New Product Development In Professional Communities: Using Members To Help Innovate

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PURPOSE OF THE STUDY

The purpose of this research is to study how firms can use professional communities to support their new product development activities and processes in their business . The central constructs whose relationships have been explored are customer participation and new product development in the setting of professional virtual communities. The processes of managing the virtual community and the relationship between a firm with its virtual community and its community members are also studied in this research.

METHODOLOGY

The empirical part of this study was conducted through three case studies. The data for three virtual professional communities were gathered using the methods of netnography and interviews. Data collected included 13 pages of field notes based on observations of the communities, 26 saved community discussions, 16 blog posts, three ExamCard, three best practice, three case study and 6 transcribed interviews.. The analysis was carried out using the method of grounded theory introduced by Stauss and Corbin (1993) in order to build a holistic picture of the phenomena in question.

FINDINGS

The findings of this research suggest that firms have to consider various aspects when designing their virtual communities, including customer roles and new product development phases, member related issues, interaction related issues and integration related issues. In general, firms seemed to put much more focus on building the virtual community to the needs of the target group rather than considering how the community is part of the overall organization. The community is often treated as an autonomous unit separated from the actual business operations of the firm, and the links to the business of the firm is quite weak.

KEY WORDS: New product development (NPD), virtual communities, customer as co-creators

TUOTEKEHITYS AMMATTIYHTEISÖISSÄ: YHTEISÖN JÄSENET MUKANA INNOVOIMASSA

TUTKIMUKSEN TAVOITTEET

Tämän tutkimuksen tavoitteena oli tarkastella miten yritykset käyttävät virtuaalisia ammattiyhteisöjä apuna tuotekehityksessä ja muissa liiketoimintaprosesseissa. Tutkimuksessa keskityttiin erityisesti tarkastelemaan asiakkaan osallistumisen ja virtuaalisessa ympäristössä tapahtuvan keskustelun vaikutukseen yrityksen tuotekehitysprosessiin. Lisäksi tutkimuksessa käsiteltiin ammattiyhteisön johtamiseen liittyviä tekijöitä ja prosesseja, sekä yrityksen suhdetta ammattiyhteisöönsä ja niissä oleviin jäseniin.

TUTKIMUSMENETELMÄT

Tutkimuksen empiria koostui kolmen ammattiyhteisön tutkimisesta. Aineisto kerättiin netnografian ja haastattelujen muodossa. Lopullinen määrä aineistoa koostui 13 sivusta tutkimusraporttia, 26 kappaleesta tallennettuja yhteisöissä tapahtuneita keskusteluja, 16 kappaleesta blogi merkintöjä, kolmesta ExamCardista, kolmesta case study:sta, sekä kuudesta puhtaaksikirjoitetusta haastattelusta. Tutkimusaineistoa analysoitiin grounded theory – menetelmällä.

TUTKIMUSTULOKSET

Tutkimuksen tulokset osoittavat, että yritysten pitää miettiä mm. asiakasrooleja ja haluttuja tuotekehitysvaiheita, yhteisön jäsenpolitiikkaan liittyviä asioita, yhteisössä tapahtuvaan kommunikointiin liittyviä asioita, sekä yhteisön ja yrityksen välisiin linkkeihin liittyviä asioita. Yleisesti ottaen, yritykset näyttävät keskittyvän enemmän asiakastarpeiden täyttämiseen kuin miettimään organisaatioprosessiaan ja sitä mihin kohtaan mahdollinen asiakasyhteisö sopii. Yhteisöä kohdellaan usein autonomisena kohteena, jolla on löysät suhteet muuhun organisaatioon. Näin ollen myös yhteisöstä saatavat hyödyt jäävät usein huomioimatta, ja yhteisö toimiikin erillään muusta yrityksestä.

AVAINSANAT: Tuotekehitys, virtuaaliset yhteisöt, asiakkaan kanssa toteutettu innovointi

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1. Introduction

With the technological advancements in the past decades, the information technology has experienced huge developments. Through various innovations, the means of communication have developed in a profound way, connecting people to each other in a way that one couldn't have imagined fifty years ago. Also, the mindset of people has changed tremendously, changing the way of working in the business world. Especially in marketing, the logic of marketing has changed from a company-centric view to more customer-centered view (Vargo & Lusch, 2004; Gummesson et al., 2010). With these changes in both technological and psychological environments, there have been huge opportunities for new innovations.

One of such innovations has been the rise of social media. Social media has made it possible for people to communicate, share and connect with others for various different functions. One of the functions brought about by social media is the emergence of broad communities of interest built around specific products and services (Nambisan, 2002; Cova & Pace, 2006; von Hippel, 1986). Such communities employ the notion of co-creation and communication in two-way interactions between suppliers and buyers (Vargo & Lusch, 2004). This means that the orientation of the firm moved from one-party (supplier or customer) centricity to two-party (customer-supplier) centricity. Here, firms do not anymore operate alone to develop products etc., but instead they engage in communication with their customers and try to listen and understand their customers' needs by cooperating. In fact, some of such companies have taken this notion so far as to involve customers in their new product development processes. Customers are not only involved in generating ideas for new products but also in co-creating them with the firms.

It is this topic that I seek to study further in this research. Existing literature on this topic discusses how companies should build and manage virtual customer communities (Nambisan, 2002; Cova & Pace, 2006; Nambisan, S. & Baron, R. 2007). This current research aims at building on this notion by involving also other stakeholders of company, i.e. moving away from virtual customer communities to virtual professional communities. Virtual communities with members from various different stakeholder groups has not been researched earlier, and thus I aim to study what considerations companies building the communities have towards this respect. In addition, my aim

is to draw a link between the virtual communities and the marketing and sales processes of the sponsoring firm.

To do this, this research uses the methods of netnography and interviews to gain in-depth data on the communities studied. The analysis was carried out using the method of grounded theory introduced by Stauss and Corbin (1993) in order to build a holistic picture of the phenomena in question.

The findings of this research suggest that firms have to consider various aspects when designing their virtual communities, including customer roles and new product development phases, member related issues, interaction related issues and integration related issues. In general, firms seemed to put much more focus on building the virtual community to the needs of the target group rather than considering how the community is part of the overall organization. The community is often treated as an autonomous unit separated from the actual business operations of the firm, and the links to the business of the firm is quite weak. There are no clear strategies of how to use information and insights from the virtual community in other business functions nor there are business performance metrics guiding the virtual community. The findings also shed more light on how firms facilitated and encouraged interaction between their target groups and how firms control the access to the communities. The results of this research will enable researchers to gain deeper understanding of the phenomenon and help managers who are interested in building a virtual community to learn what and what not to focus on when launching a community.

1.1. Research gap

One of the key studies in the area of new product development and virtual communities is the research by Nambisan in 2002. In his research, Nambisan studied how companies carried out new product development with their customer in the setting of virtual communities. He paid attention in varying customer roles in different phases of new product development. He then studied how these different roles and phases suited with the underlying theoretical themes that he found to be appropriate for the research. These themes included customer interaction patterns, customer

knowledge creation, customer motivation and integration of virtual customer community and new product development team.

Following Nambisan's (2002) research, various other researchers (Franz & Wolkinger, 2002; Lundkvist & Yakhlef, 2004; Füller et al., 2006; Kosonen, 2009) have studied the topic further. Most of these later studies were case studies conducted on a specific community e.g. Audi, Adidas, BMW, Swarovski etc. In addition to these more known brands and companies, there have been also many case studies done on less well-known communities like an Australian newspaper's community. Most of these researches have focused on elaborating how customer participation helps new product development. Also, considerably larger part of the studies have focused on customer motivation from both company and customer perspectives. I.e. studies on what kind of motivational factors companies can use to commit their customers to participate and share knowledge in their community, and personal motivation factors for customers when participating in the communities.

What lacks in Nambisan's (2002) research and other studies following his research is the consideration of firm's other stakeholders in addition to customers. As many virtual communities have members also from other stakeholder groups than just customers, it is interesting to find out how companies perceive these members. In addition to this, those researchers studied for the purpose of this thesis do not make a direct link between communities to firm's marketing and sales processes. Such link should be explicitly mentioned and studied, as by all logic, communities are built to support the overall business performance of the firm. In this research, my aim is to answer to these needs while trying to understand and explain how firms use virtual communities to support their new product development in cooperation with customers. The key difference between my research and previous research are that I will address the topic of how companies use virtual communities to encourage new product development from a wider perspective, involving analysis of both customers and also other stakeholders. In this current research, I attempt to answer to these questions, in order to provide an in-depth understanding of how companies build and manage virtual professional communities. The focus of my research is to understand which principles guide these communities, and how the sponsoring companies manage the daily activities in the communities.

1.2. Research objectives and research questions

The purpose of this research is to study how firms can use professional communities to support their new product development activities and processes in their business using the literature on customer participation and new product development. The central constructs whose relationships I will explore in this research are customer participation and new product development in the setting of professional virtual communities. I will study the processes of managing the virtual community and the relationship between a firm with its virtual community and its community members.

The aim of this research is therefore to understand two things. First, I want to understand how firms view customer participation as part of their new product development processes. Second, I want to understand how firms do this in the setting of virtual communities. Following this, I attempt to explain how companies build and manage their virtual communities, and how they use these communities as part of their overall business strategy.

Consequently, my purpose is to study this topic from the viewpoint of the sponsoring company or organization of the community. The focus of the current thesis is not in the objectives and behaviors of the members specifically. However, as it is impossible to study the sponsoring company's side in isolation, there are bound to be some overlaps.

The focus of my research is on business to business environment. The reason for choosing business to business over business to customer environment has many reasons. First, the latter has been researched more throughout with respect to virtual communities. Also, I am interested in the professional setting of virtual communities as opposed to more consumption centric communities. Second, there are less examples and research done in business to business context with respect of involving customers in new product development. Third, operating in business to business environment is more complex in many ways, e.g. understanding customer needs requires understanding of customer's business environment and their end customers' needs. Following this, I want to study this topic in the context of business to business environment.

As my specific aim in this research is to understand how companies use their customers in new product development processes in the setting of virtual communities, my key research question is:

How can companies use professional communities to innovate and carry out New Product Development with their B2B customers?

The sub-questions of my research are:

1. *How do managers view the role of co-innovation with customers as part of their New Product Development processes?*
2. *How do companies view the role of customers in professional communities?*
3. *How can companies manage professional communities to strive for New Product Development?*

1.3. Definition of key concepts

The focus of my research is in virtual communities for business to business context. So whenever discussing about virtual communities with the exception of Chapter 2.2., I am talking about virtual communities in the context of business to business environment. Also, I do not limit this research on customer communities only, but I want to study also communities comprising of various stakeholder groups. For this purpose, I will present a brief definition of key concepts used in this research in order to avoid any misunderstandings.

Virtual communities refer to communities or groups in online setting, that are formed in either own website or in LinkedIn or some other available platform (Rheingold, 1993).

Virtual customer communities are online communities of interest that allow its members, in this case that would be *customers*, to coalesce around specific products and services (Nambisan, 2002).

Virtual professional communities or **professional communities** refer to the same idea as in virtual communities, underlying the business to business context of operation, where professionals discuss about the common interest or topic.

Sponsoring company refers to the company who built and manages the community in question.

1.4. Previous research

The primary sources in the customer participation and new product development literature that address this topic are Prahalad and Ramaswamy (2000), Nambisan (2002), Rheingold (1993) and Hagel and Armstrong (1996).

Prahalad and Ramaswamy (2000) pointed out, that today's consumers play an active role in creating and competing for value in the market. Customer participation in the production of goods and services has been growing. Especially there has been an increase in customer participation involved with innovation and new product development (NPD). Many researchers (Nambisan, 2002; Fang et al., 2008; Lin et al., 2009) have recognized the usefulness of involving customers in their NPD processes. Here, more than anywhere else, recognizing customer needs and wants and transforming those into product attributes can lead to successful NPD performance.

One of the key researches conducted in the area of involving customers in new product development processes is the study by Nambisan in 2002. This specific research has been a great inspiration to this and many other studies in the field, with quite a large amount of other studies citing the work of Nambisan (2002). In his study, Nambisan analyzed the design factors of virtual customer community for the purposes of new product development using customers. He developed a framework to describe how companies build and manage their communities successfully.

In the field of virtual communities, Rheingold (1993) has been seen as one of the main contributors to the topic. His book on virtual community has been widely cited in the researches of other academics. He was also the one to put forward the term *virtual community*. For the purpose of this research, his book has acted as background knowledge for the topic.

Hagel and Armstrong (1996) first introduced the notion of communities of interest in their research. This particular type of community is the focus of this research, where likeminded professionals or people in the same field can discuss about topics of common interest. Often, these communities might also involve forming and strengthening relationships or status seeking, so also communities of relationship are of the interest of this research. Mainly, the virtual communities studied in this thesis involve characteristics of both of the two types of communities.

1.5. Background information

The past decades have witnessed the development of information technology like never before in the history. The distribution channels of information have changed profoundly, giving rise to new possibilities that none could have imagined being possible fifty years ago. The rise of World Wide Web as the dominant new tool for searching information has created countless new opportunities for people to find out about anything and everything by just simply browsing through different sites.

The internet is used in every aspect of our lives. As a student, I use it constantly to find information about different topics of interest and seek answers to questions I do not know. It is an essential tool for surviving my studies. In my private life, I use the internet to support various functions, e.g. to learn about bus schedules, pay bills, find out about times for movies, or learning about the opening hours of a certain shop. One of the most important uses of the internet in our private lives is also the communication channels it provides. By using Skype, MSN Messenger or simply Emails, we are able to keep in touch with our friends and communicate easily with those that live far away from us.

Also in business world, the importance of the internet is vast. Firms have websites that they use to inform their customers about their products and services. They use intranets to share information inside the firm. In addition, they also use extranets that allow controlled access to sites by customers or other stakeholders, e.g. password protected sites where a certain customer can see its own orders and situations. Just as private person, firms also rely on the internet to take care of daily activities of administrative tasks and e.g. communicating with business partners and own

personnel. In fact, communication with peers is one of the most significant parts of working nowadays, and more and more of this communication is moving to online environments. The line between private and working life has also blurred as a result these communication methods, e.g. in Skype or Emails, one has both their work and private life contacts.

One of the most recent developments in the field is social media. Nowadays, connecting with friends and colleagues is taken to a whole new level with MySpace, Facebook, Twitter and the newest introduction of Google+. These social media platforms allow people to communicate, share and connect with peers and form a community in a whole new setting. While these previously mentioned platforms are more directed to private life uses, there are also communities and networks for more professional purposes. LinkedIn is an example of such community, which links professionals all around the world in a single platform, where they can join groups to discuss topics of their interest. Firms have in fact explored these opportunities brought about by the development of social media, and have invested in creation and building of their own virtual professional communities directed to customers and other stakeholders. Therefore, during the past years marketers have been eager to learn more about such virtual communities and their uses.

Another great interest to marketing scholars during the past decades has been the notion of market orientation. Various researchers including Jaworski and Kohli (1993) have argued that market orientation results in positive business performance due to better meeting customer needs and expectations. To do this, the firms need to understand their customers and their businesses better. In fact, in order to gain more customer insight, many companies have been involving customers in their business processes and forming a more cooperative relationship with the customers. Such customer participation can be found especially in new product development related tasks. (Chan et al., 2010; Plé et al., 2010).

New product development is one of the three core processes for creating customer value (Ramaswami et al., 2009). It is hence a crucial part of any firms operation and success. One of the newest trends in new product development has been involving customers in the new product development process, and this topic has been researched by many scholars (Von Hippel, 1986; Ramaswami et al, 2009).

1.6. Structure of the study

In this first chapter of this thesis, I have introduced the purpose and objectives of this research, and presented my research questions. I've discussed briefly the existing literature on the topic and positioned the current research in this field.

In the second chapter, I will discuss customer roles and customer participation in firms in more detail. I will review the literature around customer participation and then study the literature around virtual communities.

The third chapter of this thesis focuses on exploring new product development. I will first briefly discuss the role of new product development in firms, and then move on to studying how firms involve customers in their new product development processes.

In the forth chapter of this thesis, I'll summarize the findings from the two previous chapters, and introduce the conceptual framework that guides the empirical part of my research.

The fifth chapter is methodology chapter focusing on explaining the methods for this thesis. First, I introduced the case communities and the sponsoring organizations behind them. This was followed by explaining the methods of data collection and finally how I analyzed this collected data. Also, the problems encountered during the data collection and analyses are presented.

In the sixth chapter I present the findings and analysis of the data. Here, I have organized the chapter according to the categorizations found using the grounded theory approach. The themes are organized in accordance with the conceptual framework presented in chapter four. I will also summarize the findings at the end of this chapter and discuss the findings.

The seventh and final chapter of this thesis concludes this research by summarizing the findings of the study. I will also present both theoretical and managerial implications of this research and reflect on my own research method and process.

2. Customer roles

The logic of marketing has changed during the past decades towards a more market oriented view. Market orientation has been defined by Jaworski and Kohli (1993) as a process of tracing and responding to changing marketplace conditions in order to deliver consistent high-quality products and services to ever-changing needs and expectations of customers. Like Jaworski and Kohli (1993) also various other researchers (Deshpande et al., 1993; Harris and Ogbonna, 2001; Matzuno and Mentzer, 2000; Pitt et al., 1996; Narver and Slater, 1990) have studied the effect of market orientation on business performance, and nearly all have found positive correlation between the two. For example, Narver and Slater (1990) studied the profitability of business units as a measure for performance, while Deshpande et al. (1993) highlighted once again the need for accurate market feedback as a crucial part for the overall success of a firm.

While market orientation is important for succeeding in business to consumer markets, it has also been recognized as a key factor for doing well in business to business environments. In fact, the business customer today not only expect the seller company to respond and fulfill their expressed needs but also proactively address the latent and future needs of the customers. To do this, sellers in business to business environment have to have an especially good understanding of their customer's business. (Blocker et al., 2011)

Lam et al. (2010) argue that top management engagement is essential in creating market orientation. In their view, top management sets example and act as role models to rest of the company. However, in this view, market orientation is not studied in firm level, but as a social learning process to acquire and transfer individual level market orientation. Homburg et al. (2011) take this individual level market orientation even further by studying the customer orientation of a certain group of people, in this case sales people. For them, as the sales people are the ones that operate in the frontline of the company and interact with customers, they are the ones best to indentify customer needs and hence build stronger relationships. Joshi (2010) also investigated how sales professionals used their interactions with customers to gain insight on customer needs and perceptions. He found, that through these interactions, sales professionals were then able to converse these customer thoughts into new product development ideas. Once again, it was

customer orientation that led the company to perform better. (Lam et al., 2010; Homburg et al., 2011; Joshi, 2010)

Understanding customer's needs and businesses can be used for especially identifying new product development opportunities. In fact, Slater and Narver (1994) claimed that the one of the main effects of market orientation was on performance of new products that were developed in accordance to the feedback from the market. Following this need to understand customers better especially with regards to sources of innovation, firms have developed the concept of market orientation even further. Many companies have been involving customers in their business processes and forming a more cooperative relationship with the customers. (Chan et al., 2010; Plé et al., 2010).

