in terms of more or less (for instance if the planned products are too huge as a project or drain too many financial resources). For certain releases the shape of the product roadmap is influenced by customer knowledge and deep information (if it is relevant of course), as customers sometimes know things that will help us in the forecast and planning of what is important, helping them in turn also to prioritize things beforehand". <u>It is in a sense a two-way process.</u>

> "It encompasses every knowledge that shapes the path that we are going through."

Flare Innovation

<u>Company Profile and Contact Person</u>

Flare Innovation is a ten year old service company that offers other companies help with their innovation trajectories. The company is a private company and has 8 employees and is active for customers in both B2B and B2C markets.

We had two interviewees in the company. The CEO, Pieter P. talked about the process of co-creation in open innovation and can be considered as an expert opinion on how to structure customer co-creation successfully. It gives insight in the <u>pre-conditions</u> needed to make the co-creation process into a success and talks about some challenges often encountered. This first interview is treated in the expert opinions section.
The other interviewee was Lauren W, who works as an innovation strategist for the company and talked both about open innovation and co-creation in general and about a specific case the company was working on. Talking about innovation and co-creation in concrete examples. It is treated here.

<u>Major observations</u>

Our respondent could not give a real definition of customer co-creation because there exist many. In her eyes it is very much an outside-in process through which companies do not try to invent the wheels themselves and use all the potential of their end users in developing new ideas into products. They need to know all their customers' ideas, all their needs. "It is about listening and connecting to the end users and designing your products according to their needs, instead of according to your own ideas. You make them leading in product development". It is essential to the success of innovation and has to be related to <u>every single and even small detail</u> of the product or service to be developed as even small things can turn customers off as any detail may affect their lives (example given was the color of a car).

> "A company cannot translate a product completely to the real world and how customers will actually be using it."

In that sense, the customers benefit even more than the company using co-creation.

Our respondent gave us <u>two examples</u>.

The first one was the development of a <u>platform</u> absolutely wanted by an SME. The process is a s such not yet finished and thus the results of this example are not known yet.

Flare Innovation used co-creation to exactly identify 6 elements the platform should offer and incorporate and which should be the trigger to get people to the platform.

> "Co-creation told them something about how the design should be and that makes all the difference because on the one hand you know there is an idea to develop a platform and you relate that on the other hand to what end users are interested in. Thus, you know exactly what to offer, how it attracts customers and how to get more traffic to the platform".

From the emerging to the ideation stage (please look at the paragraph on Flare Innovation in the expert opinion section) it became clear that the market was highly fragmented and that in order to make progress and get the market growing there had to be more connection between the different types of customers. So, the platform also had to develop these interconnections better and to let customers learn from each other and to cooperate and find partners. The design of the platform had to integrate this to be successful. Although customers are mostly different, the difference in this case was extreme (we are talking about a magazine's platform that had to be attractive to readers as well as to advertisers using the platform). Finding the aligned interest between both groups of users who have sometimes conflicting interests is a real challenge and thus co-creation with both types of customers had to be organized.

> "Finding a middle ground between these conflicting interests was the real challenge".

Another challenge was that the SME was not fully aware of the customer's needs or resisted them partly. Then the tone of voice used, for instance saying that you support them instead of helping them may be sufficient to get the process going and more on track. It is highly important that you try to find the right words and approach in dealing with people in determining whether they will step in the process with you. Human relations are thus extremely important as a success factor

The other example Lauren mentioned was <u>www.Groove.com.</u>

In this case, Flare innovation has jointly with <u>an educational publisher</u> introduced a new educational method for <u>teaching English</u> for primary school students. The customer company is called <u>Blink! Educatie</u>. The development was done by being open and directly communicating and engaging with customers which in this case are the students as well as their parents, teachers and school principals. As such the company has developed a new inspiring method of teaching.
As a new player in the education market, Blink! Educatie had the ambition to reinvent teaching methods so that more children would be inspired to learn. The first project bringing this ambition to life was developing a method for primary school English. In the summer of 2010

Blink's CEO, has created an innovation team consisting of two innovation strategists from Flare Innovation, and an independent kids insight specialist. So it was a co-creation effort that relied on customers, but was regulated by another company and is thus a B2B example of co-creation. Therefore we didn't use it further in our analysis.

Where educational publishers usually start the development of a new method with teachers' needs, Blink! wanted children's motivation at the core of their innovation. This is why they initially spent a lot of time with 8 to 12 year old children to find out what role the English language plays in their lives, and what their motives and barriers were to learn English, and in which ways they currently learn English at that time (www.flare-innovation.com).

They discovered that music is a common thread. Kids want to learn English to understand popular music, while at the same time they are learning English through this music. Normally kids learn the songs by heart and reproduce it phonetically, but they really want to know what the song is all about as well. The schoolteacher and the English teaching method used at school only played a subordinate role in developing English language skills for these kids. "Our teacher's English really isn't that good," was a frequently heard comment by the children.
The translation of this insight into an activating teaching method based on popular English music, with an inspiring, coaching role for the teacher, was relatively quickly made. Although the first concept version did not meet educationally tested principles, children and teachers responded with such unequivocal enthusiasm that Blink! decided to invest further in the development.

A team of experts was formed and in co-creation with children and teachers in the classroom and came to a well-reasoned, unprecedented 'swinging' teaching method, based entirely on learning for and through music (www.groove-me.nl).

The principle is simple.

> "The clues lie in the classroom itself. If you just let children hear the song in the beginning, they have no trigger anymore towards knowing what all the lyrics mean. But if you would give them some words in the beginning then you trigger them and give them like a carrot on a stick to interact with each other and say: " I think it is this song, oh no, that does not have this word in it, or may be its that one? And it is about …". It is all about triggering the natural curiosity of children"

And thus, they learned to structure the lesson in that way, that towards the end if they the children had paid attention, they could play the song in the end and all the children would get up like in a party. Moreover, they did know what the song was about.

The co-creation process also discovered, but in a second stage only, that most teachers, who were very insecure to give English language lessons (because it is not their native tongue) felt more secure. Technically the development involved working around that and using the digiboard and sometimes the children themselves. They crafted the lessons in such a way that

teachers did not have to play a very big part, and felt comfortable in the parts that they were involved in.

Soon after Groove.me was introduced in 2011 it proved the most successful launch of a new teaching method in recent years. The increase in sales of 50% since its introduction is very impressive compared to the 20% market standard. It is a big hit. They now have some 60 % of market share. This is especially so because being a new, unknown and small educational publishing company, they managed to achieve a substantial share in an already saturated and conservative market. And the method is developed with the students; as well as the testing and evaluation. It is all done with the students and with teachers and parents. In a customer satisfaction survey (2012), 90% of teachers said that the method meets or exceeds their expectation. Moreover, research shows that Groove.me yields learning effects unparalleled by other methods.

These two <u>examples teach</u> us a number of things.

<u>First</u>, it is important to realize that after the co-creation process there are often still other choices to make regarding the <u>implementation process</u>.

> "Although the co-creation might be ended, going back to its results and trying to dig deeper if things do not work out well, proves to be very important".

It is clearly <u>an iterative process that has to be maintained till the end</u> to be really successful because you might have forgotten small details before that prove to be essential. You have to keep checking whether you are still on the right track. The teacher's anxiety in the www.Groove.com example is an excellent point that proves this.

<u>Second, the mindset of the SME wanting to apply co-creation has to be very open indeed.</u> People have to be willing to follow only the needs of the customers and not their own thoughts and interests. This belief has to be <u>integrated in the vision and the culture</u> of the organization of the SME. It has to be widespread and permanent, not momentarily. It has to become the mentality of the company, of the SME. Since this is not an automatic reflex of SME managers, an important success factor is to let the SME managers to <u>be present</u> in as many interviews with end customers as possible to open their eyes and minds. It creates in their minds a clear vision of who the people are they are working for, what they want and what their worries are and what think about their products.

> "It sparks a motivation of the SME's employees, to start working differently, and to re-acknowledge, and value their customers more".

This cultural change or transformation is essential and is both created by but also necessary for success of the co-creation process. The SME's have to be or become outward looking organizations. The platform example proves this amply.

Finally, a challenge of successful co-creation is that there might be important differences among several groups of customers and that different groups of stakeholders all have to be involved. In the platform case, it were readers and advertisers, in the www.Groove.com example it were parents, teachers, school principals and children.

In general, the other aspects of co-creation were also treated in this interview.

The motivation of customers to be willing to be involved in customer co-creation is very different from customer group to customer group. Factors playing a role are whether you have a potentially large group of customers (like housewives who you can also give a reward for cooperating), whether they are very busy people (like doctors of business people) and whether they feel obliged to co-operate (like doctors very often feel).

Since you are dependent on their positive answer and attitude, asking them is framed very carefully:

> "We are not asking you to have a conversation with us because we want to boost sales, but genuinely because we want to improve our products for you. We give you an opportunity to make your life better, by helping us to offer you a better products."

> Of course never framing it this way to the customer but, thinking of how they should feel like.

This is certainly true for B2C markets for which panels are used in which the conversation is very informal, open and positive. The positive experience and thus the psychological motivation plays the major part.

In B2B this is however somewhat different.

> "These people have often vested interest in having a good connection with the company and this might either play appositive role (for instance interest in publication of articles if our B2B customer is a publishing company or gaining knowledge which is a very opportunistic attitude), but it may also prove to be negative if the market is very much under stress."

In the last case co-creation is only possible if you really to great lengths at motivating people by for instance visiting them personally at home. Thus, technological motivation (knowledge) and social motivation often work best.

"You are creating you ambassadors in the process. They feel involved in the brand, because you involved them. Then it becomes quite easy to make sure that they remain loyal and connected to your company. They appreciate that you take time to listen to them, they appreciate that their opinion is worth something, especially when you get them in co-creation mode. Help us, think with us and then they will be in a mind frame where they have a sense of belonging. This is also true afterwards as they have invested time and effort in this. For them it will become, which is important for their social status and feel as a social reward, a feeling that they have contributed to became huge success. Moreover they start also to know people in your company. It is not a logo anymore, it is real people with a face. Success will be considered yours and theirs. They will be happy with you."

Stimulating customers to co-create is not so much necessary in the eyes of our respondent. It is however important to try to stay in touch after the co-creation process through the creation of a platform on which they can give feedback, certainly in a B2B context. Our respondent did say she did not have more information with regards to B2C markets in this respect and thus that her answer might be different if this would not have been the case.