In this chapter, I will take a closer look at the literature around customer involvement and participation in firm's business processes. I will provide an overview of the academic conversation related to cooperating with customers in order to create value for both parties. Following the discussion on increased customer participation in today's business world, I will move on to study a specific type of platform for customer involvement. This platform is virtual communities, and it is brought forward by the technological advancements and the rise of social media.

2.1. Customer Participation

In today's marketplace, with increasing focus on relationships and networks, the traditional logic of marketing where companies alone create products and services, hence value, doesn't work anymore. Vargo and Lusch (2004) argue that such one-way logic of marketing where the firms exert various marketing tactics on customers is not anymore enough to describe the marketplace dynamics. Instead a two-way communications between marketers and consumers have become increasingly important. As Prahalad and Ramaswamy (2000) pointed out in their research, consumers now play an active role in creating and competing for value in the market. (Prahalad and Ramaswamy, 2000; Vargo and Lusch, 2004)

The "service-dominant" logic of marketing by Vargo and Lusch (2004) identified the notion of "co-created value". According to this view, value creation is becoming more and more co-operational, from value creation by the manufacturing firm to value co-creation in a network. Therefore as opposed to treating "value" as an embedded attribute of the product being exchanged, the conceptual framework of S-D logic views that value is created by the interactions with customers taking place throughout the relational process. According to this view, firms are not delivering value, but instead offer propositions that have the potential to co-create value in partnership with customers (Vargo and Lusch, 2008).

The literature around consumer participation in the production of goods and services can be divided into two themes. The first one of these themes looks at the participation from firm's perspective. The second theme focuses again on the actual management of customers as partial employees. In the first theme, it is recognized that when a firm involves customers in its production process, it gains in productivity, as customer labor is substituting employee labor. The second theme focuses again on the practicalities of actual management of participation e.g. how to motivate customers to participate, how to provide enough training and what are the negative aspects of training customers. So while the first research stream focuses on justifying the use of customer participation in production, the second stream of literature focuses on the practicalities of managing customer participation. (Bendapudi and Leone, 2003)

According to Bendapudi and Leone (2003), customer participation in the production of goods and services has been growing. Especially there has been an increase in customer participation involved with innovation and new product development (NPD). Many researchers (Nambisan, 2002; Fang et al., 2008; Lin et al., 2009) have recognized the usefulness of involving customers in their NPD processes. Here, more than anywhere else, recognizing customer needs and wants and transforming those into product attributes can lead to successful NPD performance. I will look into this topic of involving customer in NPD processes in more depth later on in this thesis.

2.2. Virtual communities

In this section, I will look into a specific platform for customer participation.

One of the main technological advances that have shaped our society and world in the last century was the emergence and development of the internet. For firms, this rise of the internet has led to new opportunities for marketing (Bellman, 2006). Such opportunities include new commercial platforms e.g. Amazon, alternative ways to communicate and share information with your customers using e.g. company websites, and of course the internet provides a new place to send promotional messages to consumers.

Following this logic, there has been an emergence of broad communities of interest built around specific products and services. Such communities employ the notion of co-creation and communication in two-way supplier-to-buyer interactions. What these communities promote is that instead of the traditional way of communication between suppliers and buyers, firms should engage in this new way of communicating. Before, it was buyers that dictated everything, and it was one-way communication where only buyers spoke to suppliers, rarely other way around. This new way on the other hand encourages the suppliers to also engage in the discussions, thus creating a two-way dialogue between the two. (Nambisan, 2002)

In fact, some of such communities have taken this notion so far as to involve customers in their new product development processes. Customers are not only involved in generating ideas for new products but also in co-creating them with the firms. As Sawhney & Prandelli (2000) argued, "a shift from a perspective of exploiting customer knowledge by the firm to a perspective of knowledge co-creation with the customers".

Due to the previous mentioned changes in the business environment and marketing logic, communities of interest are definitely of the interest for marketers and academics. This argument can be backed up by the vast amount of research and interest on the topic, where the main contributors include Rheingold (1993) and Hagel and Armstrong (1996).

Even though there has been quite much research done on the area of virtual communities, there still doesn't seem to be a consensus on the terms and definitions of such communities. However,

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according to Lee et al. (2003), the most cited definitions of virtual community are the definitions of Rheingold (1993), Hagel and Armstrong (1996), and Jones and Rafaeli (2000). These definitions can be found from the table below. From these definitions, some similarities can be observed. First of all, all three definitions mention the virtual space as the platform for all activities. Second, they all include conversational aspect, where people and groups carry on discussions and generate content through the interactions with one another as opposed to broadcasting by one party. Third, there has to be enough members contributing in order for communication and discussions to take place. Fourth, there are authentic human feelings involved, as members form relationships and have personal interactions with each other and have feelings towards the contents they are discussing about.

Author(s)	Rheingold (1993)	Hagel and Armstrong (1996)	Jones and Rafaeli (2000)
Definition	Social aggregations that emerge from the Net when enough people carry on public discussions long enough, with sufficient human feelings, to form webs of personal relationships in cyberspace.	Computer-mediated spaces where there is a potential for an integration of content and communication with an emphasis on member-generated content.	Symbolically delineated computer-mediated spaces that allow groups of individuals to attend and contribute to similar set of computer-mediated interpersonal interactions.

Table 1. Definitions of virtual communities.

2.2.1. The different types of virtual communities

Recently, it has been emphasized, that in addition to the two-way communication between the companies and consumers, consumers use the internet to communicate with each other (Goldsmith and Horowitz, 2006). Therefore, virtual communities are not merely platforms for firm

representatives and customers to communicate with each other, but rather, they also provide platforms for consumers to communicate with each other.

Hagel and Amstrong (1996) have identified four types of communities in their research. These are communities of transaction, communities of interest, communities of relationship and communities of fantasy. Depending on the type of the community, people use such virtual communities to buy, sell and learn about different products and services and brands, connect with other likeminded people, develop social relationships, or take on new identities. In addition, communities can be divided into consumer-oriented communities and business-to-business communities (Hagel and Amstrong, 1996).

Brand community is also one type of virtual community. According to Cova and Pace (2006), a brand community is defined as *"any group of people that possess a common interest in a specific brand and create a parallel social universe rife with its own myths, values, rituals, vocabulary and hierarchy"*. From firm's perspective, this sort of common interest in its brand creates enormous potential for business uses (Cova and Pace, 2006). According to the definition of brand community, it could be seen as a subcategory of communities of interest, where the group is bound together by a specific topic of interest, in this case the brand in question.

For my research purpose, the focus lies in the business-to-business communities. However, I am not interested in communities of transaction, but rather communities of interest and relationships. This would include brand communities that are sponsored by a firm as a subgroup of communities of interest. However, as the goal of my thesis is to focus on new product development using communities, it is more useful to study professional organization sponsored communities as whole. This is because in the business to business setting, the members of the community should be professionals in the field. Also for the purpose of product development, the contributing members should have some level of product and industry knowledge in order to give relevant comments and ideas to any innovation topic. Therefore, keeping the community's aim in mind, i.e. new product development, it is relevant to study professional communities of interest mainly. Naturally, these communities often involve aspects of communities of relationship as well.

When looking at existing communities, there are various types of activities and platforms present. While some communities are based on discussions (most of LinkedIn's professional communities), some communities have a more varied activity offering. For example SAP has a created SAP Community Network, which offers discussion forums, wikis blogs, articles, downloads and many more options to its members. They even have a function called Idea Place, where members can submit own ideas to the community. On the other hand, Outdoor Advertising Executives formed by a manager in ClearChannel, has only LinkedIn activity with discussion function. Therefore communities do not follow an identical design, but have varying functions in them. Firms are able to vary these different functions with accordance of the aim of the community.

2.2.2. The uses of virtual community

Firms can use communities co-create with their customers (Nambisan, 2002). In addition to this, there are also other business uses of virtual communities for firms.

Hagel and Armstrong (1996) have identified that firms are able to provide better product support and service delivery by using communities. As they learn more about their customers, they are also able to answer to customer needs better. Algesheimer et al. (2010) added that community members have higher engagement and loyalty towards the sponsoring firm. They also mentioned that this often led to useful feedback and referrals, i.e. positive word of mouth when members tell other people about the community and its benefits to them. The strengthened relationship between the community members and sponsoring firm has also received lot of research interest (Hagel and Armstrong, 1996; Nambisan and Baron, 2007). Kozinets (2002) contributed to this discussion further by introducing the aspect of consumers in such communities as the source of market research data. He suggested that marketers could use the communities that include consumption-related topics to gain data for conducting market research. Naturally, all these can be seen as leading to increased business performance in the form of increased sales (Brown and Eisenhardt, 1995).

In addition to the previously mentioned uses of virtual communities, firms can also aim to strengthen their brands (McWilliam, 2000). Brand communities are built exactly for this purpose.

Here, the discussion and the interest lies around the particular brand and firm have an opportunity to really advertise and support their brands.

As can be seem, there are many reasons and goals for a company to engage in sponsoring a virtual community. This thesis is limited to focus on those communities that would support NPD and innovation. The reason for this is that NPD is an essential part of any firms' operation and growth, and plays a vital part in marketing management and strengthening of customer relationships (Ramaswami et al., 2009). Also, following the service-dominant logic of marketing, this process truly engages customers in value co-creation, as customers are engaged in the two-way dialogue with the firm. However, it should be noted that some of the other uses of virtual communities might also apply in a community focusing on NPD. For example, it is a community that engages its members in innovative ideas is likely to also increase the customer loyalty towards the sponsoring firm, raise awareness, and strengthen relationships between the supplier and buyer. (Nambisan, 2002)

I will discuss NPD activities in virtual community setting later in this thesis after first looking into the NPD process in more detail.

3. New Product Development

In this chapter, I will discuss the literature around new product development (NPD) and the increasing interest towards involving customers and other stakeholders like suppliers and competitors in the process. I will study the reasons for involving these stakeholders and the benefits and costs of such involvement. I will also study how firms manage their NPD process, and finally I will discuss how virtual communities can be used as a platform for NPD. I will start this chapter by a short overview of new product development in firms.

3.1. New Product Development in firms

Firms innovate and develop new products in order to stay competitive in today's world. They need to meet and anticipate the constantly changing market needs, and develop products to match those needs. It is vital for firms to succeed in this new product development, as it is essential for survival and renewal of organizations and for growth to happen (Brown and Eisenhardt, 1995; Yli-Renko and Janakiraman, 2008).

From firm's strategic point of view, new product development and launch is one of the most crucial tasks for managers. In fact, managers have to consider customer needs and perceived technical superiority together with meeting the budget constraints. Even though this sounds quite easy, it is nothing like that. It is only by successfully managing this NPD process that sets companies apart from each other and provides some firms with competitive advantage compared to others. (Brown and Eisenhardt, 1995; Tzokas et al., 2003).

New product development is one of the three core processes for creating customer value. NPD is a process where the goal is to create something that customers need and want. For a NPD process to be successful, it should provide customers with products that are *"a) unique and differentiated, b) enjoy market success and are c) developed in a time-efficient manner"* (Ramaswami et al., 2009). As NPD is one of the core processes for creating customer value, it naturally has high impact on the overall market performance of the firm. (Ramaswami et al., 2009).

Tzokas et al. (2003) introduced 20 evaluative criteria to assess the performance of NPD processes (see Table 1. below). These criteria were divided into five dimensions that were market-, financial-, product-, process-, and intuition-based. The criteria included such as *customer acceptance*, *customer satisfaction*, *sales objectives*, *sales growth*, *market share*, *profit objectives*, *margin*, *IRR/ROI*, *stay within budget*, and *marketing chance*. From these it can be seen that these performance measures for NPD process related to business performance as whole. There was a strong focus especially in both market-based (7/20) and financial-based (4/20) criteria. This sort of criteria focus on these two dimensions tells us that NPD process' performance is strongly linked to the numerical measures of the business operations. Therefore, in judging the success or failure of NPD process, attention should be paid to the numerical objectives and performance of the process. Following this, these numerical objectives can be seen as an indication for customer satisfaction and meeting customer needs, as without the latter, there would hardly be increase in e.g. sales or market share.

Market-based	Financial-based	Product-based	Process-based	Intuition-based
Customer acceptance	Break-even time	Product performance	Stay within budget	*Marketing chance*
Customer satisfaction	Profit objectives	Quality	Introduced in time	*Intuition*
Sales objectives	IRR/ROI	*Product uniqueness*	Time-to-market	
Sales growth	Margin	*Technical feasibility*		
Market share				
Sales in units				
Market potential				

Figure 1. Dimensions and evaluation criteria by Tzokas et al. (2003)

In general, there are different types and levels of innovation. In fact, there are several categorizations of innovativeness. These terms include radical, major, moderate, incremental and minor innovations. While incremental innovation is more related to refining, improving and exploiting and existing product or service, radical innovation is a more profound type of creating an entirely new type of product or service (Story et al., 2009). For the purpose of this research, I will not make difference to what type of innovation is in question, but treat all variations of innovation as NPD.

3.1.1. Managing New Product Development process

One of the key factors defining new product development success is cross-functional integration. This includes the degree of interaction, communication, information sharing and coordination across different functions inside an organization. According to Brown and Eisenhardt (1995) and Gupta and Wilemon (1986), one of the most important factors guiding the success of NPD process is the integration of Marketing and Research-and-Development (R&D) functions. This integration of marketing and R&D enhances the flow of marketing information, which is crucial for the success of NPD process. (Troy et al., 2008; Brown and Eisenhardt, 1995; Slotegraaf and Atuahene-Gima, 2011)

Ernst et al. (2010) add that also Sales has an important role in the success of NPD process. They argue that it is in fact the cross-functional cooperation among Sales, Marketing and R&D that leads to successful NPD project performance. In their study, they found out that the integration of Sales and R&D was especially important in the concept and product development stages, while the integration of Sales and Marketing was crucial in the concept development stage but quite meaningless in the implementation stage. This is against the general belief that a lack of cooperation between Sales and marketing in the implementation stage can lead to failure of the product. In fact, the results from this study found that even though cooperation between the two functions did have positive impacts for project performance and market share, the effect was so weak that it didn't carry a significant role. The authors argue that this particular cooperation between Sales and Marketing is more vital in the earlier stages of NPD. From these findings, it can be seen that the cross-functional integration effects differ across NPD stages. Therefore, it is essential for firms to consider which function integration suits which stage and purpose. (Ernst et al., 2010)

Troy et al. (2008) argued that decisions regarding how to integrate various functions for NPD should not be taken lightly. As integration is a difficult process to implement, firms should be especially careful with integration design and decisions in order to reach the most effective form. Here, managers play a very crucial role, as they make the decisions regarding the level of integration, how integration should occur, which types of information should be shared, which functions should be integrated and in which stages of the NPD process integration should occur. Also Sethi et al. (2001) highlights the importance of senior management. He argues that the active

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moderating of the NPD project by senior management affects the innovativeness significantly. As can be seen, the role of management in NPD process is crucial for its success. (Troy et al., 2008; Sethi et al., 2001)

According to Slotegraaf and Atuahene-Gima (2011), there are also downsides in cross-functional teams. While disparate knowledge and perspectives that exist across different functions can be valuable strategic asset for new ideas, it can also affect adversely on decision making and effectiveness of cross-functional team. The authors explain that one way to overcome these potential downsides is to increase the stability of project team members, i.e. the core members of the cross-functional team remains constant for the duration of the project. However, Rodan and Galunic (2004) pointed out that greater stability might also lead to unwanted results, as it might hinder the sharing of heterogeneous knowledge. But when the stability of the team is limited to a certain project, it is unlikely that the sharing of knowledge hinders. So it is important to keep stability within a single project, but then change the team for another project. (Slotegraaf and Atuahene-Gima, 2011; Rodan and Galunic, 2004)

3.2. New Product Development with customers

One way to look at innovation and product development is to study whether the innovation is acquired or internally developed. Lee and Lieberman (2007) argued that a firm wanting to enter a new product market, an important consideration is the choice of market entry mode. To challenge the traditional view of firms entering new markets organically through internal development, an alternative of acquiring an existing firm or business unit has become a popular option. As can be seen, product development is not anymore treated as a function purely carried out inside the firm. (Lee and Lieberman, 2007)

Continuing with the theme of NPD being carried out outside the firm, Carson (2007) studied how client firm should use its control when dealing with outsourced NPD. He found out that while *pre-project* control increased overall performance of the NPD process, *after-project-has-started* control decreased performance. In a sense, even though Carson's study focused on outsourced NPD, similar rules might also apply in case of customer-driven innovation. Even though it is not directly applicable as customers are not same as suppliers, idea competitions could be compared

to this type of outsourcing of NPD. An example of such would be the web-based platform of InnoCentive[1] that connects firms with a challenge or a problem with individual problem solvers. In such cases, the firm sets the problem and defines the scope of the challenge clearly, i.e. has high *pre-project* control. However, during the actual idea generation and problem solving part, the firm exerts very little control, as the individual problem solvers battle with the challenge by themselves.

Following this change in the logic of product development, a common trait in academic literature discussing the success and failure of NPD process is the strong focus on customer orientation. It is argued that customer orientation in NPD is one of the most essential factors in designing a successful new product or service (Tzokas et al., 2003; Ramaswami et al., 2009). Recognizing this need for customer orientation, many companies have taken one step even further in meeting customer needs. Companies like Cisco, Microsoft, Dell, and many car manufacturers have integrated their customers in their innovation management and new product development. Customer roles vary from product testing to idea generation depending on companies and product and innovation type. It is through these activities of engaging customers in NPD that allows firms to answer to the growing individualization of demand and truly meeting the requirement for customer orientation. (Tzokas et al., 2003; Ramaswami et al., 2009; Fuchs et al., 2010).

As a result, it is no surprise that one of the main interests in the past NPD studies has been the focus on customer involvement in NPD. Ramaswami et al. (2009) call this customer driven development (CDD), which refers to the degree that customers get involved in NPD process. Yli-Renko and Janakiraman (2008) point out that the size and relational embeddedness of the customer portfolio of a firm affects the impact of the customer involvement in firm's NPD. Nevertheless, Sethi et al. (2001) argues that in general customer influence in product development increases innovativeness. Also Ramaswami et al. agree with this claim, as their study shows that the companies that engage in CDD tend to perform better than those who do not. However, Yli-Renko and Janakiraman comment that such positive influence is not always true. For example customer involvement is likely to affect the NPD process negatively in a firm that is heavily dependent on few dominant customers for a majority of its revenues. (Ramaswami et al., 2009; Yli-Renko and Janakiraman, 2008; Sethi et al., 2001)

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[1] InnoCentive: https://innocentive.com Cited May 25, 2011

Product development process can be divided into two distinct stages. According to Bonabeau et al. (2008), there is the early stage focusing on evaluation of novel products' prospects and eliminating the less promising ones, and the late stage focusing on maximizing the value of those products that have been chosen for development. A company that involves customers in idea generation might end up with a large amount of novel products. Following this, it is then a challenge for such a company to follow through the early stage of product development; i.e. finding the right ideas to develop further. In fact, Chandy et al. (2006) claim that generating too many ideas might harm company and lead to low speed to market. (Bonabeau et al., 2008; Chandy et al., 2006)

Instead of trying to select the right ideas, firms could also approach the problem through customers. For example, Hoffman et al. (2010) studies how firms should find the "right" type of customers for their NPD processes. He argues that this right type of customers have an emergent nature, which means that they can imagine and envision how product concepts should be developed in order for them to succeed. Von Hippel (1986) again identifies "lead users" for providing market research data. These lead users are consumers whose current strong needs will become general in marketplace in the future. Following this, studying the needs of lead users will give firms a direction with regards to emerging needs for new products, processes and services. (Hoffman et al., 2010; Von Hippel, 1986)

Even though there has been a trend towards involving customers in NPD processes, it still seems to be raising a lot of questions on how to actually do this. Various researchers have their own opinion on what NPD process involving customers should look like, and how customers should be treated and what is their role in NPD. In the following chapter, I will explore these different views of integrating customers in firm's new product development.

3.2.1. The customer roles

The topic of customer involvement in NPD has been studied quite much during the past years. Already before that, in 1986 Von Hippel had recognized the importance of communication with key customers on improved product design. Few years later, in 1990, Gupta and Wilemon argued that for a fast and successful product development to take place, it needed early stage customer involvement in addition to having a cross-functional internal NPD team. Numerous other studies

around that time also followed this line of thought in arguing that frequent communication with customers provides more information to the product development team (Brown and Eisenhardt, 1995; Von Hippel, 2002; Gupta and Wilemon 1990).

There are many different ways to study customer involvement in NPD. Kaulio (1998) introduces seven different methods for customer involvement in product development. She categorizes these methods into Quality function deployment, User-oriented product development, Concept testing, Beta testing, Consumer idealized design, Lead user method, and Participatory ergonomics. All these methods are then applied to different types of products, ranging from consumer packaged goods to computer systems. What is important in Kaulio's findings is that different methods of customer involvement suit to different phases of the design process. The author characterizes these three phases into specification phase, concept development and prototyping. In addition, these seven methods also support customer involvement in different ways, which are design for customers, design with customers and design by customers.

Dahan and Hauser (2002) take this study of customer involvement in product development into virtual spaces. In their study six web-based methods of customer involvement in different stages of product development process. The authors identify possible user-interfaces, initial applications and validity tests for each of these methods. For example, user design makes it possible for firms to identify new opportunities and improve design and engineering of products. With virtual concept testing again, the firm is able to test a product without actually having to build a product. Naturally making changes to such products concepts is much easier and less costly than in the case of a physical product testing.

While Dohan and Hauser (2002) focused more on the virtual effects of the customer involvement and Kaulio (1998) on specific customer involvement types, Nambisan (2002) draws a more general view of the customer roles in different NPD phases. He argues that customers can act as resource, co-creator and user in NPD processes. In his study, he identifies which customer role is most suitable in different phases of NPD, and what are the main issues and challenges facing managers when dealing with each kind of customer involvement. As can be seen from the Figure 1 below, customers as resources are best for ideation, customers as co-creators are best suited for design and development, while customers as users can act as product testers or provide product support.

Customer Role	NPD Phase	Key Issues/Managerial Challenges
Customer as resource	Ideation	• Appropriateness of customer as a source of innovation • Selection of customer innovator • Need for varied customer incentives • Infrastructure for capturing customer knowledge • Differential role of existing (current) and potential (future) customers
Customer as cocreator	Design and development	• Involvement in a wide range of design and development tasks • Nature of the NPD context: industrial/consumer products • Tighter coupling with internal NPD teams • Managing the attendant project uncertainty • Enhancing customers' product/technology knowledge
Customer as user	• Product testing • Product support	• Time-bound activity • Ensuring customer diversity • Ongoing activity • Infrastructure to support customer-customer interactions

Figure 2. Customer Roles in NPD (Nambisan 2002).

What can be seen from these three approaches towards understanding customer roles in product development is that different customer roles suit at different stages of product development process. However, while Kaulio (1998) and Dohan and Hauser (2002) identify specific product development phases and precise customer roles, Nambisan (2002) leaves these phases and respective roles on a more general level, leaving more space for interpretation. For the purpose of current study, in order to elaborate the customer roles depending on the firm specific aims, the three customer roles proposed by Nambisan (2002) will be used. Hence, in the current research, I will not divide customer roles into more specific roles than customer as resource, customer as co-creator and customer as user. For the purpose of new product development phases, I will also use the three phases suggested by Nambisan, i.e. ideation, design and development and product testing and support.

3.3. New Product Development with suppliers and competitors

In addition to involving customers in NPD activities, firms have also involved suppliers in their NPD projects. Cooperating with suppliers means that buyer and supplier are able to combine their R&D resources and exploit the joint capabilities through strategic integration of buyer-supplier relationship. Buyer is also able to gain new competences, share risks, increase the speed to market and conserve own resources. However, as Sobrero and Roberts (2001) point out, there is also a

trade-off between short-term efficiency-increasing and long-term learning-enchasing outcomes of involving suppliers in NPD. (Sobrero and Roberts, 2001; Wagner and Hoegl, 2006)

With regards to involving competitors in ones NPD processes, Fusfeld and Haklisch (1985) recognized already over 25 years ago that in order to respond to intense global competition, many companies can't afford to follow a so called "go-it-alone" strategy in R&D. Instead, companies engage in cooperative purposes in a very careful way. However, not all industries can and should engage in such cooperative R&D. Fusfeld and Haklisch argue that it is the high technology industries like microelectronics, energy and chemicals that account for the most of the cooperative activity at the time their research was carried out. These firms usually had very large R&D budgets of their own. (Fusfeld and Haklisch, 1985)

Even though Fusfeld and Haklisch' research was carried out over 25 years ago, it is likely that the results still apply. It is often the high-technology firms that have to invest in R&D considerably, and it is them who then might need some synergy benefits gained from the cooperation between the rivals. For a firm with low technology products, the need for product development with respect to technology is quite small. In those cases, also the need for cooperation is quite nonexistent.

According to Belderbos et al. (2006) rival companies engage in R&D cooperation for various reasons. These reasons include the need to share R&D costs, ability to gain synergy effects by pooling firms' resources, and the possibility to affect regulations and industry standards together. They also say that there are different levels and types of cooperation between rival companies. E.g. companies can cooperate in product R&D, process R&D, or both. Also Burreau and Dogan (2010) agree with this different level of cooperation. In their research, they see firms cooperating partially, e.g. develop some product components jointly and some separately. They also mention that if products would be developed fully in cooperation, the cost would be intensified competition due to reduced product differentiation. (Belderbos et al., 2006; Burreau and Dogan, 2010).

3.4. Using Virtual Communities for New Product Development

Even though there has been quite many studies done on the topics of virtual customer communities and customer involvement in NPD, there is still only a limited amount of study done that combines these two topics. One of such study is the highly quoted article by Nambisan in 2002. In his article, he presents a framework that shows a set of design themes that companies need to consider when they are developing a virtual customer community for NPD purposes. The main themes he proposes are customer interaction pattern, customer knowledge creation, customer motivation and integration of virtual customer community and NPD. (Nambisan, 2002)

One of the most crucial themes in Nambisan's research is the integration of VCC and NPD. Here, he claims that there should be formal establishment of linkeges between the internal NPD team and the online customer community. It is through this, that customer contributions can be channeled to appropriate members within the organization. However, he recognizes that the degree of integration can vary according to different customer roles and nature of NPD tasks in hand. For example, with time-critical tasks, more intense integration will be needed. (Nambisan, 2002)

4. Conceptual framework

Past studies have identified virtual communities as a platform for new product development (Nambisan, 2002; Nambisan and Baron, 2007), but have not studied why companies use specific types of activities in their communities. In addition, they have not commented on how companies communicate with their members, or how dialogue is carried out. There are also no studies done on how company representatives moderate the communications. And what's more, previous researches do not explain how companies should take into account their competitors when designing such virtual community. Finally, while e.g. Nambisan's (2002) model provides a good overview of NPD using virtual customer communities, it doesn't link the NPD process with customer involvement to marketing and sales processes of the firm. This relationship should be explored in more detail and stated more explicitly.

For these purposes mentioned above, in my research I will study virtual communities for new product development from the perspectives mentioned below. These factors are summary from the previous sections of my thesis, and act as a guiding tool for analyzing the data.

CUSTOMER ROLES AND NPD PHASE: Kaulio (1998), Dohan and Hauser (2002), and Nambisan (2002) all recognized the need for different customer roles for different NPD phases. In this thesis, I will use Nambisan's view, which recognizes three customer roles applicable for NPD. These roles are customers as resource, cocreater and user. He then suggests that customers as resource is best for ideation, customers as cocreator is most suitable to take part in design and development, and customers as user works fit for product testing and product support. In my research, as part of understanding how companies use professional communities as part of their NPD, it is important to study for which types of NPD phases the firm wants to use its customers for.

MEMBER RELATED TOPICS: This is a two part factor. First part deals with customers and second with competitors. In the first part, as Hoffman et al (2010) argued, firms should find the "right" type of customers for their NPD processes. Von Hippel (1986) identified "lead users" for this purpose. He claimed that these lead users will provide the company direction with regards to emerging needs for new products, processes and services. For the purpose of my study, I want to find out, how firms find their "lead users" and "right" customers for NPD.
The second part of member related topics is how companies react towards competitors with

regards to cooperating for NPD. Fusfeld and Haklisch (1985) recognized that many companies engage in cooperative purposes with rival firms in R&D in a very careful way. Most commonly this happened in high technology industries where firms usually had very large R&D budgets of their own. According to Belderbos et al. (2006) the reasons for cooperating with rivals included the need to share R&D costs, ability to gain synergy effects by pooling firms' resources, and the possibility to affect regulations and industry standards together. Burreau and Dogan (2010) also suggested that firms can cooperate partially, e.g. develop some product components jointly and some separately. In my research, I want to study how companies take into account their competitors when designing and managing communities. Is there cooperation with rivals or do the companies limit rival's access to their community? If rivals are allowed to participate and co-innovate, what are the reasons for this?

INTERACTION RELATED TOPICS: While both Rheingold (1993) and Hagel and Armstrong (1996) recognize the importance of member generated content in virtual communities, they nor other researchers take stand on what type of interaction forums exist in virtual communities. In fact, there has been no research on the different types of activities (e.g. discussion forums, blogs, wikis or Idea Labs) in virtual communities, and what is the reason for particular type of activity. There are also no researches conducted on how firms communicate with their customers in virtual communities. There is no research done in the field of virtual communities that have studied how topics of discussion are decided. Is it members or the sponsoring firm that starts discussions? For the purpose of my research, as my aim is to study the practicalities of managing communities for NPD, it is important to understand the logic behind content creation in communities.

INTEGRATION RELATED TOPICS: This part is again two-folded. First part deals with integration between virtual community and company, and the second part with cross-functional integration within firm. According to Nambisan (2002), there should be a formal establishment of linkeges between the internal NPD team and the online customer community. It is through this, that customer contributions can be channeled to appropriate members within the organization. In my resrach, I have divided this linkage into two parts, from virtual communities to firms, and the internal integration of functions within firms. This is because, I want to study how the communication and transfer of ideas and information actually go from virtual communities to NPD members. Do firms have direct linkages between virtual communities and NPD teams as is suggested by Nambisan (2002) or do they go through some other function within a firm, from

where the information is then passed on to the appropriate people. Here, the importance of cross-functional integration inside the firm proposed by Troy et al. (2008), Brown and Eisenhardt (1995), Slotegraaf and Atuahene-Gima (2011) is also tested.

As part of the integration related topics, I also want to explicitly study the link between new product development and marketing and sales processes, in order to highlight the importance of this to overall market performance of the firm. NPD is one of the core processes for creating customer value, and it naturally has high impact on the overall market performance of the firm (Ramaswami et al., 2009). These impacts on market performance have been studied by Tzokas et al. (2003), and they introduced 20 evaluative criteria to assess the performance of NPD processes. These criteria were divided into five dimensions that were market-, financial-, product-, process-, and intuition-based. With regards to involving customers, Tzokas et al. (2003) and Ramaswami et al. (2009) have argued that customer involvement in NPD is one of the most essential factors in designing a successful new product or service. In addition, when discussing the outcomes for virtual communities, researchers have identified that virtual communities increase engagement level and loyalty of its members, they lead to positive word of mouth, strengthen relationships, and can act as a source for market research data (Algesheimer et al., 2010; Hagel and Armstrong, 1996; Nambisan and Baron, 2007; Kozinets, 2002). However while these positive links between customer involvement and NPD, and virtual communities and market performance have been found, e.g. in Nambisan's (2002) study, there is still no link created between customer involvement in NPD processes through virtual communities and overall market performance of the firm. Furthermore, Nambisan didn't make any contribution from virtual communities in NPD to firms marketing and sales processes. As NPD is one of the three core processes of marketing management alongside with customer management and supply chain management, it is important to state this link explicitly. Also the link between using virtual communities for NPD and overall market performance of the firm should be explored more closely.

Following, I would like to present the following diagram modeling the previously mentioned factors that I will be studying in the empirical part of this research. I study these themes in relation to each other, how they work together and which factors affect each other.

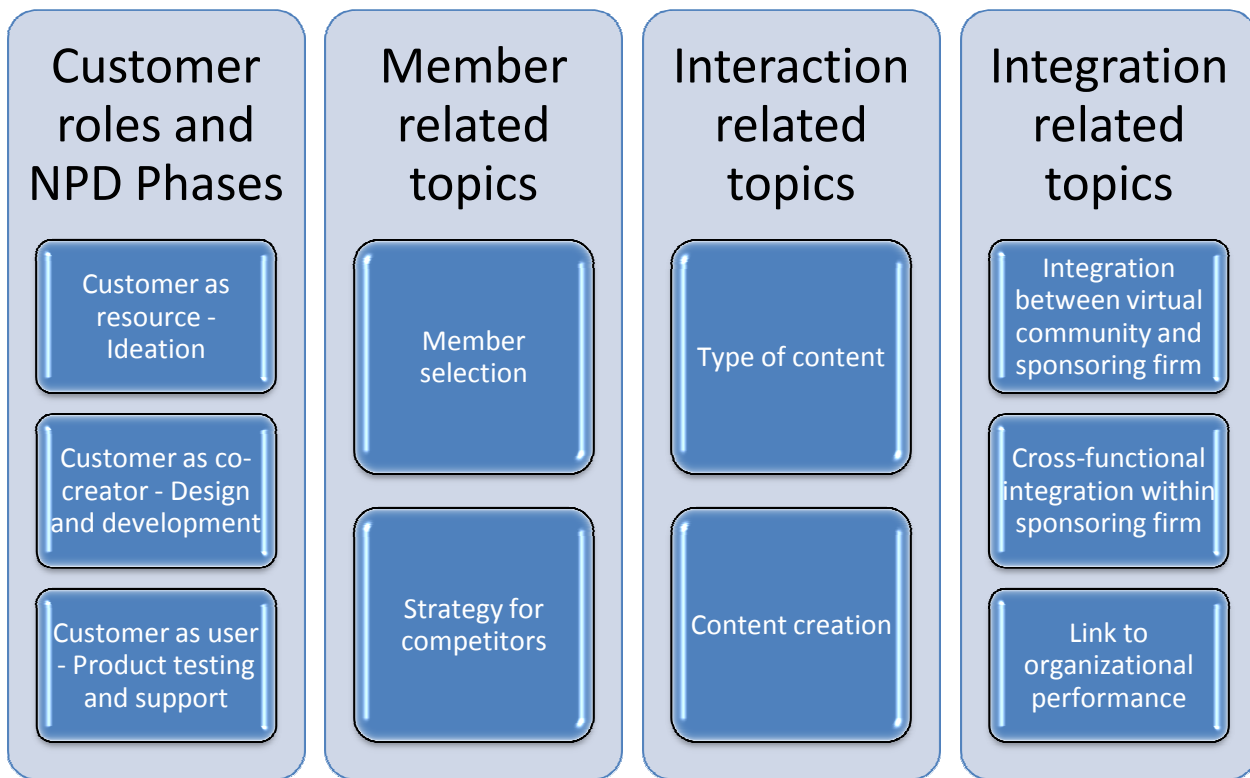| Customer roles and NPD Phases	Member related topics	Interaction related topics	Integration related topics
Customer as resource - Ideation	Member selection	Type of content	Integration between virtual community and sponsoring firm
Customer as co-creator - Design and development	Strategy for competitors	Content creation	Cross-functional integration within sponsoring firm
Customer as user - Product testing and support			Link to organizational performance

Figure 3. Themes and topics studied in this research.

5. Methodology

The previous chapters have concentrated on exploring the literature around customer participation and new product development. From the literature it was noted, that a very common type of customer participation was in firm's new product development processes. As a result of technological advancements and change in the communication logic between firms and its customers, virtual communities were introduced as a platform for such customer participation. Using the findings from literature, I introduced the conceptual framework guiding this research. This framework relies on four elements through which I study the phenomena. These four elements are customer roles and new product development phase, member related topics, interaction related topics and integration related topics. It is through this framework that I aim to answer my research questions presented in the beginning of this study. In the next section, I will present the case communities that I have selected to study for the purpose of this research. After that, in Chapter 5.2., I will introduce the methods I've used for this qualitative study.