Flare Innovation considers customers very important as co-ideator, co-evaluator and co-designer. The co-testing and co-launching is a responsibility of the SME itself. In the indicated three stages the focus will be on that stage which is most important for the specific product or service to be developed and where the most important hurdles are encountered. For www.groove.com for instance co-designing was not important as the hurdles were situated in the idea generation and evaluation process. For the platform, the design was more important as well.

The type of customers used for co-creation will depend largely on the specific case at hand. Both cases really prove this as they used completely different categories of customers. So it is important to know which kind of customers and stakeholders are preferable from case to case.

"Sometimes you just completely zoom in on the real target customers, whereas in other cases, you need a more varied group of people, that are interested in the product. Then you could be more generic about the qualifications and you will create a large group of people with different traits."

However, the target group gradually becomes more clear as you dig more deeply and approach later stages in the process. So you zoom in ever further and narrow down the target group of co-creators as your vision on the target customers becomes more specific and concrete. This is certainly the case in B2B, where the added value of target customers becomes clearer the further down you are in the co-creation process.

The conversation with the co-creators has to be "brutally honest". At Flare Innovation they actually say who they are, what their role is, being vulnerable themselves in the conversation, also talking about their private life (in the introduction). which background their people have

and so on to create confidence and trust with the selected co-creating customers. Talking in <u>a nice atmosphere, not in a businesslike environment</u> will also help, certainly in the beginning of the co-creation process.

> "Talking <u>from human being to human being</u> works better than talking from researcher to object. Once there is trust, you can put people at ease, tell them that nothing will be published of what they say so that they also feel safe and disclose more ideas and thoughts and exactly about what they should be talking because you can openly tell them.

It is also important to tell, because usually they have no idea, what exactly you are expecting of them, so you really have to put them at ease and say, you cannot do anything wrong.

> Only then they will be interested in making you better. In the www.groove.com case we actually didn't talk about the needs of the teacher but about the needs of the person that is the teacher."

For Flare Innovation the most important contribution of customer co-creation is that it offers the SME and its personal a sense of purpose, a vison about why they are doing what they do and in this business. <u>It gives a hands-on concrete sense of direction.</u> That is also its <u>strategic</u> value. It brings the development of tailor-made products closer to reality.

> "you will be able, you know what to do to make a tailormade product, that is tailor made to the needs of your customer. "

Blink!

<u>Company profile and contact person</u>

Blink is an educational editor offering teaching methods for children aged 4 to 16 years of age. The private company exists since 2010, and has some 20 permanent employees, but uses up to 100 freelancers to develop products. They have a very specific philosophy. Their offering is developed in co-creation with children, teachers, parents, grandparents, in short everybody who comes in contact with their material. They are growing rapidly and steadily.

Our contact person is Ron H. He is team leader for the expert team in co-creation in the company. Actually everything is done in expert teams. The company has an expert team in co-creation, an expert team marketing, an expert team design and concepts and several product teams. It is the publisher who assembles their team with people from the expert teams at Blink to develop the final products. But the publisher also works in identical teams as Blink. In this way Blink tries to keep everything agile and lean, also by using freelancers when needed.

<u>Major observations</u>

<u>In general</u>, our respondent thinks open innovation means everything to the company. This quote is very clear:

> "It is everything for our business. We wouldn't exist without being open and without looking into the outside world, to what our children are doing and talking with them, without looking at teachers and talking with them and without letting them look at the things we are doing. We are getting input from them."

It is in the words of our respondent a <u>mindset </u>in which we look outside of our company instead of looking inside, what can we do outside the company. That is the most important things for them. By doing it, they get loyal fans because you have developed unique selling points!

> "We have got true fans. At Blink we say "teachers look at it, it sparks the children and gets them on the edge". <u>It is our DNA. If you can't listen to customers (actually you should call them partners), you are out.".</u>

A precondition for success is thus also that <u>that same mindset is present in all the employees</u>, it has to be in their DNA. If they can't be open, they can't work at Blink.

> "Your personality has to be open, and you have to be curious and want to know, and you have to let go everything you know, you have to let go, you don't know anything."

Our motivation is that when the companies' boss visited a school years ago, she found out that kids were bored by the teaching material no matter how much the teacher tried to motivate them positively. The teaching method was the problem. One of the reasons was simple: everything was on paper and the world had moved on to a digital age:

> "We thus made digital methods and we looked at what triggers the children, or when do they really want to learn, when are they motivated and how can we help the teacher by getting those children motivated. So, we used tools instead of lessons programs, more tools to learn".

When the initial motivation to co-create was to have a better understanding of customers' needs, it <u>gradually evolved into collecting ideas from them</u> for customized products on the basis of opening up to them. You start with being curious (your DNA) and end up with doing thing that really have results.

<u>One case</u> drew our attention specifically. It is one of the cases we actually also got as an example from Flare Innovation, the <u>groove.com product of Blink</u>. The school subject which was most boring namely was <u>English</u> for a number of reasons: the books used were old, they used British English which for the children is not real English as they are acquainted with American English and the teachers were anxious to teach as their English from Middle or High School proved to

be less developed than the English of the children. Blink started talking to children. They went to their homes, to the school plays and even in the train on their road from home to school and asked them: What is English? Three things came out of that:

- Gamification,
- on holiday, you have to have English all the day, and
- Music.

"They were on their I-pad and showed us songs that they did not know what they were singing about. We observed their faces and actions and observed that music was binding. It is a social thing: we talk about music with each other. So, we went with that key insight. You can see from studies that music makes it easier to learn a language. So, we took that aspect and we build our whole method around it. Step by step. Every screen we made, everything till the pictures we used, the questions, where we had to put our numbering to the pages, everything was asked to the children and actually created by and with the children, by and with the teachers. For instance, in order to give the teachers more confidence we translated for them and gave them a few sentences."

Thus, everything was integrated into the groove.me method. What started seven years ago as a portal for learning English in the Netherlands has now reached Brazil, Japan and Mexico successfully. And at least 25 % of the children in the Netherlands use groove.me. This figure might not be fully up to date. The growth of groove.me is not unique. The company sees the same evolution in sales for other products developed according to the same principles.

Co-creation is thus used by Blink in every stage of the development of an innovative product. It is co-ideation, co-development, co-testing and co-commercialization or co-launching. The stages are however called differently by Blink.

"We start with the concept stage. That is going to children homes and talking with children (What is English for you? How do you want to get English in the classroom? When are you motivated to learn English and what do you want to learn with English! Why it is important?) It is mainly desk research in this stage (the concept stage) and looking at the results of talking to the children and the teachers and thus coming to the key insights mentioned previously.

Then we go to the content stage. That is when we start making the lessons and translating the insights into the lessons. For everything we produce we have a brainstorming with about 30 to 50 children and we look at the smallest details to be sure that they approve of it and the teachers as well. Although it is sometimes frustrating to discover that nice things we found are not agreed with by the customers – children and teachers – and you have to change. We look at their faces and they have to be happy. Sometimes we have to go back to the drawing table over and over again. And in the end we have to be sure they like it, understand it and that it motivates them.

Then we really make it. Then <u>we invest the money into it</u>: we buy the pictures and we buy the songs, and do everything and again we go to the classroom and check them with the kids and the teachers. Every time there are a lot of visuals coming out of that, then we optimize it, then it goes online, and it is available for everybody, for every user.

We then follow every user online and <u>evaluate every lesson</u> at the end according to a star system (where they will evaluate). It has to be 8 out of 10 to be good. If it is lower, we have to do some things again, again by asking what they dislike and want to see better. If it is not ok, we go back to the drawing we throw it in the bin and we start over."

The co-creators are really partners, present in every step of the process. The company uses them in all stages and always sees at what the project really needs at that moment, in that step. Only when the answers are really there the companies to the next stage and actively engages the co-creators again talking to them about what the needs of the project are at that moment (different than before in the previous stage and now deeper). And when you don't call them names they are also always willing to help.

As the co-creators are <u>present in every stage</u> of the process, the company is quite specific in asking what they need from the partners as it is different in each stage of the process (see: metaphor of the iceberg, you always dig deeper). The <u>methods used are also different</u>.

"During the co-ideation, we always call Flare Innovation. It is the stage where we look for the key insights of what motivates the customers about a certain product because we want to make a new method. They help us as we talk with everyone (English? with the Groove.me example. This stage is really big: we have to talk with a lot of people to really feel those key insights so that everybody understands and that it is actually something there (pop music triggers children somehow, so there is something there, and as we talk with a lot of children whether it is real, the it is the motive!) In the co-evaluator and co-designer (our content phase) we go make the m<u>oonboards </u>with the children and the teachers (co-evaluation) and then decide what kind of direction we have to go. After that we make <u>power points</u> (our designer stage). We give them a look and get feedback from them. This is also important and in the trial and in the following phase, even in the launch stage, we go back to co-ideator and check. None of those stages and methods is more important than others. It is quite <u>a route and you can't go to the next stage if you have not done the previous one correctly </u>because it won't work and you are going to get issues then. If in one stage something doesn't work, then you have to go back to the previous stages."

This process is however not only iterative and very time consuming, it also <u>encounters some problems.</u>

Finding people with the right mindset may be hard to do. Some writers for instance do think they know things better than teachers, students or kids and start developing according to their thoughts only. Some customers also lack the right mindset. The company tried to develop an identical method of teaching music to children by talking to kids and what they want and what they think about music. The Concert Building, which was the customer did not agree with the results. They wanted every kid to have a musical instrument in the classroom and could not accept other things.

> "It is sometimes quite hard to find the people who are willing to let go of what they know. And you can't push them into it as it will not be followed through and work."

The major motivation to co-create for the customers and for teachers is that just like we they also want better results in schools, they want children to be more motivated to learn in the Netherlands. This is also the motivation of Blink.
> "we want to innovate and get better in the Netherlands, with our schooling programs, so that's our main reason why we do what we do"

 So, they really ask teachers to join them towards the same end and goal. Blink as well as the teachers want the best for the children. So, social and psychological motivations (feeling of getting value and having fun, belonging to) come into play. Teachers have the most important job in the world: they want the hue of next generation to see a ray of the light, just as the sun comes out of the clouds. That also explains the companies' name Blink (Dutch for Shine).
Teachers always believe that they can learn from the children and when Blink listens and observes children they are willing to join and shine as well. Moreover, since the company actively engages in giving feedback to the teachers on what they did with the teacher's ideas, the motivation stays at a high level.