5.1. The case communities

My aim in this thesis is to study few virtual communities from different industries and different types of market conditions. I am using multiple cases approach where I've limited my focus on three cases in order to get a more profound understanding of these selected case communities. According to Yin (1994) case study method is especially suitable for studying complex social phenomena. In this case, where the purpose is to study a contemporary phenomenon within its real life context, the boundaries between the phenomenon and its context is blurred, and the two cannot be separated from each other. Thus, as we are dealing with complex social phenomena which are embedded in real-life contexts, the case study is very appropriate method to be used. Furthermore, as the investigator has little or no control over the events, it is again a typical characteristic for appropriateness of a case study method. Yin (1994) has also identified that the type of research questions appropriate for case study answers to questions like "how" or "why". In this current research, as the research question is a "how" question, this approach is again suitable method.

This case study approach was suggested to be appropriate method also by Nambisan (2002) as the data from case studies could provide rich descriptive data on the design and evolution of virtual customer communities in different NPD context. In addition, Nambisan also mentioned that case studies could shed more light on organizational strategies and mechanisms companies employ to support virtual communities operations, and how the existence of virtual communities affect the creation of customer value and new product development success.

For these purposes, I chose to study the two virtual communities of Philips Healthcare and the virtual community of Constructing Excellence. In the following part of this chapter I will take a closer look at each of these three case organizations in turn and describe the communities in more detail.

5.1.1. Philips Healthcare

Before presenting the virtual communities of Philips Healthcare in more detail, I want to first shortly introduce Philips and its Healthcare business. The information in presented in this chapter has been collected from Philips and Philips Healthcare websites and individual community sites. In addition to these publicly available resources, I've used the information from interviews with the Philips personnel to form an overall picture of the community operations and goals.

Royal Philips Electronics is a diversified Health and Well-being company with headquarters in Netherlands. Philips employs roughly 117 000 employees with sales and services in more than 100 countries worldwide. The company has divided its operations into three core businesses, which are Healthcare, Lightning, and Consumer Lifestyle Products. Together, the sales for the year 2010 was EUR 22,3 billion.

For this particular research, my attention lies in the Healthcare business of Philips, which provides all medical devices. In 2009, the Healthcare business accounted for nearly 33% of Philips' total sales. The reason for this particular interest is due to the nature of the Healthcare business. The Healthcare sector of Philips is targeted mainly to professional markets instead of consumer markets with the exception of Home Healthcare. As my research interest lies in the business-to-business markets, this choice of business to concentrate on was quite clear.

What makes Philips Healthcare especially interesting for my research is the high focus on the operators and end users of the products when designing and developing the products. Philips Healthcare sees their operation as combining "*unique clinical expertise with human insights to develop solutions that deliver value throughout the care cycle*"[2]. Basically this means that Philips aims to learn what is like to be a patient and what kinds of complexities the clinicians giving the care face. It is by using these insights that Philips develops more *intuitive, affordable* and *better* technology solutions. What can be seen from this approach towards the users of the products is that Philips Healthcare is very customer oriented in its view. In addition, by involving clinicians, end users and other industry professionals in their product development processes, Philips Healthcare is truly using customer participation in their operations. In fact, it was customer focus and participation in mind, when Philips created its virtual communities. These communities were advanced in the field, and include various different types of activities.

There are four virtual platforms that Philips Healthcare has created or is sponsoring. The first one is *NetForum Community* which is more focused on products. Here, the users of the Philips equipment are among other things able to share information about how to use these equipments for a specific treatment and attend various webinars about specific tools and equipments. The second one is *GetInsideHealth*, which is a Philips sponsored platform which helps clinicians and other target audience of Philips in their daily work by offering relevant content to them. This content is for example recent publications in the field, important peer reviewed scientific articles and interviews on specific topics with industry specialists. The third platform is *ListenInsideHealth*, which is a tool for clinicians and other target audience that helps them to understand their patients better. This platform focuses on patients by using social moderating tools to follow and analyze what people are saying publicly on the web. Basically this tool aims at providing the users of this platform both qualitative and quantitative data about the specific topic of interest in the Healthcare industry by analyzing what has been discussed on web. The forth platform of Philips Healthcare is *Innovations in Health*, a LinkedIn group which discusses all kinds of Healthcare related topics.

In this research, I will concentrate on two of the Philips Healthcare communities more closely. These two communities are NetForum Community and Innovations in Health.

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[2] Philips.com (Cited 20.6.2011.) http://www.philips.com/about/company/businesses/healthcarehighlights/index.page

5.1.1.1. NetForum Community

NetForum Community is the oldest of the four social platforms of Philips Healthcare directed at such customers of Philips that use medical imaging systems. *NetForum Community* was founded in 2004 and it first started as a way to share ExamCards to customers. These ExamCards are human-made or manmade protocols, which act as a certain level of best practice. The members of NetForum community could download these ExamCards and use them in their own MRI scanners for a specific treatment. Later, the members were also able share user experiences, optimize systems performance, download tools to enhance clinical capabilities, and hence maximize value of their existing investment on Philips equipment. The tools available on the NetForum include case studies, white papers, publications from the field, webinars and presentations about the Philips equipment.

The reason I chose to study NetForum Community in more detail lies in the potential of the community for product development and innovation. As the focus of my research lies in the potential of virtual communities in fostering new product development and innovation, this community seemed to have all the building blocks for that. The community members that publish exam cards and share best practices act as *customer as user* defined by Nambisan (2002), which means that these members provide product testing and product support functions in the group. Also, with regards to e.g. white papers, also other customer roles could be present. Therefore, it is my interest to study this community in more detail, in order to find whether and how Philips uses this group for NPD and innovation.

5.1.1.2. Innovations in Health

Innovations in Health is a Philips group in LinkedIn targeted at health professionals all around the world who want to share, discuss, develop and foster innovative solutions in healthcare. The group was created in 2009, and currently has over 40 000 members. It is one of the largest health-related groups in LinkedIn. In addition, Innovations in Health has 4 subgroups that are Innovations in Women's Health, Innovations in Cardiology, Innovations in Oncology, and Innovations in Radiology. Members of the group include healthcare professionals from all over the field,

including industry experts, consultants, analysts, clinicians, management, administrators and executives. The community encourages its members to discuss challenges, opportunities and changes facing the healthcare industry, and together aim to improve the quality and process within healthcare organizations.

Innovations in Health differ greatly from NetForum community. In fact, the two communities are quite an opposite of each other what comes to the content of the information shared on the communities. While NetForum community focuses on Philips' own products, Innovations in Health makes no mention of any specific products nor promotes Philips products in any of the discussions. This lack of showcasing Philips' products caught my interest and made me wonder what the reason behind this lack of focus on Philips' products was. Also, as the name of the community already implies, the community is focused on discussing all types of innovations and innovative solutions in healthcare industry. It is therefore interesting to learn about the reasons and goals of this community and how Philips sees this community as part of their new product development and innovation.

5.1.2. Constructing Excellence

The other case of this research was the Collaborative Working Champions community sponsored by Constructing Excellence. Before describing the community in more detail, I will first shortly present the sponsoring organization behind the community. As with Philips Healthcare, also the information for explaining Constructing Excellence and Collaborative Working Champions was gathered from organization's websites and other publicly available resources. In addition I used material from interviews to form an overall picture of the case community.

Constructing Excellence is a membership organization comprising of companies from all over construction industry in United Kingdom. It is a cross-sector and cross-supply chain organization comprising of firms including client organizations, contractors and their supply chain companies. The organization was formed to support a new type of approach to construction industry. This approach was to strengthen collaborative aspects of the industry as opposed to the prevailing price competition nature of the industry.

Traditionally, as the construction industry was quite fragmented with hundreds of thousands of small and micro businesses with no dominating firm in any sector, the competition was quite heavy with strong focus on lowest price instead of best value. Such focus on low prices led to companies earning very thin or nonexistent margins. In some cases, these companies tried to recoup some of their costs by looking for loopholes in the design of the construction in order to add or make changes to the specifications. By these additions and changes to the specifications, the companies were able to charge more for their products and services, and hence make some profit. However, clients were not so happy with these price increases. In fact, this could result in litigation. However, even without the litigation, there used to be a number of issues causing friction between clients and their contractors and their supply chains. This sort of adversarial relationship between the companies in the construction industry was becoming very harmful and wasteful. In fact, Sir Michael Latham identified in 1994 that there was a waste of approximately 30% in the way the industry procured and delivered its projects.

In order to answer to this increasing concern regarding the way of working in construction industry, some of the client companies together with government started to think for a better way to configure the dynamics of the industry. Following this, they introduced a more collaborative approach to delivering projects, which would result in better value and significantly less friction and disputes that characterize most projects. In this approach, people would start working together at an earlier stage of the project and together find better ways to deliver projects. As part of this initiative, Sir Michael Latham also suggested that this more collaborative approach would reduce the amount of waste as better design and better ways of delivering projects could be developed.

Following the reports by Sir Michael Latham in 1994 and Sir John Egan in 1998, a number of cross industry bodies were formed to support the change in the logic of construction industry. These included Reading Construction Forum, Design Build Foundation, Construction Best Practice Program, Movement for Innovation, Local Government Task Force, Rethinking Construction, Be, Construction Excellence, and Construction Clients' Group. In 2003, in order to simplify the initiative, all these cross industry bodies were united as Constructing Excellence, which acts as an

"*influential voice for improvement in the build environment sector*" with the main role of "*driving the change agenda in construction*"[3].

The actual practices of Constructing Excellence is to collect empirical evidence of what works and what doesn't work in the construction industry in order to strategically set the agenda for industry improvements. To collect evidence, Constructing Excellence does this through innovation and research, demonstration projects and KPIs and benchmarking. In research and innovation, the activities Constructing Excellence takes part in are Task Groups for members, National Platform for the Built Environment, and Modern Built Environment Knowledge Transfer Network. The Task Groups which aim at generating new knowledge are focused on emerging issues for the sector, and benefits all members and provide networking opportunities. The National Platform for the Built Environment is an industry-led group focused on promoting strategic research to the industry and its stakeholders. The current research agenda prioritizes research and innovation in reducing resource consumption, promoting a client driven, knowledge-based construction process, and developing better ICT and automation solutions. Modern Built Environment Knowledge Transfer Network is as the name already suggests a network that aims to bring together organizations that together make up the supply chains in the construction environment. These members of supply chain include businesses (clients, contractors, and suppliers), universities, research and technology organizations, financial operators and government stakeholders. Together, the network facilitates exchange of knowledge and stimulates innovation in the industry.

The demonstrations are another way to collect evidence of what works and what doesn't in the construction industry. Here, the projects that are used as demonstrations must agree to measure their performance with key performance indicators and share this data with Constructing Excellence. Using these data collected from various demonstrations, Constructing Excellence is able to build the case for change to industry.

The third part of collecting evidence is KPIs and Benchmarking. Here, the performance data collected from across the UK construction sector by the Department for Business, Innovation and Skills are published by Constructing Excellence. Using these benchmarking services, companies in construction industry can learn about better ways to measure performance.

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[3] Constructing Excellence: http://www.constructingexcellence.org.uk/aboutus/

After the evidence is collected, the evidence base is utilized to try and influence change in the logic of the industry through networks, guidance and training, and leadership and influence. In Constructing Excellence's business-to-business networks the firms can build relationships with clients, contractors and suppliers across the supply chain and sectors. It allows sharing of best practice, learning from other leading firms, and developing business contacts. As the mission of Constructing Excellence is to improve the overall performance of construction industry, the change starts with individual and corporate level excellence. In order to bring the latest best practice knowledge to work, Constructing Excellence works with individual businesses to guide and train them in order to reach better performance. Services include from conferences and mentoring, to publications and training. The third way to influence the industry deals with industry improvement. Constructing Excellence works closely with government, strategic partners, firms and industry organizations to affect and shape the future of the industry and search for ways to improve. It allows its members to take an active role in shaping the strategic directions of the industry and gives access to key influencers on the industry. So while Constructing Excellence offers its members networking opportunities and teaches best practices, it also allows its members to affect the overall future of the industry and lets them take part in decisions that form the guidelines to the whole industry.

As a platform for networking and promoting Constructing Excellence's mission and values, the Collaborative Working Champions network was formed. This is a web-based community allowing its members to connect and share information, and promote the ideas and guidelines of Constructing Excellence. I chose to study this community in more detail due to the nature of its sponsoring organization, Constructing Excellence. Unlike with Philips Healthcare and most of the business-to-business communities, this community isn't formed by a single company, but rather by a head organization of a specific industry. As the members range from across the supply chain, there is no single dominating company behind the community, but rather many companies together form this network. It is interesting to see, what kind of logic guides a community sponsored by a membership organization, and how this type of organization is managed.

5.1.2.1. Collaborative Working Champions

The Collaborative Working Champions network is a web-based community designed as a "*place for people interested in working more efficiently in the architecture, engineering, construction and facilities management sectors*". Following the collaboration logic promoted by Constructing Excellence, this network uses lessons learned from real projects following the guidelines of collaborative ways of working.

There are two main reasons for choosing this community to study deeper. One of the reasons is that this community differs from other firm sponsored communities as it is not a single firm sponsored but instead it is sponsored by a membership organization representing the whole industry. I found this format very interesting and want to learn how the logic of managing such community differs from those that are managed by just one company.

The other reason for choosing this particular community for closer study is the recommendation from a specialist working in the field of business to business communities. In her research, they have listed top online customer communities in the business to business environment, and this particular community was one of the listed communities. Therefore, even though this community is relatively small (only 127 members), it is seen as an excellent community.

In this community, members are able to ask questions from the entire network by using forums, discuss a specific theme in groups, or contribute by writing a blog post about some specific topic of interest. Some of the content of the community is open to public, but some require registration to becoming a member. The community is divided into three tier groups. The lowest tier group doesn't require registration and has access to the limited amount of public content. The middle group can access all discussions and posts in the community. Finally the third group or call group can write white papers that can be read by the members after being approved and published. Approximately 25 people belong to the call group, while total amount of members in the community is a bit over 100.

In addition to the community website, Collaborative Working Champions also exists in LinkedIn.

5.2. Methods

This study is qualitative research in its nature. My aim in this research is to gain deeper understanding of how firms use virtual professional communities for new product development using the selected three cases. As my aim is to understand and describe the contextual setting in question and learn how the communities function as opposed to quantifying results, qualitative research methods are appropriate for doing this. Also, as the research is done in case study approach, it is suggested that qualitative methods suite this type of approach (Silverman, 2006). In fact, I want to understand the processes and associated perceptions of the communities in question.

According to Silverman (2006), there are four major methods used by qualitative researchers. These four methods are observation, analyzing texts and documents, interviews and focus groups, and audio and video recording. In my study, I have used all of these four methods, namely I have observed using netnography, analyzed texts and communications in the virtual communities, undertaken interviews with community managers, and recorded these interviews to capture the richness of expressions. Below, I have described the methods used in this thesis in more detail.

In order to increase the validity of my research, I have used methodological triangulation in my study. Due to the nature of my research, I have chosen to use netnography, semi-structured interviews, and studying of other documents regarding the specific cases to understand and explain the complex social phenomenon in question. Netnography is a branch of ethnography that has been adapted to the study of online communities. It is a research technique in the natural community setting for providing insight into a specific community without being obtrusive. This method provides more holistic insight into the community than mere interviews or focus groups would provide, as the research and data gathering happens in the natural settings without having to separate them from the context where they are embedded. (Yin, 2003; Kozinets, 2002)

However, there are also limitations of using netnography. According to Kozinets (2002) as this research method focuses on a specific online context, the results cannot be generalized to groups outside the sample community. However, as the purpose of this study is not to create a general guideline of how firms use virtual communities for product development, but rather to explain the case communities in a more in-depth way, the research method is valid for this latter purpose.

Naturally, the results from this study do show some similar patterns in creating and managing virtual communities that could make sense also with other communities. I will come back to these similarities in the discussion section of this thesis.

One of the main reasons for me to select netnography as research method in this study was the ability of netnography to capture the richness and complexity of communication in virtual setting. This research method was specially designed for studying online communities, and already for that reason alone, it is an appropriate method to use in this research. In addition, as it allows continuing access to informants in a particular online social situation, it might provide me with a type of insight otherwise not possible to find.

In addition to netnography, I used semi-structured interviews in my research. With netnography, I am able to study the interaction pattern, member activity, topics discussed and sponsoring company's presence in the community. However, what lacks in this is the knowledge of why the content of the community is what it is, how it is used by the company and what were the goals and reasons for building the community. In order to find out more about these reasons guiding the existence of the community and the motives of the sponsoring company, I've used semi-structured interviews to gain more insight into the questions in hand. I interviewed people in charge of the communities and responsible for the online strategies in the companies of this study.

To further build on the data from netnography and interviews, I've also used other documents dealing with the particular topic in question. For example, I have used interviews published in magazines regarding the specific cases and reports from case studies done by LinkedIn and other third parties. This way, I have been able to gain more richness to my data and increase the construct validity of this study.

5.2.1. The field study and interviews

The fieldwork for this research was carried out during a four month period from the middle of February to the middle of June in 2011. During this period, I actively followed the group discussions, publishing of white papers, blog posts etc. in these chosen communities. My role as

researcher was passive observer meaning that I did not participate in discussions but observed them from the side. There were two reasons why I didn't participate in discussions. First, the topics of the communities were quite specific industry-related subjects which I didn't have personal knowledge about. Therefore I couldn't have really started or commented on any content published in the communities. Second reason for not participating in the communities was the focus of my research. As my focus lies in the sponsoring firm and their motives and activities, and as my informants were in this case the company representatives of the sponsoring firm, it was more useful to talk to them directly through interviews as I couldn't really comment on any contents in the community sites.

To start my research process, I first found out about a large number of online business-to-business communities, which I then studied shortly. During this phase, I browsed through tens of LinkedIn groups and even more virtual communities outside LinkedIn. When browsing through these groups, I tried to identify the ones that had any valid link to my research questions. From these identified groups, I then narrowed my interest to the ones that had a more research question relevant focus in their community. Another criterion I used was high traffic of postings. What I mean with the research question relevant focus is that the community in question should have some new product development and innovation related possibilities in their shared contents and in the logic of the community. With these criterions, I narrowed the communities down to those that I aimed to study close for this research. I followed the activities in these communities almost daily for the duration of two to four month. The reason behind this was that while I started following Innovations in Health already from the very beginning of my research, I didn't learn about NetForum community until in the middle of April.