As already mentioned the methods used by the company to give form to the co-creation process are brainstorming (talking to) with the involved stakeholders (children, teachers, parents, and so on) and observing then in reality in the classroom. The company believes that user contest ideas and consumer opinion platforms do not always work as well. Finding out what is really happening in the classroom is "like an iceberg". You should always go deeper than what people tell you and you can only do so by observing them and digging deeper into their answers.

> "The metaphor of the iceberg goes very well. What is happening underneath the sea level? What is really going on? What is the bigger and deeper picture?"

It is those insights that help you further, not what people might tell you only. For instance, a teacher can say of a certain lecture idea proposed to him that it looks nice if the visuals are ok and actually conveys the idea that he is not motivated to work with it and when you don't dig deeper you think you have to improve the visuals.

This is only possible through continuous open communication. Having an open texting and communication line to all classrooms is nearly indispensable. Moreover, the roles of the co-

creators and the employees of the company are <u>never restricted</u>. That is the reason the company works with <u>expert teams.</u> All people capable of contributing are allowed in. This approach has as a consequence that the success of for instance groove.me is really the success of all those involved inside the company in the expert teams and outside as co-creators. It is a <u>joint success</u> as the co-creators might have done more than half of the work. The company just translated their ideas into reality.

This also explains the role of our respondent better. He <u>overlooks co-creation</u> and checks whether the company has listened enough to the co-creators and whether the exact methods have been used and whether things have to be redone and improved. Himself he doesn't co-create. He overlooks the team (mainly: he makes the moonboards and when something is not ok tells the team to go back) and everybody in the team, so the publisher and the members really listen and co-create with the children and teachers and when something is not working our respondent tells them to go back to the drawing table.

The company thus extensively visits every school in the Netherlands and talks even with those <u>who are not using</u> their products to know what is lacking in the concept for them, what they are missing and how the company can be of help. They constantly making products better. <u>It is never finished</u>.

As the company has contact with teachers, children, parents, grandparents, all stakeholders, we can say that <u>skilled contributors</u> (teachers), <u>less skilled users</u> (children) and the whole <u>community</u> (the others) are actively involved. Only the community members are previously qualified as some of them cannot go much deeper in some of the stages. Moreover the roles of all these different co-creators will <u>depend on the stage</u> you are in as previously mentioned. This <u>also depends on the project at hand</u>. The company also makes National Geographic Junior and in that case for instance the stakeholders are quite different. In that case also Lego, Disney and people at National Geographic are involved next to grandparents and children.

<u>Selecting the right co-creators is an element of success.</u> If for instance only big fans and users of groove.me are involved in a co-creation activity, the insights gained may be less interesting than in a case where non users are involved, because they will be more critical and open up more insights more easily. You might get more new ideas from these non-users.

The real success of the process however lies in the openness and honesty. <u>Your curiousity is absolutely predominant.</u> You have to connect with the co-creators. And since not everyone can see what is going on, you have to observe very well. Even closed and dishonest people can be stimulated to answer to questions about why they are not cooperating. Everybody can be a co-creator. That is why connecting with your co-creators is so important. The success does not only depends on the co-creator, but also on the people in the company itself and their culture.

Our respondent is convinced that that is the basis for success and it makes that the company is not afraid of other companies wanting to "mimick" them. <u>The company culture safeguards them against competition.</u> The sales figures are impressive, so co-creation can be considered as a great success.

> "Other companies that exist for one hundred years, can't they do what we do? They can try, but it is not necessarily in their culture. The culture and DNA say that you have to have your eyes looking outside to what is going on in the outside world. All those other companies are places where the employees are looking inside. They can't all turn open, maybe a few can but everybody has to do it. <u>We are not afraid.</u>"

The company considers itself as pioneer. They are not afraid of making mistakes because that is part of taking risks and being a pioneer.

> "I always think that everybody wants to know what children do and what the teacher wants to know in everything! For us this is the most normal thing. It is really in our DNA".

The sales however are more done by the teachers, so the company in marketing terms follows a pull approach.

Brand New

<u>Company Profile and Contact Person</u>

Brand New is a service company specialized in "influencer marketing". The company is 4,5 years old and has 23 employees.

They started as an influencer marketing platform and were mainly focused on solving the problems of marketers with their brands. The major activity was to look at how companies can influence their marketing campaigns by finding influencers on social networks and on how to organize campaigns using these influencers. The company worked with both influencers and brand businesses and by using its platform the brands marketers could find the best matches of the influencers to feature in their brand campaigns.

This requires some explanation. Influencers in business are people who have influence and impact on the community at large. They might have an Instagram profile or be active on YouTube and have followers watching their pictures and videos. As such they influence the buying decision their followers may be making. For instance, a Youtuber who does reviews might affect and influence his/her followers to take a decision on buying the items they have reviewed. With their distinct style, they sometimes attract a certain segment and target audience.

Based on this element brands can use these influencers in their business by involving them in their marketing campaigns. At the same time, they can more effectively target the followers of these influencers.

We interviewed M. who is a UX designer. In that function, he has the function of managing the products/brands and managing the design team, maintaining a very healthy relationship with both B2B and B2C customers and making sure that the products/brands are going in the right direction.

Major observations

In general, open innovation means for Brand New the direct contact with customers and end users in order to find the problems that they face in their daily life. This is done by talking to them and trying to come up with solutions that benefit them.