During the whole research period, whenever I found some interesting posts or any post with interesting comments, I downloaded them and analyzed them shortly. Same time, I kept a field report, where I logged my thoughts about the contents in question. In the field report, I wrote down my thoughts about the specific conversations and contents, and e.g. speculated why a particular post was posted by the sponsoring firm and why other members responded to it in the way they did. E.g. in my field report I have written:

"Philips group manager has announced that the group will become public. They stress the open nature of the internet as their reason for this action. It makes Philip sound good as they are trying

to keep up with the trends and promote openness in a way that they have nothing to hide. This openness naturally sounds good and probably makes people trust them more. However, ironically some members are worried about this trust issue when the group becomes public. Even though trust is not specifically mentioned, it is implied in the comments. People are worried that when the group becomes public, there could be spamming, hence possibly making the contents published in the group less trustworthy."

As can be seen from the previous excerpt, the writing style in this field report is quite informal, based on flow of thoughts rather than perfectly organized arguments.

With the downloaded contents again, I always analyzed them immediately by reading them through, and writing comments to the sides of these downloads. I highlighted key words and reoccurring themes and those sections that were relevant to the themes presented in the conceptual framework guiding this thesis, namely customer roles and new product development phases, member related topics, interaction related topics and integration related topics. Following this, I used the analyzing method of grounded theory to study this data. This process is explained in more detail in the following section of this chapter.

Before I started interviewing any community related person from the case communities, I first interviewed a business to business community specialist about her experience with the topic. Through this interview and the material she supported me with, I was able to direct my research focus and understand the basics of the logic of communities better. She helped me to understand how firms that she has worked with and researched had behaved what came to the virtual communities. For example, she told me that with many of the firms she has worked with, there has been little cross-functional integration within the firm, leading to a situation where the insights from the virtual community being lost in the clutter. Many firms fail to utilize these insights and hence loose business opportunities. With this in mind, I was then able to direct my focus better to involve questions regarding integration related topics to my interview.

The next step in my research was to schedule interviews with the sponsoring companies of these communities. My aim all along has been to use a case study approach in my research, where I would have just few cases that I focus on in a deeper manner. For this reason, I started building up my research by interviewing one company at a time. I first interviewed Philips representatives regarding their communities. After that, I interviewed Constructing Excellence about Collaborative

Working Champions. By the time of this, I felt that I couldn't have included more communities in my research anymore, if I wanted to get a better picture from these already studied communities. This is because I already had quite a lot of data from these three communities. In addition, as I wanted to study quite different type of communities I didn't want to have two of one type of community and one of other types for biasing the focus. What I mean with this is that while Innovations in Health was non-product related discussion forum, NetForum community was again a community centered around products, and Collaborative Working Champions was a community by a membership organization comprising from many firms across the industry, so all of them are different types of communities. If I would have studied two product specific communities and just one other type of communities, I would have biased information as the other two types of communities presented in this study would be under-represented. Therefore, my data collection was limited to focus on these three cases.

The aim of the interviews was to provide a more comprehensive picture of the communities from the sponsoring company's perspective. I wanted to find out about the perceptions of the managers of these communities and their view about the antecedents, processes and consequences of the communities. The questions I asked them included the reasons for building the specific communities, how those communities are managed, and what are the perceived gains of these communities from the community management's perspective. In addition to interviewing community managers, I also interviewed marketing managers involved in marketing and product development functions. From these interviews, I wanted to find out whether and how the information and content generated in the communities were utilized in the sponsoring companies.

These interviews consisted of questions both specifically designed for that community in question and also general questions that I asked all the interviewees. A list of interview questions used can be found in the Appendix 1. of this thesis.

I did not interview community participants for my study, as the focus of my study was in the sponsoring company's behavior and perception. This thesis was done to complement another thesis[4] that focuses on participating companies' behavior and perceptions. In that other thesis, the participants in the communities and their motives were studied.

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[4] Jukka Kajan's thesis, Allto university, School of economics, 2011.

5.3. Analyzing of data

All together, data collected included 13 pages of field notes based on observations of the communities, 26 saved community discussions, 16 blog posts, three exam card, three best practice, three case study and 6 transcribed interviews. To analyze this data, I used the techniques from grounded theory. According to Strauss and Corbin (1998) this is a method where theory is derived from systematically gathered and analyzed data. In this method, there is no clear theory guiding the research, but rather the researcher begins with an area of study and allows the theory to emerge from the data. In other words, data collection, analysis and the derived theory are closely intervened. The benefits from using grounded theory approach include their ability to "*offer insights, enhance understanding and provide a meaningful guide to action*".

I analyzed all of this data excluding the field report by first highlighting the key words or phrases that were related to the themes presented in the conceptual framework. In addition to these, I also highlighted those words, phrases and themes that kept reoccurring in the data. I first organized these highlighted data according to the themes of from the conceptual framework. Following this, the data was translated into conceptual categories for further analysis. I repeated this process for each of the piece of data. I also used follow-up interviews in order to gain more information and data. The field work report I used later on when discussing the findings.

The data analysis process was hermeneutic in nature. I first started by analyzing the initial observations from the virtual communities, and organized the findings into codes. I then studied the interviews and coded them also according to the theme from the conceptual framework. Following this, I went back to netnography again, and analyzed the data further. This process was repeated until there were enough codes to form sensible conceptual categories.

The process of analyzing took part by one community at a time. I first organized the codes from netnography for one community, and then analyzed the codes for the interviews of that community. Following this, I moved on to analyzing the next community, repeating the same procedures. After analyzing all three communities, I repeated the procedure for each community if found necessary. This allowed the comparison of the three communities, and it made it possible to see whether there were any similarities or differences between the three cases.

6. Results and Analysis

In this chapter, I will present the results from the empirical study and analyze these results by organizing them into codes according to the themes in the conceptual framework. Following the initial coding of the data, I've organized these codes further into conceptual categories. These conceptual categories are summarized and presented in Chapter 6.4.

In this chapter, I will first present the results from Innovations in Health, then Philips NetForum, and third Collaborative Working Champions. I've organized these subchapters in a thematic order based on the conceptual framework. First, I will present the results for the customer roles and new product development phases. Second, I will move on to explaining the results from member related topics. Third, interaction related topics, and forth and finally integration related topics.

6.1. Innovations in Health

6.1.1. Customer roles and new product development phase

Goal of the community and target audience

The main reason for launching Innovations in Health was to help the target audience of Philips to communicate with each other on topics that are of interest to the entire health industry. According to a community manager of Innovations in Health, their target audience, consisting of clinicians mainly is "*very busy, they are highly educated, all have an MD profession, and have a lot of university background*". It is important for them to stay alert about the latest developments and treat their patients in the best possible way. Therefore, the target audience is constantly searching for information and knowledge about the latest developments. To do this, they can do it in various ways, e.g. read journals, visit important websites etc. However from the target audience, "*almost 80% indicate that the interference or collaboration or knowledge exchange is very important*". Following this need, Philips response was clear.

"Taking that in consideration we said ok, the upcoming world of social media is providing ways to bear discussions that is important we need to help our clinician with this specific area. So what we

do is we develop several, what I call social media theorems and those consist at this moment of four different theorems."

From these four theorems or platforms, Innovations in Health *"is a platform where we are facilitating for our target audience again, so the clinician, to have dialogue with their pairs. So they can post questions post discussion on it, share discussions on it etc"*. The manager for the community stresses that *"Innovations and Health is not about promoting our products, it is really about helping our clinicians in their daily work"*.

One of the objectives of Philips in terms of Innovations in Health and also other three platforms is to show itself as thought leader. This leader aspect in respect to industry leader and thought leader was repeated in various occasions during the course of interview as something Philips aspired to be. In fact, the community manager underlined that their goal for Innovations in Health is definitely in being seen as thought leader as opposed to selling their products.

In addition to thought leadership and encouraging peer-to-peer discussions, the objectives also included developing and nurturing relationships between Philips Healthcare and its stakeholders. As the group members consist of professionals across healthcare industry, this is not a community just for customers. Instead it encourages industry wide discussions from various aspects of the field.

Customer roles and new product development phase

The community manager mentions that the discussions had on the community can also be of use for Philips. He says that this usability of the contents and member insights is one of the strongest points in his opinion. However, he then mentions that as the average development times for Philips Healthcare machines are generally quite long-span, e.g. with MRI products from five to ten years, it is hard to say how the discussions from Innovations in Health can be utilized in new product development as the community hasn't been live for that many years yet.

Generally the product development process in Philips is carried out in close cooperation with target audience, based on their needs and trends in market. Also product testing is done in close cooperation with target audience. Philips has certain hospitals with which they have close relationship with. These hospitals and their clinicians are then involved in the new product development activities. In addition of involving target customers from specific hospitals, Philips

also involves researchers and academics in its product development processes. According to the community manager, in order to develop "*a proper product it needs to fulfill, fit and realize the needs of our target audience*". Some of these customers are also taking part in the conversations in Innovations in Health, and are hence co-innovators in Philips, but mainly the new product development cooperation comes from the hospitals and other industry specialists that have long ties with Philips with no regards to their membership in Innovations in Health.

6.1.2. Member related topics

Community guarding

Innovations in Health is a LinkedIn group which is open for anyone to see the discussions. Previously, the group was a closed group requiring its prospective members to join before being able to see the discussions and take part in them. The group turned into a public group on April 1st, 2011. The group owner posted about this change, and provided the following justifications.

"*As you may know, LinkedIn recently announced the option to make groups public. Our Innovations leadership team here at Philips loves this and we think it aligns perfectly with the open-source nature of the Web and overall goal of this group to facilitate industry collaboration and innovation.*"

The comments this post received were concerns towards spam. Group members suggested that Philips should assign more resources to the management of the community if it makes the group open. The group leader replied to this by assuring group members that precautions were taken on the spamming respect.

Members

Philips first started recruiting its members via LinkedIn's InMail. Prospective members i.e. relevant professionals were sent a direct message to invite them to join. 30% of these messages were opened and 8% signed up to the community.

The amount of members in the community was approximately 35 000 at the end of March, 2011, just before the group went public. Following this, by the middle of July, 2011, the amount of members was reaching 42 000.

According to a LinkedIn study conducted in the beginning of 2011, 60% of group members are management level or above. These members are most often employed within the "*hospitals and healthcare*", "*medical device*", or "*pharmaceuticals*" industries. Popular job titles held included MD, Radiologist, Clinical Research Associate, Senior Scientist and Managing Director.

Lead users

In Innovations in Health site, there is a function that shows the "Top Influencers" of the week. After following this function for three month (from the beginning of March, 2011 to end of May, 2011) there aren't any members that dominate this list week after week. Generally, the top influencers change every week, or at least they change orders in the top five-list. Naturally sometimes a member can retain his or her status for the period of couple of weeks, if he or she has taken an active part in some particular discussion. That person's activity then decreases after the discussion slows down.

Within a particular discussion, a member can take a very active role. Normally within a discussion, the active members post several comments, turning the conversation into long dialogue or heated discussion. But then on the other hand, in other discussions these members might not be active at all. However, they are again in some other discussions.

Following this, even though there are some names of the members that can be seen coming up more often, there aren't any significantly dominating users in Innovations in Health community.

Competitors

Innovations in Health community has no specific strategy towards competitors of Philips. According to community manager, the reason for not limiting competitor access to the group is because Philips believes that it is facilitating and helping the target audience to have discussions and as long as these discussions are not product related, there shouldn't be any significant negative effects of allowing competitors access the site. As a note, there are many Philips' competitors in the group.

6.1.3. Interaction related topics

The platform and type of community

Innovations in Health has one type of interaction in its community. This is a discussion forum where members are allowed to start a post, comment on posts by others and follow any discussion going on between other members. For this purpose, the community is based in LinkedIn, which provides the discussion forum platform for the group. Other reasons for choosing LinkedIn as the platform for the community is the access it provides to a global professional audience and it allows *"[t]argeted reach for healthcare"* professionals. In addition to this, Philips sees LinkedIn to be an environment of trust.

Trust plays an important part of Philips Healthcare operations, in fact, it is said to be "paramount". As LinkedIn is one's professional identity, ones contributions in the discussions are likely to be thoughtful and insightful. For this reason, the usefulness of the discussions carried out in LinkedIn is likely to be high.

In addition to discussion forum, the community has also some other type of activities. For example there are polls from time to time, asking a specific healthcare related question, and allowing members to vote. E.g. *"Will you adopt 3D mammography (tomosynthesis) in your practice?"* The community also shares links to other Philips platforms, e.g. GetInsideHealth, where members can go to read articles and whitepapers.

Group leader activity and affiliation

The community has a group leader, who is a Philips employee, currently with the title of Global Director Online. This group leader hosts the group and represents Philips. In Innovations in Health, the group leader is quite active. He comments on ongoing discussions almost daily, at least a couple times a week. In addition to commenting, he starts one new discussion almost every week. For example on March 17th, 2011, the group owner took part in 5 discussions. That same week and also the week before, he took part in some discussion on daily basis.

The discussions that the group leader starts are generally similar type of questions than those the other members post. These are innovative and speculative questions regarding the future developments in Healthcare industry. In addition to these discussions, group leader also discusses

about the practicalities of the group, e.g. informing about group becoming public and hosting a discussion with introductions of members. Group leader also comments on other ongoing discussions started by other members. His comments to these are quite general, often steering towards more comments, e.g.: "Good discussion, what other members think?" or posting a question that continues the topic from another angle.

In addition to group leader, also other people from Philips take part in the discussions with their own names. However, many posts from within Philips are posted under the name of the group leader. According to a case study conducted by TheHolmesReport in the beginning of 2011, 112 topics posted by Philips team has generated 950 comments from other group members. Philips team has commented on these topics with 71 comments.

Moderating of discussions

According to one of the community managers in Philips, moderation process is very important to the success of the community. In his interview, he said that it is important to have governance model in place before launching the community. Issues to be considered included how Philips should react to people violating community rules or damaging the group, and how about if something was said about Philips. E.g., if somebody would start asking about some technical information or sales data about a specific Philips product, the Philips personnel would answer to that person directly via private message, and not carry on the discussion in the community. On the other hand, there is also continuous watch out for spamming. Moderating is seen to be key factor in keeping the conversations *"relevant and valuable"* for the members.

During the existence of the community, there have also been various occasions when a member has posted some Philips product or service related inquiries or asked for a Philips contact person on the community site. In these cases Philips is not "*heavily steering on it*". According to a community manager, Philips acts on such posts, but is not steering the discussion on it.

However, if a competitor would start advertising some of their own products or services in the community site, Philips would contact that specific person and "*discourage him to do that*" and take some action within the group.

Content of the discussions

In general, group members are very active in starting discussions. There are new discussions started nearly every day in addition to commenting on previously started discussions. The topics

of the discussions are not products related and seldom have anything about Philips in them. Discussions are *innovative* and *speculative* in nature, often dealing with some potential future development, ways to improve current operations in healthcare sector, and ideas of overcoming difficulties in the industry. One example of such discussion would be a post from April, 2011 asking: *"What do you think are the barriers to health systems getting the most out of their IT investments?"*

In addition to innovative and speculative topics, there are sometimes also posts discussing quite different themes. One example of such discussion was posted in April, 2011 by a group member. The topic of this discussion was: *"I think it's about time I said hello to everyone in the group. Please esay hello back so I do not feel left out!"* This particular discussion had generated 120 responses by July 19th, 2011. There were responses almost daily, and often many times a day. However, there were also some longer breaks between the comments, for example, from end of June to July 18th, there were no comments taking place. However, on July 19th, during one day there were 5 new comments.

This particular post spawned contradicting responses from other members. While most welcomed the person starting the discussion to the community, there were also people less fond of this post. Comments like *"how many hellos do we have to see/endure before this is dropped....? Not to be mean-spirited, but enough is enough"*, *"I am wondering what is happening in this group. When will the intro session complete and some worthwhile discussion happen"* and *"This is supposed to be a professional forum for discussing healthcare-related issues, not a social network for hellos"* are examples of responses from other members. In fact, many of the less enthusiastic responses argued for the professionalism of the community as opposed to social networking. *"If you would just remove the "hello' crap, this site would have some meaning....this is not Facebook or Twitter, it is supposed to be a serious forum for medical discussion and commentary. Please take off [X]'s plea for hellos so the site has some relevance"* was a comment once again stressing the professional nature of this community. In addition, this particular comment and many other comments as well appealed to the group leader to remove this discussion entirely from the community. However, so far, by 19th July, this discussion hasn't been taken off the site. Nevertheless, the group leader has commented on the thread once by saying: *"Welcome to the group and thanks for starting this thread. While this is not typical in terms of the posts we tend to see in this group, I do find it interesting to see the feedback you've generated and feel this really illustrates the sense of*

community that has developed within our membership. This is a great achievement considering that this group is one of the biggest healthcare discussion groups on LinkedIn and is quickly approaching 40,000 members. I hope we can maintain this momentum as we move forward."

In addition to these *"welcome"* and somewhat irritated comments, there were also some people responding by asking is the person who started the thread happy now after receiving so many *"hellos"*. For example one member commented by saying *"Are you okay now after receiving hello from many group members?"* and another member asked: *"Greetings and welcome [X]. Do you feel needed yet?"*

Another peculiar factor in this discussion is that in the middle of all the hellos, there are also some more serious discussions taking place. An example of this is a topic of color changing fiber in response to temperature and its uses in healthcare. This topic generated quite many responses from other members after initially being cluttered with the *"hellos"*. So in fact, even in the middle of a quite irrelevant post, some members try to shift the focus away from the irrelevant sections to some other more meaningful topics. This is quite interesting as the person posting about color changing fibers could have also started a new conversation instead of posting in the middle of another discussion. His aim seemed to be changing the discussion into something else than just "*hello*".

There are seldom discussions that mention Philips in them. However, one of such discussions was posted in April, 2011 asking: "*can an audiologist make an impact in the healthcare? and what can philips do on this issue?*" After some replies, over one month later, the group leader from Philips replied to the thread. However, in his thread, he answered only to the first part of the question, with no mention of Philips' possible role. Instead he replied with another question, continuing the thread with speculative natured questions. Once again, there is a clear line of not mentioning Philips or any other product related topics in the community.

There are also regulatory considerations when facilitating and moderating discussions in Innovations in Health. Healthcare industry is a regulated industry, and hence no all topics can be discussed in the community. This is why, all comments by Philips personnel needs to be first approved by Philips legal office before they can be published. Naturally this has created challenges to the operation of this community. In addition, with regards to many of the products by Philips, they might be able to perform more than just the approved treatments. However, as they are not approved officially, one cannot discuss about these not approved treatments. That is also one

reason why Philips doesn't discuss its products in Innovations in Health. Rather, treatments are discussed from a more general perspective, and instead of referring to products, reference is made to clinical areas and trends around the treatment.

Community activity

The discussion with the heading *"How long do you think it will be before we can have computers accurately diagnosing patients?"* is an example of how active this community is. This discussion has spurred a total of 261 comments by the date July 19th, 2011. In fact, it has received many comments per day with no sign of slowing down yet. There are also many other similarly popular post, which have gathered a huge amount of replies. An example from a discussion earlier in the year could be the post started in February, 2011 with a question*:"What in your opinion is the biggest problem in Healthcare that Technology can solve?"* Already one month after the initial post, the discussion had over 100 comments from members.

Naturally there are also discussions that are less active. For example a post by the group leader in February asking a question: "*What should the U.S. Centers for Disease Control and Prevention include in its new educational campaign for young women regarding prevention and early detection of breast cancer?*" only received four comments from other members.

Also the response rates vary a lot within specific discussions. Many discussions are very active at some point and then experience a quiet phase lasting up even to a month or so, and then all suddenly become active again. An example of this is the previously mentioned post on "I think it's about time I said hello to everyone in the group. Please esay hello back so I do not feel left out!"

Naturally here, the large amount of community members affects the community activity. Also controversial, speculative or otherwise interesting topics are a big driver for community activity level. What was also noted is that one comment can lead to many new comments, even after one communication being rather inactive for a while.

6.1.4. Integration related topics

Integration between community and Philips

If and when some specific interesting ideas in the opinion of the community management group are popping up in the Innovations of Health discussions, what happens is that those ideas are brought to the attention of the marketing team. They then decide what to do with it inside the firm. However, there is no clear process for doing this, so often ideas might be lost in the crowd.

In Philips, there is a team from the marketing department that works with the Innovations in Health community. They don't have a proper process for tracking conversations in the community, and analyzing their potential use in the organization. In fact, their main task is to maintain the community. This means that they have to monitor and steer discussion, and see that no discussion violates the community rules. However, what comes to the content of the discussions and analyzing them for further use in the organization, there is no protocol established. In other words, the integration between the community and Philips is merely technical, with Philips sponsoring the community and making sure that it runs properly. From process point of view, this community is not linked to the rest of the processes in Philips.

Cross-functional integration

The community manager works in the marketing department of Philips Healthcare. When asking about the research and development process in Philips Healthcare, the community manager's response was: "*Yeah, I am working for the marketing department so I'm not having any role in R&D*".

This response describes the lack of cross-functional integration in the firm, at least with regards to Innovation in Health. As the community is seen rather as an extra avenue with aim to offer customers a networking ground, the community is not utilized by any other department than marketing. Even in marketing, only utilization is that the community is seen to increase brand loyalty and strengthen relationship between community members and Philips. That is why, R&D and other functions in the organization are not cooperating with marketing on potential ideas from Innovations in Health. This lack of cross functional integration is definitely affected by the

objectives guiding the Innovations in Health community. In short, as it is not viewed to give value for new product development, consequently no processes for extracting information is built.

Effect on marketing and sales processes

In the short run, as an average sales process takes two to three years, no direct influence on sales can be observed, as the community hasn't been active that long yet. However, in the long run it is assumed that there will be some influence on sales, although the actual amount of influence is unclear.

The effects on marketing are that Philips Healthcare and Innovations in Health has gained lot of visibility in media. Managers of the community have been interviewed for various occasions and magazines. Also, many of the members of the community have expressed their support for the group and the results for *"How likely you are to recommend this group"* are very high. Increase in brand equity is also seen as an effect from Innovations in Health.

However, a proper system for tracking performance is missing. There is no clear measure or follow-up done on how Innovations in Health actually affects marketing and sales processes. The effects on brand equity and relationship between community members and Philips are claims without actual measures. Philips doesn't actually measure these effects by any quantifiable methods. It doesn't have a ROI approach to the community.

In fact, when asking about how Philips measures the effects of community on marketing and sales processes, the response from Philips' personnel were quite short and didn't leave much space for follow-up questions. It seems to be, that Philips has not even thought about how Innovations in Health can affect marketing and sales processes apart from the obvious ones, i.e. brand visibility. At least, they had not thought about how to measure these effects. Also, the separation of marketing and sales activity was very visible in the case of managing this community, as marketing department was not concerned about the effects on sales by this community. It was quite clear after the interviews with the marketing department in charge of managing the community, that Innovations in Health is a community created and managed by marketing department alone, without much cooperation or thought for its effects on other departments.

Also, there was a strong need from the managing team to separate the community from all the sales and commercial activities. They seemed to believe that in order to be truly customer

oriented, and create a space for customers to engage in interesting topics, the space should be entirely free of commercial activities. However, Philips did not only limit this idea to community level, i.e. not promote Philips in the community, but they have taken it to the whole organization. This community is seen as a separate entity, with no ties to other business processes of Philips. This is likely the reason why there is no facilitation of integration processes, as there is no need for this facilitation seen by the community managers. So in fact, this lack of integration and measuring the effects of the community on other business processes seems to be defined in the strategy guiding this community.

6.2. NetForum Community

6.2.1. Customer roles and new product development phase

Goal of the community and target audience

While Innovations in Health is not focused on product related issues, Philips NetForum Community was built exactly for that purpose. NetForum community is 100% focused around the Philips products. It is a community where the users of Philips products can share information about how to use the products for a specific treatment, share best practices, learn from other alternative uses, attend webinars about a specific product etc.

NetForum Community is built on a Philips platform, alongside Philips websites. It was developed to be one of the value-added services that Philips offers to its customers. It started first with MRI business unit, however now it has expanded to CT and nuclear medicine business units as well. In the future, more business units are likely to be present in the community. The community was first formed from the need arising from the MRI business unit. The MRI scanners of Philips have a tool called ExamCards. These exam cards are manmade protocols, so they cannot be extracted from some computer program without having someone planning it. So in fact, they have to always be made by someone completing a scan. From that perspective, they demonstrate a certain level of best practice. And NetForum community first started as a way to share these ExamCards, these best practices.

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Philips realized that there was a need for a platform where their customers can share their protocols. Following this need, they built NetForum community that allows customers to not only share their protocols but allows them to download those made by others into their own systems, and therefore enhance their own protocols used in their own clinics. And this is how the community grew.

Customer roles and new product development phase

From the perspective of new product development and customer roles, Philips sees NetForum community as a source for insights. *"[W]e definitely have the ability to learn from our customers and improve our product"*, says a manager involved with NetForum community. She continues that they "*look for ideas stemming from customers*" and also other customers can benefit from these ideas as these ideas are shared with the rest of the community. Also by using utilization dashboard Philips can have customers share their utilization data allowing Philips to "*learn more about how our systems are used in the field*".

One example of how Philips has used NetForum community as part of new product development deals with the data from utilization dashboard. This process is described as quite "*straightforward*". Once a secured connection is established between the customer and utilization dashboard, Philips is able to see how the customer uses their systems. For instance, MRI procedure requires table movements. By looking at the utilization data of the customer, Philips can then see how many times and how the table is moved in a specific procedure. Using the data from this specific procedure and the aggregate data, Philips is able to learn "*how people use their tables, and what we should do to make the table better for upcoming versions*".

NetForum community can also be used for e.g. product testing. Often, Philips can post a pilot version of their new products in the community site and have customers test them in a secured environment. Naturally, some customers are also invited to the factory to test the actual products as well.

6.2.2. Member related topics

Community guarding

The NetForum community requires member registration before getting access to all the materials in the site. However, anyone can join the community, so there is no member selection or pruning taking place. The reason for Philips not controlling this joining to the community is because they think that NetForum community is a great opportunity for Philips to show what it is offering to its customers in terms of value-added services. Philips also believes in a very open environment where people can contribute and add input.

Members

In the NetForum community, there are currently[5] 137 contributors. From them, some are Philips personnel. All of them are professionals in the healthcare industry, with many of them holding a position as radiologist. These contributors are the ones that have posted on the community site and come up with content. Anyone of the members can become a contributor by posting some content onto the community site. Naturally, having this content first approved by Philips.

In addition to these contributors that show up with their own name, there are also some customers who do not want to publish under their own name. In these cases, they can be attributed by one or more clinics or under a Philips employee's name.

Lead users

The reasons NetForum community provides to its members promoting them to become contributors is that by becoming a contributor, one can promote ones professional work and research, share their experience with Philips, and help other professionals to optimize the clinical use of Philips products. So when a member becomes a contributor, and shares content, this content is reviewed by Philips and the insight and information from this content is forwarded into the respective functions within Philips that could use this information in their operation.

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[5] Cited July 21st, 2011

Also, within these contributors, one can organize them based on how recently they have contributed, how many contents they have created, how many times their contents are viewed and how well they are rated.

According to Philips managers, Philips has developed a broad network of collaborators during the course of years. These collaborators include customers that have used Philips equipment for a long time or extensive users with multiple pieces of equipment from Philips. These customers are often involved in user meetings, and present their cases and share their practices there. With the formation of NetForum community, these customer collaborators have moved onto an online environment and also new collaborators have surfaced.

Competitors

There is no policy or strategy against competitors of Philips Healthcare. As the NetForum community is open for everyone, also competitors have access to the site. In fact, a manager involved in NetForum doesn't see any threat by competitors knowing about the published content available. She said that ExamCards are unique for Philips as other firms do not have such tool in their MRI scanners, so having these ExamCards published doesn't pose any threats in respect to competitors learning about them and using them in their own new product development processes. With respect to clinical cases and best practices, Philips also doesn't see any particular harm in competitors learning about them as well.

It is also very common for hospitals and other customers to have both products from Philips and their competitors. However, when asking whether there are any within industry cooperation between Philips and its competitors, the answer was no. On the other hand, there have not been too many attempts from competitors to copy NetForum concept either. The reason for this is thought to be the highly advanced nature of NetForum community, making the copying of this concept quite challenging.

6.2.3. Interaction related topics

The platform and type of community

Philips NetForum community is established on a Philips platform, next to the company websites. The reason for this was the nature of the community. As the NetForum community was centered on Philips' products and services with tight FDA-regulations, it was decided to be built on Philips site. This platform allowed better control of the community activities and as it dealt with Philips products and was part of the value-added services Philips offered, it was a natural platform for the community.

The community has various functions in it. ExamCards are one of the most significant functions of the community. These ExamCards are best practices posted by users of the scanners. In addition to ExamCards, there are also examples of clinical cases, case studies, best practices, application tips and product training offered in the community. There is also a Utilization Dashboard which is enables customers to gain "actionable insights" into their radiology department's workflow, helping them to identify and minimize operational gaps and hence optimize the system's performance. In addition to these, the community provides also latest publications from the field and webinars and presentations from the industry specialists.

In NetForum community, members are not able to comment on any content. They are however able to share the content in Twitter, Facebook, LinkedIn or via Email. Also, the members are able to rate the content. The number of votes/ratings is also visible to all, and one can also see how many times a specific content has been viewed.

The activity of Philips' personnel

Within contributors, there are only 5 people, who have listed Philips as their employer. From these 5 people, two has contributed more than 2 posts, most of them being ExamCards. The timeframe between contents is also quite long, e.g. one of the employees posted content on June, 2011, after five years from the last post in March, 2006. The posts by the Philips personnel are quite popular amongst the members, with nearly half of them receiving over 1000 views.

Naturally, as all the posts and contents submitted by the members are viewed and approved by Philips personnel, their main tasks regarding the community is with these functions.

Moderating of discussions

What comes contributing content or uploading a new ExamCard etc. to the NetFrum community, Philips moderates these carefully. Due to the healthcare industry regulations, the NetForum community is FDA-approved, which means that Philips can first of all see who their users are, and they have to control the postings to the site. In the community, nobody can post anything they want directly. Instead, all posts have to first be approved by the Philips personnel before publishing. In fact, when someone contributes content to the NetForum community, this content is first viewed by a review board consisting of Philips employees and a number of experienced customers. They look into the content, and make sure that *"the data is in fact trustworthy"*. This process often includes various iterations with the person wishing to publish the content. A manager involved in the NetForum community that I interviewed stressed the importance of the reliability of the contents they publish on the community site. According to her, it is only then when Philips has made *"sure that everything is intact and everything is as it should be"* that they finally publish the content online.

At the end of the review cycle, it is always the author of the content that approves the final content that has been created. He or she then signs a type of contract that approves this content to be opened up for users. And by signing the contract, the author would be also signing the terms and conditions indicating that he or she will no longer claim this type of special property for their own work. So basically by publishing it on the NetForum, the authors make their content a public source, i.e. an open source type of information. Following this, it can be secured that other members that find and use the content submitted by someone else won't be found liable for e.g. issues in intellectual property. This then allows members to be at ease what comes to using the information on the community site in their own work.

Published content

In order to attract members to the community, Philips invested on the high-quality contents.

"We make sure that people with PhDs in something relevant area or actual doctors working with the systems or application specialists which have very broad experience with the system, these are the people that eventually end up contributing. And this is very important, because once you compromise the quality of your content, this is when you start losing people".

All these contents published in the community have at least one to three day delay in being posted to the website. This is due to the FDA-regulations.

With respect to ExamCards published on the community site, they are literally manuscripts for performing a specific scan. For example, an ExamCard by one of the Philips personnel published in August, 2010, tells members what kind of a procedure a specific ExamCard is for, how should it be used, and what kind of effect this ExamCard's method has on the procedure. The content in these ExamCards are thus strictly for professional use.

In the NetForum community, there are also best practices that members can share with each other. All these best practices with the exception of one deal with products related to MRI. While best practices posted on the community are, as their names suggest, contents published by members dealing on how to use a Philips product in the best way just as with ExamCards, the two are in fact very different tools from each other. While ExamCards are used as a technical tool downloaded from the community site to products, best practices are more descriptive stories about how a specific hospital or clinic has used a specific Philips product in their operation. For example, a post from April, 2011, describes how a specific clinic has acted in "*[m]aking the most of big bore PET/CT*". In this best practice article, the hospital and its radiology department is introduced shortly, following the challenge they faced with how to maximize return on a Philips product they had. Following this, the solution is resented and this solution is the best practice they are sharing with the other members and Philips. The best practice is written in an article format, with excerpts from the interviews with the key personnel involved with the machine in question, and is almost like a story. When reading an ExamCard and a best practice, the reader can really see the difference between the two, as one is very stripped down and technical while the other follows a storyline with much more description. Best practices are not just a user guide for a specific machine or treatment.

There are also case studies published in the community site. These case studies explain the course of a specific case with specific treatment using a specific product. In these cases, a short history of the patient is provided, with the imaging used and finally the diagnosis explained.

Community activity

In the community, there are all together 324 ExamCards posted from between the founding of the NetForum community and 17th July, 2011. These ExamCards are posted quite regularly, almost every month; however, sometimes there have been longer brakes between the postings. There are 77 best practices posted on the community site since the beginning of July, 2011. Similarly, these best practices are posted almost monthly, with some longer brakes in between.

One of the most submitted content in NetForum community is the case studies posted by the members. There are a total of 491 case studies submitted by the beginning of July, 2011, making case studies the most popular type of content submitted.

To get customers involved, Philips had various ways to do this. The aim of Philips was to get their customers involved in not only having them share their best practices but also having them develop those best practices. Philips decided to motivate their customers by giving them recognition for their shared and developed best practices by sharing what they have done with the Philips NetForum community. This recognition of peers was seen as an incentive for customers in developing a best practice procedure.

In fact, Philips also considered paying its customers for the development of these best practices. However, they decided not to do so. Instead, to those customers that collaborated with Philips in a very extensive matter, Philips rewarded in return. These could involve a visit from an application specialist from Philips that would help the customer to gain even more experience and ideas about how to use the products better. Or sometimes Philips gave the customers access to new, innovative solutions that hadn't yet been brought to market. These customers learned about the new products before others and also could have a say in some of the product features. In addition, these contributors were invited to talk in physical user conferences and symposiums, and this further increased their recognition in the industry.

6.2.4. Integration related topics

Integration between community and Philips

Important part of creating visibility and awareness to the NetForum community and learn about various uses of the products included cooperation between different functions of Philips Healthcare. For example, it was crucial that the sales, service and application force of Philips knew about the community in order for them to also access the information and in turn relay the information to those customers that didn't yet know about the community.

In NetForum community, whenever there is an idea that people involved in management of the community feel to be useful for further development, this information is passed on further, to the functions that this information could concern. For example, when the people involved in the Netforum community find out

about the likes and dislikes of the customers based on the published content, they want to make sure that these likes and dislikes are not ignored. They will convey these likes and dislikes and other opinions to the relevant functions within Philips for further analysis and developments.

From the community, the relevant information is passed on to the rest of the organization on different levels. These different functions include research and development, sales, marketing and applications functions. According to a manager working with NetForum community: "*if we see some synergies and value in specific pieces of data or specific information, we make sure our voice is heard within the organization, we proactively offer it to different parts in the organization*".

Even though there is clear indication that community managers study the contents shared in the community, and pass some potential ones onwards to relevant functions, there were no clear processes for analyzing the contents presented. In fact, it seemed more like that there were no clear processes for this information gathering, and rather people just subjectively picked what they thought to be important and passed them on to the respective fields. It seemed to be more like if some idea was conveniently seen while browsing through the community posts, then it was passed on to relevant function. If some potential idea was again not seen while browsing, it was likely to be lost in the clutter.

Cross-functional integration

In Philips Healthcare, operation is divided into business units. These business units then have further division of functions within the units. For example, in MRI business unit, there are marketing people, product managers and other functions represented. Then for a new product development project, it is this team of people that make up the new product development team.

In general, it is the marketing discipline that is leading the product development initiative. A new product initiative or project will start only with a so-called *commercial requirement specification*. It is then marketing's responsibility to determine and specify what is required in the market and translate that need to other people involved in the new product development process. In the case of insights from NetForum community, these insights are recognized by the marketing people who are involved with the community. They then pass this information onwards in the firm. Product manager from marketing has to define marketing needs, including "*how we're going to sell it, how we're doing the promotion, all that is part of the marketing plan or marketing specification*". Following this, "*the innovation cycle*" starts. All in all, Philips views the tight cooperation between

marketing people and product development people to be crucial throughout the product development cycle, especially in the beginning of the process.