> "Talking to customers is absolutely necessary in order to make sure that they know that we understand them and really try to fulfill their needs. We do this as we try to come up with new ideas which we test together with the customers. We make sure that they are happy with the solutions and that they really solve their problems. Many times, we did find solutions they were not even aware of although in their talks with us they mentioned them partially. The method used is to keep asking them questions and always checking their needs again and thus by always digging deeper and deeper."

This is illustrated by the Mediacom case our respondent talked about (but could also be illustrated by other examples mentioned like Kids Kinston UK and Depop APP), a worldwide online marketing agency, focused on both B2B and B2C brands of both large and small companies. They are the direct customer of Brand New and expressed the need to become more effective in influencer marketing. Indeed, they made the observation that print and television ads for the advertising of say a new product (for instance a shoe or t-short for Adidas) was not functioning as good any more without the use of influencers, who have a large crowd of followers who like their style. Using them will increase the effectiveness of television ads tremendously because the approach is considered to be more personal than a traditional advertising approach.

Brand New wanted to know exactly what they were trying to do in their business and what kind of complications they faced daily. Brand New got the information by looking at how do they solves these problems in their current situation without using influencer marketing products. After that Brand New got some ideas on how to start involving them in finding the right solutions by asking them constantly: "What do you think of this? Would this help you much better than this? Would it save you time, especially in daily routine tasks that consume a lot of time?" The job was to make sure that Mediacom invested the least amount of time in doing these tasks. The approach of talking to them, approaching them and trying to see how they solved their problems and maybe tweaking it a bit, and certainly asking them for suggestions

on how they imagined it could work, enabled Brand New to come up with influencer marketing solutions. By prototyping it they made sure that it fitted the need well.

Actually, in such a case two "services" are offered, one to the company like Mediacom and one to the influencer.

> "The service for the companies managing brands is to solve their problems while searching for the target influencers, who fit their marketing campaigns. It comes down to finding the right matches from the platform Brand New actually possesses and communicating with the influencer within the platform. Then the campaign is launched and managed. Managing the campaigns was the biggest pinpoint for our clients and in solving that we helped them with how they had to brief the influencer, that is how they see the content which the influencer had to bring. At the same time the briefing for the influencer gets more performing and to-the-point and they can do their job better. The band companies are happy with it when Brand New by analyzing the target audience and their reactions to the campaigns and by looking at a number of reviews by the audiences and by analyzing the ROI it proves effective. The influencers are happy when Brand New manages their payments of fees for the campaign."

The motivation for co-creation is obvious:

> "It makes us stand out in the market because by using customer co-creation we can reach a better level of customer satisfaction with the services that we are providing, thus also increasing the revenue".

An example of one brand customer makes this clear. Initially Brand New thought they had solved the problem, but their customers were still facing issues with the solution. By taking the initiative to dig deeper into the data and by contacting customers facing these issues, it turned out that one pinpoint was not solved, namely that the network offered initially to the customers with influencer marketing messages was only Instagram, which proved not to be the network having the biggest impact on the target audience. That was Youtube. Moreover, the audience actually was more influenced by a combination of several social media networks including the above mentioned.

Finally, the company was more targeting the influencer him/herself than the target audience of the influencer (their age, ethnography and where they are situated, their interest). Changing the networks and their combination and better targeting the real audience thus would be more efficient. Brand New then talked also found out that the way the brand company was using manual ways of reaching these influencers and asked them screenshots of the their analytics on YouYube or Instagram to find out if their target audience fit the campaign or not. Thus, finding solutions with the social media tools was also needed to improve the results of the campaign. It all came down to hiring the influencer not based on the actual location as was done previously, but by hiring them on the basis of better data on their audiences and digging deep into the solutions offered by the direct media themselves to be sure about the results. The impact was great: the customer called less, was more satisfied and selling a lot more.

This example also illustrates the <u>roles</u> customers can take in the co-creation process, namely most of them as our respondent indicated:

> "They were involved in the ideation and they tested the concept and also evaluated it. They observed that it was ready and then launched it. Even the design stage is in it"

Otherwise Brand New would not be sure that they are fulfilling and meeting the needs of their customers.

<u>Which customers were involved</u> in such a process?

Of course some managers are involved, but Brand New also involves the different company branches because their employees have a different perspectives, and they deal with different clients (like some of the big brands Nike, Bose, Audi, Adidas and so on..). The co-creation process also talks to the end users of these brands because:

> "This business has now a great potential and there are currently a lot of problems in the market. The idea is relatively new and fresh, with a lot of space for improvement, and creativity in this field is needed. End customers help in finding out where a product can stand out and succeed. They make it a personal and a business motivation for us."

So, they actually use <u>skilled contributors and prequalified individuals,</u> like marketing managers and some people with technical background or someone having an influence. All of them can provide high quality inputs.

The <u>problems</u> that Brand New encountered during the process of co-creation was that some users had very unusual ideas that could not be achieved, because of technical reasons. Nevertheless, knowing about these ideas allowed to create in-between solutions that could satisfy both ends. And sometimes the actual customer had a problem with gathering input and innovating as well.

There are however many <u>advantages</u> as well.

> "One of the biggest advantages is that it is easier to find what to focus. Moreover, it costs less time to Brand New, unleashes more creativity. This is because co-creation stops the fallacy of thinking too much in one direction only and leads to the discovery of completely new avenues for solutions. It is an eye-opoener on things that initially you do not see clearly or correctly. Finally, ustomers do love gathering input, because they feel attached and being taken care of. On the business side, a higher return on investment can be achieved."

The last quotation above indicates that financial rewards are an important <u>motivational factor,</u> but the reasons given for involving end users also indicate the role that psychological factors play (being taking seriously, appreciated and heard) a role next to the financial ones (like an extended or 2-month free subscription or an Amazon gift).

Stimulators however could not be mentioned specifically apart from letting the customers and end customers feel happy and relaxed during the process.

Yet our respondent mentioned some <u>success factors</u>. They are: reaching customers with an open mindset, a friendly environment during the meetings, always trying to listen more than pointing to solutions, and just trying to observe how they come up with the solutions themselves.

Brand New is <u>highly satisfied</u> with the outcome of co-creation for themselves. There is the financial reward, which is linked to the success of the customers in terms of ROI, but they also measure success in their "customer success department". For them always maintaining excellent relationships with the customers and responding very quickly and correctly to their needs is important. Brand New is getting very good feedback, which is a way of being sure of the acceptance by customers to join them if asked to participate in any co-creation processes. The real analysis of market data proves them right. They think it creates an <u>advantage on their market over competitors</u> in the business. The <u>financial situation</u> improved.

> "Since we are using co-creation we went from a negative situation to a positive one. Customer value increased. The chance of getting the word-of-mouth, where customer started to refer other partners and customers to us, has a great value for us and is still affecting the business in a good way."

Moreover, the company became more <u>streamlined in its operations.</u>

> "It has impacted the whole process of innovation. This went from hypothetical thinking into a more customer like approach. Our solutions and ideas are now more directed from the users towards the users. Thus, the whole structure of innovation for starting with the users and ending with the users has been affected".

Pridiktiv.care

Company Profile and Contact Person

Pridiktiv.care is a service company that focuses on health care, more particularly on care for the elderly, thus on care homes and home care services. They offer mobile applications that allow nurses in these homes to leave out two thirds of the administration that they do today and to communicate with other care givers about their patients and finally gathers all medical history data from the patients on the application so that they always have a real time vision on what's happening with patients. These three solutions were developed on the basis of research data and co-creation efforts with the nurses (see later).

The company was established in february 2015 and counts 6 employees.
Our respondent was T., one of the three co-founders of the company. He is mainly in charge of the products from a non-technical side. He translates the user needs, (indicated thus by the

care giver and the director of care institution) into a workable product or service. This function stems from the fact that T. has no health care background. He studied economics and later health care economics before working at Heineken (a beer brewer) and becoming a researcher at the University of Brussels in the department of digital health care applications. His marketing and economics background allow him to understand the service and what the price should be, his health care economics and university background to understand the product technically and to measure its benefits from a health care point of view. At the university, he was already involved in user innovation by focusing on the needs of users (which he found to be real fun) and in finding solutions acceptable to different stakeholders. in the health care business.

Major observations

Open Innovation has no secrets for our respondent. He followed a course by Prof. Chesborough and nearly cites literally from his book with regards to the definition. He was engaged in it and in co-creation at the start of the company Pridiktiv, but build further on research two years earlier at the University of Brussels. However the company had to check whether two year old data were still valid.
The company interviewed 300+ nurses in care homes and on health care exhibitions. The points from the study of the University of Brussels to be clarified were threefold:

a. Nurses in care homes struggle with a lot of administration which prevents them from focusing on giving care to the elderly and to the patients;
b. Nurses do not have insight in the real time data on the health situation of the patients; and
c. They do not have always time to brief colleagues on what happened to some patients when they are replaced by a new shift.

The co-creation process was thus actively used when addressing these issues.

"The process of co-creation was very intensive. As a team of 4 to 5 people, we established our HQ in the care homes and stayed there, even during the nights. We did not only talk to nurses, but also to patients, to residents and to head nurses for 3 days in a row; The team slept in the care homes and thus experienced what the problems in the night shift were and how they differed from the ones in the day shift. This way we really felt how these people experience their lives, every day. This huge amount of data were analyzed and translated in the products and services that we offer today. We are pretty sure they work as we did some pilot tests in care homes and we are thus confident that our products work well and address the real problems our co-creators face in their care experience."

The motivation for the company to co-create is obvious according to our respondent.

"For us it is obvious: you can only develop something that works and that will be used if you listen to your end users. That iss why we do this, day in and day out. If you

haven't listened to the people that work in the field today, you probably, would not be in business. That is why we do it, in the first place. We don't want to make things for our own, we are making things for end users, so that's why we co-create."

The application for nurses in elderly care homes is not different in that respect. The team stayed in the care homes during the testing stage and let the nurses use the developed application. After a couple of days several nurses came back to them and told them that most of the application worked really fine but that some elements on the main screen were things that they only needed to check every couple of days whereas for daily and often used applications (every two hours or so) they had to click three or four times to get to the data. For Pridiktiv it was clear that in the mobile application things used often had to be readily available and less used things some clicks further away. This feedback was used by the company. In order to reorganize the service a click registration was first added to the application so that they were sure what was clicked very often and what only a few times and the order of the buttons was changed.