Cross-functional integration works also other way around in Philips Healthcare. For example application specialists and clinical scientists from Philips work in close contact with customers in various projects. These people "*sniff, they sniff around continuously, what are new needs, what are the things people like, what are the things they do not like*", and then share this information with product managers of marketing.

So from cross-functional integration perspective, there is a clear process how insights and ideas are analyzed and translated into a innovation cycle involving all other functions. So it seems that as long as the idea is first recognized by the marketing team, the idea will be passed on to other relevant functions within the company for further development. Also, as the way of working is assigned into cross-functional teams, the marketing people are able to follow and be part of the whole new product development process from the very beginning of the cycle.

Effect on marketing and sales processes

There are various gains from building and managing NetForum community. Philips is able to use the information and customer insight gained from the community to teach marketing department about their customer preferences, e.g. what they like to do, what they do not like to do, what they prefer etc. These customer insights and information can also be used by R&D department by helping them to understand what they can do to create value for customers. Sales department gains from this information and insights by learning about new and better ways to approach customers and how to have good discussions on productivity and workflow. The people who are responsible to delivering the information to the different functions are the ones that are involved with the community. This means e.g. product manager from marketing and R&D personnel for a specific business unit. Following this, there is a great selling potential also in using the community.

Apart from the actual uses of community generated information and insights in various functions within Philips, this NetForum community also strengthens the partnership between Philips and its customers. As it creates a platform for customers to share their experiences, best practices and ExamCards, it fulfils one of the important needs of the customers. The strengthened relationship with customers eventually leads to development of better products and better value for both customers and Philips.

All these above mentioned effects were relayed by the community manager, and as can be seen, Philips has definitely given thought to the topic. However, when asking does Philips use any ROI calculations on the effects, the answer is no. In fact, the reply was that they would like to learn about how to start tracking performances better.

6.3. Collaborative Working Champions

6.3.1. Customer roles and new product development phase

Goal of the community and target audience

Collaborative Working Champions was set up by a group of people belonging to the Constructing Excellence that have been working on a number of collaborative working initiatives. Constructing Excellence is a cross-industry and cross-supply chain group that promotes cooperation as opposed to price competition within the industry. This community was set up by Constructing Excellence as a "*think tank*". It started off as "*a sort of intellectual powerhouse that can take on specific projects or get involved in particular types of discussion, and focus purely on the collaborative working side of things*". In the beginning, this group communicated via emails. However, two and half years ago, the group decided to form a community site for sharing the information. Also, as the initial group only included 20 members, the community allowed the group grow and made possible the sharing of information both among the initial members and also much more widely with people all over the construction industry interested in collaborative methods in construction. The aim of the community is to provide more innovative collaborative working ways.

Member roles and new product development phase

Collaborative Working Champions community works by the side of Constructing Excellence. Sometimes some people involved in Constructing Excellence do not have time to get involved in the details of developing guidance and ways of workings. So the small group of people that has the time to develop such guidance and produce materials has then gathered in Collaborative Working Champions and publishes these white papers. They then get feedback and consultation from the other members of the group, and hence produce final papers that are given to Constructing

Excellence to distribute further. The idea in having only a small group producing the material is that rather than everybody having to be involved in writing content, the small group produces content that other people that come in comment on, ending up with more efficient use of time.

6.3.2. Member related topics

Community guarding

The contents of the community are divided into three categories. Some of the contents are available to anyone; however most of the contents require registration to the community. There is also the third group of people, called call group that has access to some limited material only available to them. This call group includes the original members of Collaborative Working Champions.

The material available for public is quite limited. In fact, all discussions, blogs etc. require registration before one is able to view them. Basically only thing that is available without registration is the front page of the community, which has titles from the latest discussions and blog posts.

The other two categories (registered members and call group) can see all the discussions in the forum, upcoming events, blogs, photos, and they are able to view other members and create groups and chat with other members. Members are also able to invite new people to join the community. In addition to this, the call group can also access a group designed for them only. In this group, they are able to e.g. draft white papers before showing those to others.

When asking about the community guarding and member approval process, one of the founders of Collaborative Working Champions said that they do have some level of control what comes to people wishing to join the community: "*We look at their industry credentials, if they work for a industry related organization from anywhere from the supply chain, or they are students preparing possibly joining the industry, there are no reason to not allow them in*". He then continues that: "*When people join, we ask them to complete some questions, which just help us to understand where they are coming from and why they want to join*". The reason for this is to avoid spamming and keep the group professional. In fact, the founder members said that they do not want

members feeling like the community isn't properly managed. Other than that, they want to be as open as possible towards accepting members.

Call group

The call group consists of roughly 20 people that are the founder members of the community. In addition of the activities in the community site, they also meet outside the community, face to face, quarterly. Within the community, the call group has their own private group that is an invitation only group. Within this group, they are able to share agendas, minutes of meetings, and discuss work in progress e.g. draft white papers.

Members

By 26th July, 2011, there are a total of 127 members in the community. These members are all working in the construction industry in United Kingdom or students studying in universities. Most of the members have written something about themselves, with all of them having their respective organization presented (company or project they work for or the university they are affiliated with).

Lead users

The activity of members varies a bit. Clearly, by studying the discussions and blog posts in the community, some members are much more active than others. There are clearly members, that contribute a lot of content to the site and those who have not contributed at all.

Competitors

There are no direct competitors to Collaborative Working Champions community. In fact, it would be against the ideology of the community if there would be two separate communities both aiming for more collaborative working methods in construction industry. However, organizations like Constructing Excellence do have other membership organizations as their indirect competitors. With tighter economic situation, companies in the construction industry have had to think about which industry organizations they afford to belong to. As there are lack of resources and interest to belong to all of the industry organizations available, companies must choose between these organizations. However, with respect to Collaborative Working Champions community, this indirect competition doesn't really have effects as the latter is a "*semi-*

autonomous" from Constructing Excellence and doesn't require its members to be members of Constructing Excellence.

However, as the community hosts people from all over the industry, the group members are often competitors with each other. There can be e.g. two competing contractors or suppliers in the community. However, one of the founder members of Collaborative Working Champions believes that while these competing firms might not share "*commercially sensitive*" information with each other, they might together by sharing other types of experiences of the industry come up with improvements that benefit the whole industry. For example, the community has together promoted the use of collaborative working in the industry. By this they have also been able to differentiate themselves from other firms in the industry that do not rely on collaborative methods in their operation.

6.3.3. Interaction related topics

The platform and type of community

The community is built on Ning-platform, which is especially designed to creating custom social websites, social networks and communities. In other words, Collaborative Working Champions community is built on an own site. The features of the community include discussion forums, blogs, and chat. It also has news section, upcoming events section, and photos. One can also see all the members of the community and their affiliation and profile. There is also a private message function in the site.

Call group activity and affiliation

In the community, the call group acts like the head group of the community. Call group acts like the link between Constructing Excellence and Collaborative Working Champions community. It is part of their work to translate the ideas from the community to white papers or to have draft white papers commented by the community members. Then after the white paper is finished, the call group sends its forward to Constructing Excellence. In a sense, the call group is the community management that tries to gather the information and insights shared in the community in order to convey these insights to Constructing Excellence and then to other parts of the industry. However,

it should be noted, that call group is not moderating the discussions and is not the moderator of the community.

Moderating of discussions

There is only couple of people who are moderating the discussions and posts on the community site. This moderating happens so, that whenever someone asks to join the community or posts something on the community site, a notification is sent to the moderators. These moderators can then react to the posts if they are found inappropriate. However, when someone starts a blog post first time, this post is always checked by the moderators. If the post is found to be appropriate, then that person is set to be trustworthy, and his or her future posts will go through automatically without moderators.

Content of the discussions

The discussions posted in the forum could be divided into two types of contents. First, there are discussions focused on commenting on a white paper, agendas, and ideas from a call group meeting or other document. Second, there are discussions on community related issues.

An example of the first type of discussions i.e. commenting on some publication would be the post by a member in the beginning of February, 2009, asking other members to share "*thoughts on the idea of a survival guide raised at the last CW Champions meeting*". The thoughts shared by the other members are very throughout, with lot of them elaborating quite much on specific points. For example there are comments pointing to a specific page of the document being discussed about, where some wordings are suggested to be changed. People are also engaged in the conversation as many of them continue commenting on the post after comments from others.

Another very good example of this first type of content is a post from December, 2010. Here it asks:"*[i]f collaboration and integration are so good why isn't everyone doing them?*" This particular post lists points that have came up in a meeting of Collaborative Working Champions. It then asks members to comment on these points and add any relevant points that they think are missing from the list. From the replies to this post, it can be seen that members are quite dedicated to the topic. E.g., one of the members replied: "*I set the question to a group of students on the Strategic Construction Management course I run. Will share their collective thoughts in due course*".

An example of second type of content, i.e. community related issues, would be a post from January, 2009 titled "Website look, feel and content". This particular post asks members to share

their ideas on what functions should be available in the community site etc. Here, members have contributed to this by expressing their opinions on what they like to be on the site. These opinions included document sharing functions and other functionality related ideas.

During the course of the community existence, there have been quite many blog posts by members. The contents of these blog posts are opinions about a specific collaborative aspect or explanation of a specific case from the collaboration perspective. Topics of the blog posts include: "*No construction industry is an island*", "*New British Standard – Construction Procurement – for public comment*" and "*Integrated Project Delivery (IPD) – in a nutshell*".

Community activity

Collaborative Working Champions is a relatively small group, with only 127 members. It has been active now for about two years, and there have been 18 discussions with varying amount of comments taking place in the community. The most popular discussions have up to 21 comments while the less popular ones have zero comments. In general, the group seemed to be most active, with respect of discussion forum, in the year 2009 with 9 discussions and 84 comments to these. In 2010, there were only three discussions with 4 comments all together. This year (2011), already by the end of June, there have been 6 discussions with 13 replies to them.

With respect to blog posts, there have been 37 blog posts since the founding of the group two years ago. These blog posts are published quite regularly, sometimes even up to five blog posts in one month. However, these blog posts do not have many comments or replies to them. In fact, there have been at most two comments to any blog post. There are people regularly creating these blog posts, and by viewing the blogs, it is clear that some of the people post them while other doesn't. These people, who post, often post many times.

6.3.4. Integration related topics

Integration between community and Constructing Excellence

The integration between the community and Constructing Excellence happens through the call group. The call group generates documents featuring the insights from the rest of the community and passes these documents onto Constructing Excellence. Generally, these documents are given

to the steering group of Constructing Excellence. Constructing Excellence's steering group then decides what it wants to do with the documents, whether it wants to distribute it wider and to where. Often, when they decide to distribute it further, they send it out using newsletters by Email or printed versions as part of some other documents to the respective organizations.

So the main outcomes from the community are the documents generated by the call group and other group members in the community. These are all documents discussing cooperation and often involve ideas as to how to improve cooperation or encourage cooperation. However, as the documents are mainly done by the call group of the community, with only little input from the other group members, this community is more like an avenue for the call group to discuss and share their ideas, than a place where community members all discuss and cooperate together.

The ties between Constructing Excellence and Collaborative Working Champions is strong according to the community manager I interviewed. However, when elaborating on this, it seems that it is wanted to be seen as strong, but reality is different. In fact, in the website of Constructing Excellence, it was very difficult to find any mention of the community, and one had to really search for any mention of the community. In fact this community seems to be quite in the sidelines of the main operation of Constructing Excellence. As a result, the amount of members in this community is also very low and the group activity low as well. The visibility of the group in general is not so good.

Effect on organizational processes of Constructing Excellence

During the past year, Collaborative Working Champions has produced two documents that have been sent to Constructing Excellence. Both of these documents were distributed by Constructing Excellence further by E-newsletters and links on the Constructing Excellence's website. These documents were also referenced to in the printed documents produced by Constructing Excellence.

As can be seen, the documents produced in the community are not treated with highest significance in Constructing Excellence. As they are only sent out as e-newsletters, their value or impact on the recipients is not likely to be very high. This raises a question of why the community would create such documents if they are not recognized correctly, and on the other hand, why has Constructing Excellence defined the objective of the community to be these documents. Why for

instance, the objective would not be to create some different kinds of documents, that could be published in the larger avenue and distributed to relevant people in a more proper way than just as e-newsletters.

6.4. Summary of results

There were various points under each of the themes that came up during the research. Summarizing the previous chapters' findings, the following is listed.

All three communities were created due to needs from the target audience. While Philips' communities were created for satisfying customer needs, Collaborative Working Champions was created to satisfy the need of the founding members, who all belonged to the member organizations of Constructing Excellence. What was a point arguing for virtual community, was that this online environment allowed ease of communication between the members. So the ability of internet and virtual community environment to help members to communicate with each other was seen as one of the main reasons to form an virtual community vs. traditional physical communities.

One of the common features between the three communities was that they all had members with highly professional background. Most of the members in the communities were highly educated industry specialists with a sound knowledge of the industry related issues. This naturally allowed the members to discuss meaningful topics with each other, and discuss with other professionals as opposed to more "common" people. Members are also likely to feel more encouraged to discuss as they knew that the knowledge level in the community was high enough for interesting opinions. Naturally, as the members were highly professional, it is likely to mean that they are also quite busy in their work. With tight schedule, these people are not likely to engage in discussions that are not "smart" enough.

The objectives of Innovation in Health and Collaborative Working Champions were also similar in nature, while the actual content might have differed. While Philips wanted to position itself as the thought leader with Innovation in Health, Constructing Excellence wanted to promote their message of collaboration by establishing a virtual community. In a sense, since promoting

collaboration is the main message of Constructing Excellence, Collaborative Working Champions was actually showcasing its sponsor organization and its goals. So in fact both Innovations in Health and Collaborative Working Champions were in fact trying to promote their sponsor organizations. NetForum community again, had the main goal of offering its customers better value added services that came as a benefit on top of physical offerings of the company. Naturally these free services that the community offers reflect positively on Philips as whole, and in fact also promotes Philips as a thoughtful company that considers its customers in its business.

With regards to customer or member roles and new product development phase, all three communities used their customers and members as resource for ideation. Some ideas and insights about customer needs and requirements that were recognized in Innovations in Health by the marketing department were passed on to other functions. In NetForum community, e.g. the insights from the case studies, best practices, exam cards and utilization dashboard were analyzed and used as ideas and guidelines for new product development. Also in Collaborative Network Champions, insights from the group members were taken into account and fed to both call group and Construction Excellence. In NetForum community, also the other two customer roles were present. As some software or pilot products were shared between a selected number of community members, these members served also as co-creators for design and development and users for product testing. In addition to this, with ExamCards and best practices, the members were also users in product support. With regards to Collaborative Working Champions, as the products in this case were the documents produced, one could see members having a role also in product testing as users. Whenever a draft document is shared between the members and comments and improvements to this are given, the members are in fact helping with product testing and also design and development.

What can be seen from the customer roles is that it seems to be most common and relatively easy to use customers as resource for ideation. To encourage ideas, firms do not need anything more than just a discussion forum. They then need to just monitor these discussions and pick up those ideas they find useful for further study. However, if firms are lazy, they can just not search for ideas, and still the community could keep running. When a firm wants to use customers as users for product testing and support, we are already talking about a higher commitment level from company perspective. Here, firms must continuously monitor the discussions, as if there are any incorrect product support advices posted by a member, firms must react to this immediately in

order to avoid other members getting frustrated. As can be seen from Philip's NetForum community's case, due to legislation, firms need to actually review each comment before allowing the post through to the community site. So when a firm engages in product support and testing functions, they have to commit in continuous follow up of the community activity. With customers as co-creators, the process is often much deeper. From the example of NetForum community, one can see that these actions are taken in relative small groups, e.g. the particular community only shares such activities with selected members. This makes sense as it is hard to involve too many people in actual design and development phases of product development.

While my research does not focus on how to motivate customers to take part in community activities and share their ideas, I feel that it is important to understand how companies approach this topic with respect to different customer roles. In the case of NetForum community, the community managers have thought about this, and have noticed that recognition seems to be what contributors are after. The community manager said that they struggled in the beginning with how to recognize the contributions in the community. In the beginning, there were no consideration from the Philips' side on this matter, and the early contributors also did not raise the topic up. In fact, Philips believes that none of the early contributors even thought about how they should be rewarded for their contribution. however, with the growing amount of people taking part in the contribution process, some raised the question as how to reward them for their hard work. After thinking about this, it was noticed and decided that the recognition of having ones work published, and ones name published on the website was most of the time good enough. Also with those contributors that were very active and involved, they often also got other benefits for their work. For instance, as these heavy contributors were also early adopters of the Philips' new products, they had the benefits of early product testing in their facilities. Philips has in fact managed to use product testing as an reward system for its active members. So actually their reward to those members sharing ideas for new product development was that they got to also help with product testing. Naturally, this approach would not work in any firm or with any type of products, as product testing cannot be seen as a reward in all types of products. however, with this kind of highly innovative and high-tech products, such approach seems to work as it also gives ones customers an edge to try out a brand new product ahead of its competitors.

When discussing about community guarding, the managers of all three communities highlight the open nature of working. They argue for the open nature of internet and transparency in operation. These are naturally what current day's marketing and ethical way of conducting business all highlights. In fact, the only reason for guarding some groups is to avoid spamming taking place.

Following this, one of the strongest themes arising from this study is trust. Members should be able to trust the community and the contents published there.

With regards to strategy for competitors, there was no clear vision for this in either one of Philips communities. For Constructing Excellence, this was a bit irrelevant question due to the nature of operation. This lack of consideration for competitors seems quite surprising, as community managers of Philips seemed otherwise to be very much up to date with marketing strategy and how firms should manage its virtual communities. E.g. managers were able to identify studies conducted in the area of virtual communities and discuss these topics. On the other hand, this seems to agree with my findings in literature review, where I found that virtual community studies were purely based on studying customers as members with no mention of e.g. competitors.

The role of employees from the sponsoring company was quite important, although for different reasons. While in Innovations of Health, the main role of the sponsoring company's representative was to make sure that conversation floated and encourage more comments, the main role for sponsoring company in NetForum community was to moderate and approve all the content submitted by members. In Collaborative Working Champions again, the main responsibility for the call group was to write documents based on the insights from the group. This different levels of responsibility were naturally linked to the customer roles and their respective new product development phases. Naturally, the level of commitment and engagement required from the community managers were directly linked to the responsibility levels of each. With those customer roles that required more commitment from company side, also the responsibility level of the community manager is higher. E.g., with customers for ideation, as was mentioned earlier, firms do not need to commit to the community that much as compared to customers as users for product support. Consequently, as they do not need to commit that much, their responsibilities in the community are also less crucial.