> "This is developing what users and customers want. It is a make or break point. Because the nurses use our product and because they are using it every day, we directly make sure to contact them as many times possible and develop together with them."

This brings us to the roles the co-creators play in the process. It is clear that co-ideation was already used from the way the data of the University of Brussels and the 300+ interviews with the nurses were used. By iteration of the process the nurses were also involved in co-development, co-design and in co-testing as stated above.

> "The process never ends and the products are continuously improved by having new sessions with the users. Then testing, development and even ideation might be a bit used in a more confused way, but they are all three there. We continuously check the usability. Of course, the co-creating nurses did not really develop something. They gave improvement ideas for re-engineering of the product. But they were developed in the co-design as they indicated where functions would best have to put in place in the application."

The process encountered a few problems. The major one is that the company talked to many users and their views are of course personal. Sometimes they contradict each other. As product designers, the company should filter what they hear and make it into a product. That is generally accepted by everyone. And of course it will never be perfect because they will always have to shut out something that people have said when it contradicts other important things.
> "We tried to distill and filter the best feedback or all the feedback into several components. These are the things that we work on."

The major advantage is that the company can work in an environment with two major big competitors and thrive. All users use the products of the three companies together. But it

regularly happens that someone from the management of the care organizations tells Prediktiv in an e-mail that they want to ditch all other products and only want to work with theirs because they like it so much and because they were able to have a say in developing it and because the company is accessible 24/7. Because the company really wants to help them in the care process they are a preferred supplier.

This was a very important element of feedback because one of the market problems Prediktiv is facing is that the end-user of such a product is not the one who pays for it. The management of the care institutions does that. This is a typical characteristic of DMU decision making in B2B markets and for B2B solutions. Of course, making something that is nice to use and everybody on the floor likes is ok, but not if nobody wants to pay for it. The company solved also this problem by co-creation.

> "The company gathered did all the operational data, assembled in the application via the nurses. This is something that says for instance: for this patient we did these tasks, we made sure, that this did happen, and so on… We translated that to the upper level and created a dashboard for the management level to see how the organization actually works and it was something that they really liked. This is something where they wanted to pay for, but the pay was not only for the dashboard that they received but also for the application that goes back to the nurses. The reason is that without the application, there is no dashboard for the management. The dashboard was also developed in co-creation with the management of the care institutions. "

The value of this dashboard for managers is very important certainly in a market where a lot of consolidation takes place which makes the structure increasingly hierarchical.
 There are first the care homes with their nurses and directors, then there might be regional directors as the care homes are merged into one organization. Above them on Belgium level most merged care home organizations belong to even larger organizations linked to the health care social security pillars which stem from politics. So above those regional directors there are quality and operational managers and a CEO. The applications of Pridiktive and the Dashboard are very important to this hierarchy:

> "Preciously they were nurses used to send excel files
> to their directors and their directors send it to the regional manager, the regional manager to the operational manager and the operational manager to the CEO. This causes a lot of data quality to be lost because all these steps in the process of course try to modify the data to make sure that it looks good. With the Pridiktiv application data gained on the work floor are directly transferred to the highest level. With this they have much more, more clear and more direct data and they possess a better review of what happens everywhere in the large organization and then they can start planning to optimize the quality of the care system through optimizing the process and the operations. The top level has a hands on look in their computer and in two minutes know what is happening, something which otherwise took two weeks or more. The value is obvious. "

Not all expectations are met though. Some governmental regulations with regards to health care are not yet integrated in the applications of Pridiktive and this needs to be addressed. For instance, the data are not automatically transferred to the electronic health record all patients need to have. Moreover, the development of new and better applications is a slow process because the government documentation is not always readily available. Moreover, some applications asked for by the nurses are also too slowly developed in the eyes of the nurses because of this.

The fact that users on all levels are involved in the co-creation process indicates that no specific types of customers are preferred to be co-creators. All levels need to be involved. No preferences are expressed and no pre-conditions.

Since the co-creators spent a lot of time with Pridiktive during the several stages of the co-creation process, the company feels that they have to reward them for it in order to motivate them to continue cooperating. Financial motivation is not possible as the company is small, so they set on the creation of a fun atmosphere in co-creation by for instance offering the nurses boxes of chocolates as a reward and by staying as a team in the home and cooking things for them in the home, such as a paella.

The motivation is also psychological in nature. Feeling involved and heard and having fun is the most important thing. Yet nurses and managers may also be stimulated by telling them that they are a pilot care home in which the applications are developed, the first one that will benefit from it and the first one management is willing to pay for. But when they belong to a group of say 5 care homes, we may say: for the pilot, you don't have to pay but for the others, yes. This creates a good image with the directors and upper level managers and is a financial return for them. This in turn will keep management interested and they will push the lower levels to continue co-creating with us.

> "This is important as it coincides with the strategic vision of the company in which we need one pilot innovation center, get the project or application started and test it out in more care homes as we need the feedback of other centers as well. The hierarchical structure based on the merging of many care homes helps us in that."

Our respondent believes that there may be many tools that can be used to stimulate co-creation, but thinks the company is actually too small to use any of them.

Our interview ended by our respondent stating that without co-creation the company would not exist. It is the basis for their success and remain as such.

> "Strong, innovation without real (user-driven) application is useless. It enables us to get to the market quicker and more accurately."

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Haddad, Leena Awni Issa

Datum: **23/08/2017**