The contents shared in the forums and their activity level also varied, with most activity in discussions and less in blog posts and other contents published by one person. Contents are generally speculative in discussions, where other members are encouraged to share their insights and ideas about the specific topic and speculate with it. On the other hand, other types of contents tend to be more descriptive, explaining a specific phenomenon without too much innovation involved. people seemed to be most interested to contribute to discussions that asked

them to speculate and give own opinions. These were the forums where one could showcase one's own professionalism and knowledge level, and also show out of box thinking. Discussions were quite civilized naturally as the result of the high professionalism of the members, but this doesn't mean that people didn't have conflicting ideas and opinions. In fact, often, some discussions might carry on with two members engaged in debating about a certain topic. What can be seen from this is that firms that want to encourage discussions in their community should always try to evoke opinions from its community members. this means that they should put up discussions about topics that shares opinions and are not that straight forward and clear to everyone.

There are also clear links between the communities and their sponsoring organizations. However, how the insights from the communities are translated into actual business actions and their effects on organizational performance are not considered much by the organizations.

Below, Table 2 summarizes the results from the field study. In the next chapter, I will discuss the results from the field work.

	Innovations in Health	NetForum Community	Collaborative Working Champions
Goal	- Position Philips as thought leader	- Offering customers better value added services	- Promote collaboration and Construction Excellence
Customer roles and NPD phases	- Customers as resource for ideation	- Customers as resource for ideation, co-creators for design and development and users for product testing and support	- Customers as resource for ideation, also some role as users for product testing and as co-creators for design and development
Member related topics	- Highly educated members - Public group, open to all users of LinkedIn - No strategy for competitors	- Highly educated members - Registration required, however anyone can register - No strategy for competitors	- Professionals in their own field - Registration required, and some selection regarding which prospective members to allow in the community
Interaction related topics	- Discussion forum and polls - Philips personnel, the group owner, facilitates the discussions and starts discussions once a	- ExamCards, best practices, case studies, clinical cases, application tips, utilization dashboard - Philips personnel	- Discussion forum, blogs, chat - Call group (consists of people belonging to Constructing Excellence's member

	- week - Members very active, discussions lively - Contents speculative in nature, members are encouraged to share their insights and opinions on some topic	moderate all contents before allowing the posts through - Members quite active, with some members more active than others - Contents are generally manuals for how to use a product for a specific treatment	organizations) posts white papers and asks members to comment on these - Members are not that active, with not many active discussions taking place - Contents include discussions on white papers and other publications and practical issues of the community
Integration related topics	- Clear link between the community and Philips' Marketing department, however there aren't any clear steps of how to utilize the insights from the communities into actual business plans - No clear measures for organizational performance other than increased customer satisfaction	- Clear link between community and Philips, as the community is part of the value added services of Philips - Insights from the community is utilized in Philips by e.g. R&D, marketing and sales department - Community strengthens partnership between Philips and customers leading to better products and value for both	- Call group (consists of people belonging to Constructing Excellence's member organizations) acts as a link between the community and Constructing Excellence - The white papers are often distributed further in the industry by Constructing Excellence

Table 2. Results from the field study

6.5. Discussion

All three virtual communities studied were established due to the need from the target group. However, while both of the Philips' target group was their customers, in Constructing Excellence's case, it was the individuals from the member organizations. This was naturally due to the organizational strategy and type of organization in question. From the traditional point of view, both of the communities were business to business customer communities, as the member organizations of Constructing Excellence are their customers in a sense. Therefore, it was interesting to realize, that even though the logic guiding the operation of the sponsoring

organizations behind the three virtual communities differed, the end result of how the communities were managed followed quite similar patterns.

There were two reasons for the sponsoring organizations to build their own communities on virtual settings. The first reason was that it allowed peer-to-peer discussions and second was the advancements in the field of social networks and internet for efficient communication. In building Innovations in Health, Philips has identified that almost 80% of their target audience felt that collaboration and knowledge exchange was important. As Goldsmith and Horowitz (2006) pointed out, it is this peer-to-peer communication instead of communication between the supplier and buyer that has been increasing lately. In the case of NetForum community again, the whole reason for building the community was to allow customers to share best practices, i.e. ExamCards at the time. Also in Collaborative Working Champions, the reason for forming the community was initially to support the peer-to-peer discussion between the call group members who before the community had to communicate via emails. So in fact, one of the guiding logic in the formation of the virtual communities in these cases has been the ability of target audience or customers to communicate with each other. By setting the communities in virtual environment instead of physical environment makes it possible for firms to have more members that it would be possible in a physical setting. Also, arranging an event for a physical community would cost quite much more for such amount of members as exists in Innovation in Health and NetForum. Naturally, this virtual setting is also highly efficient, when members can just log into the system without having to physically go anywhere. Also, the nature of communication, i.e. peer-to-peer vs. supplier-to-customer, requires a setting where members are relatively equal to sponsoring company's personnel. In a physical setting, the sponsoring company would always be the chairman of the meeting, and the setting would be much more sponsoring company oriented. On the other hand, in virtual setting, these communities are actually quite individual, with no such close ties to the sponsoring organization. Members are much more readily to open up and discuss more freely about any topic, as it is not so clear (compared to physical communities) that the sponsoring company is in charge of the community. As Rheingold (1993) and Hagel and Armstrong (1996) have realized already almost twenty years ago, having customers participate in a community and share ideas there is very important to the business of the sponsoring company.

The other reason for building the virtual community mentioned by all the three cases was the advancements in social networks and the efficiency it provided to communication between peers.

As Bellman (2006) argued, the rise of internet has led to many new possibilities for marketers and firms to explore with their customers. While all three cases had realized the need for them to employ these opportunities brought by the advancement of internet and social networks, they had different starting points to the matter. Philips highlighted its forerunner status in creating both of its communities, especially NetForum community. Constructing Excellence's main reason again was the functionality of using virtual communities instead of other means of communication, i.e. Emails. In that respect, Philips seemed to be more aware of what it had in mind for its communities in the long run than Constructing Excellence. Philips viewed that with creating a platform in the line of social networks put it ahead of its competitors in respect to value added services it offered to its customers. This way, customers would see Philips as the company that is a pioneer in the field with respect to innovative solutions. Naturally this kind of association translates to Philips products and its brand in whole, most probably. Especially, with Philips' products being high-technology equipment, this sort of association of forerunner would be very useful.

The main organizational goal for forming Innovations in Health and Collaborative Working Champions was to *promote* the sponsoring organization and what they stood for. Even though, there wouldn't have been these communities without the needs arising from the target audience, additional organizational goals existed. In Philips' case, thought leadership was to be promoted. In Constructing Excellence's case, the virtual community *promoted* collaboration, the main goal of Constructing Excellence. Interesting thing to note in this part, was that Philips viewed thought leadership and selling of products as two contradicting terms in defining the goal for the community. The fact that it wanted to be seen as a thought leader "*as opposed to*" selling products tells about the importance Philips bases on not being too pushy with their products when steering conversation between their customers. This follows the line of Service-Dominant logic of marketing, where firms aren't just a provider of products but instead they are more like a partner for customers and an expert in the specific are. Philips seems to want to move away from the supplier-customer way of thinking towards more partner and relationship based ideology in managing its customer relations. In a sense, Philips seems to want to separate its Innovations in Health community totally from its business, and not have any business related goals (e.g. selling, promoting own products) hindering the neutrality of the community. As can be seen from the strong juxtaposition of thought leader and selling products, Philips thinks that even a small

mention of products would harm their position of thought leader. While many researchers e.g. Vargo and Lusch (2004), Prahalad and Ramaswamy (2000), and Jaworski and Kohli (1993), have suggested that firms should be more customer oriented and listen to their customers instead of operating just by themselves, I highly doubt that they meant this way of thinking to be taken this far as Philips has taken it with Innovations in Health. While it is good to provide one's customers and avenue free of promotion and advertising, it does not mean that the community should be entirely ripped away from profit circle of the firm. If Philips would build a systematic process for tracking and analyzing the contents generated in Innovations in Health, it could reflect back on the overall business performance of the firm. Continuing on the same line, according to Ramaswami et al. (2009) and Tzokas et al. (2003), firms should have a proper process for assessing the performance of any project they undertake, including in this case Innovations in Health community.

This same logic of Philip trying to keep its business separate from the virtual community is repeated in various parts of Innovations in Health. With regards to moderating the discussions, Philips strategy is not to encourage any product related talks. Also Philips' own personnel are advised not to discuss their products in the discussion forums. This want to keep all product related talks out from the virtual community is justified by not wanting to drive members away by making the community an advertising space for products. Philips wants to make absolutely sure, that the professional discussions in the virtual community are not disturbed by any clutter from advertisement or discussions about a specific product. Even though this lack of mentioning of any Philips related products or services did strike me as quite odd at first, the thoroughness in keeping business and the virtual community apart did make sense after hearing from the Philips personnel. Perhaps people were seen to be more willing to contribute and share ideas when there were no promotion activities taking place. When people feel that they are not bombarded with advertisement messages, and when they feel like Philips isn't trying to sell them something, they are more likely to feel relaxed and less alert when participating in the community. This way, they are also likely to contribute more openly, as they feel that this is really a place for professional talks instead of advertisement space. Naturally, more open discussions also tell more about what members are feeling and what they think about various issues, and this information in turn allows Philips to understand their customers better. But in order to do this, Philips would have to establish a proper process for tracking and analyzing the contents generated.

Contradicting this guiding logic of keeping Innovations in Health entirely focused on professional discussions without any disturbances from advertisement and spamming was presented in one of the discussions in the community site. The post from one of the members asking other members to say hello to him caused a lot of negative feedback from the other members. Many of the other members complained about the unprofessional nature of this discussion and asked Philips to remove the post. However, even after two month from the start of this discussion and after over 120 responses, Philips didn't do anything about this. Many of the most frustrated members threatened to leave the group if this discussion was not removed. Nevertheless, from this discussion, it could be seen that members of the professional virtual community really valued and required the discussions in the community to be professional and to the point. People generally didn't like that the quality of content in the virtual community would be compromised. Therefore, it seems quite weird that Philips didn't remove this post even after two month and 120 comments and various complaints about the post. This seems to go against the general guidelines Philips employed in managing and moderating its virtual community. And as consistency is one of the key aspects of keeping quality high, this inconsistency in the level of professionalism in the contents is definitely harming the perceived level of quality of the overall group. However, not all the members were frustrated about this post, so maybe that was the reason why Philips didn't remove the post. After all, this kind of *lighter* post might also bring about positive atmosphere to the group when not all the discussions are too serious in nature. In a sense, this sort of lighter comment would suit communities of relationship as defined by Hagel and Armstrong (1996). But as this community is in highly professional, the contents should be professional even if the end purpose is to network and discuss topics that interest all. Personally though, I think that this kind of unrelated humorous greeting post would fit better in a smaller community, where members know each other better, as people can just turn this into a joke. However, in a larger group like this, where members cannot possibly know each other, this kind of icebreaker doesn't humor everyone, and can be easily interpreted wrong, as the group is too large already for a *homey* feeling.

This particular incident happened right after Innovations in Health was made into a public group. Following the announcement of group becoming public, some members voiced their concern about spamming and inappropriate postings to the group following the opening up the group to all. However, even though the threshold to spamming the group is lowered by some amount with

the group going public, it doesn't seem that the effect was that significant. In fact, when the group still required registration, the actual registration process was so easy and effortless that anyone could have joined the group. Moreover, even after the group became public, one still needed to join the group same as before if they wanted to post something. So in fact, in order to post something to the site, one still had to go though the same steps as before. On the other hand, by becoming a public group, Philips gained a lot of publicity. Now, Innovations in Health comes up in Google search as well, and naturally more people become aware of it. Prospective members are also able to view the group and see the type of discussions in there without joining the group, which can lower their threshold to go through the trouble of joining the group. Also as they see the type of content in the group, they can decide whether they want to associate themselves to this particular group or not. This way many people who might not have joined the group originally due to the reasons of e.g. too lazy to join or not wanting to associate their names to a group that they do not know that much about, are now much more likely to join the group if it is something they like. In a sense, this public group offers them a sort of *trial period* without having to commit to the group right away.

Nevertheless, this issue of spamming and inappropriate postings was also the concern of Constructing Excellence when it built its virtual community. In order to avoid inappropriate postings and spamming of their virtual community, Constructing Excellence decided to make their community private, with registration of members required. They went much further than Philips with Innovations in Health, as they actually checked their prospective members' affiliations, i.e. which organization they worked for or studied in. They didn't for example allow anyone to join the group with a hotmail account in order to be sure of one's identity. Having people post with their own names and even with their respective organizations was an indication that the postings would be professional and thoughtful.

Following this, choosing the platform for creating one's virtual community and deciding how to guard the community seems to be quite important for keeping the quality of contents high. For example with LinkedIn, as people are registered there with their own names and it acts as their interactive Curriculum Vitae with current and previous jobs and educations and recommendations from others, one can be quite certain that people in LinkedIn tend to behave quite professionally. Generally, as Linked is a professional platform, people tend to be careful of what they post and where, as that will have a direct effect on their professional image. This is why, compared to other

platforms (e.g. own website or Ning platform), LinkedIn could be seen as a relatively *safer* choice as people are already registered in the platform before joining any groups. So in a sense, even if a group in LinkedIn would be entirely public with no need to join before posting, people are still required to join LinkedIn before being able to post to the group. And in Innovations in Health's case, there is actually double assurance, as people are required to first join LinkedIn and then join the group before posting.

On the other hand, with virtual communities based on other platforms, this group guarding can be done via registration. This has been the case with both Collaborative Working Champions and NetForum community. Both of the communities require registration before having access to most parts of the community. However, it was interesting to see, that the two communities differed quite a lot in their strategy towards accepting prospective members. While Collaborative Working Champions had quite a strict selection process of allowing mainly industry related people and students to their community, Philips allowed basically anyone wanting to join the community. Naturally, as the community required its prospective members to fill in the registration form and the content of the community was very specific, Philips probably assumed that people who had no interest in the topic of the community wouldn't go through the trouble to join the community. In addition, naturally required joining would turn some of the spammers away as well.

This type of community guarding in order to make sure of high quality content is especially important in the case that firms wished to use their virtual communities for new product development. Especially for the purpose of new product development, it is quite essential that the contents shared and the atmosphere surrounding the communities is highly professional and reliable. In fact, one of the reoccurring themes in all three virtual communities was the importance of trust. Both Philips and Constructing Excellence realized that they needed to build an environment of trust in their virtual communities. Naturally the previously mentioned community guarding supported this trust element. In addition, also the professional status of members evoked further trust and reliability towards the content generated in the communities. In fact, in NetForum community's case, content was published only after being reviewed by the review board, so that the published content would be 100% reliable and trustworthy. This sort of trust was also vital for Philips and Constructing Excellence as they wished to use the contents in the communities for their new product development processes. In the case of Innovations in Health and Collaborative Working Champions, they needed to have a trustworthy environment for

members to feel comfortable enough to contribute. And on the other hand, in case of NetForum community, Philips had to carefully moderate contents in order to have contents that people could trust to be reliable.

This trust element is also in line with finding "right" type of customers for NPD processes. Both Hoffman et al. (2010) and Von Hippel (1986) have realized that in order to involve customers in their new product development activities, it is essential to find the lead users from the rest of the crowd. When members participate in the communities with their own name and ideas, and when the community setting is highly professional, it is easier for managers to distinguish right type of users from the bunch.

An interesting point in this respect is that while community guarding seems to be one of the key factors in creating trust that would in turn be needed in new product development, out of the three communities, NetForum community had least community guarding while it was most involved in new product development processes. While both Innovations in Health and Collaborative Working Champions were used for ideation phase in new product development (Nambisan, 2002), NetForum community was used for all four phases of new product development mentioned by Nambisan (2002). Still, out of three communities, NetForum community had the least member selection taking place. While Innovations in Health required its members to be part of LinkedIn and Collaborative Working Champions tried to make sure that all its members were somehow related to the industry, anyone could join NetForum community. However, the reason for this might be due to the nature of postings in NetForum community. As NetForum community is FDA-approved, all the contents in the community have to be first reviewed prior posting to the site. So even though if people joined only for the purpose of spamming, they couldn't achieve this as their spamming would not pass the review board. So in fact, there couldn't be any harm done by these spamming.

Another interesting aspect in how Philips and Constructing Excellence thought about community guarding was their strong view supporting openness. While they realized that in order to have high quality and professional content, create trust and avoid inappropriate posts, they had to have some level of community guarding, both of the organizations still stressed the importance of openness. There seems to be some level of paradox in this, as it is impossible to be guarded (i.e. closed) and open at the same time. In Innovations in Health, when the group went public, it in fact

used justified openness with the "*open-source nature of the Web*". This particular statement shows that Philips believes that openness is what is expected from them when operating in virtual environment and that seemed to be the reason for aiming for openness. Similar pressure from the outside seemed to also guide the way of thinking for Constructing Excellence. When responding to the community guarding question, the answer was that Constructing Excellence did have some level of member selection. However, they wanted to still stress that they wanted to be as open as possible towards accepting members. These contradicting statements sound like both of the organizations think that they should be more open. It feels like they believe that is what is expected from them when operating in the virtual environment. They seem to think that the open nature of internet (Bellman, 2006) should be translated to their operation as well.

The high quality of contents and trustworthiness also comes from the qualification and status of members. The members in all the three communities are professionals from their own field. In Philip's case, the members were highly educated clinicians and other specialists from the medical industry. In Constructing Excellence's case, the members were industry specialists from construction sector of UK. As they published with their own name and respective titles, they were also promoting themselves and making their own name visible. This also translated to generally high quality content as the content represented oneself. In NetForum, members were in fact encouraged to contribute content and the benefit to one's own image was mentioned. While the benefits of contributing weren't expressed that bluntly by the sponsoring organizations in the case of other two virtual communities, the members seemed to understand the benefits without saying, as many of them contributed and took part in discussions so that they could share their own opinions and tell about their own publications. As the highly professional nature of members in the communities also increases the need for highly professional content and highlights the importance of having a trustworthy environment, there is in fact a circular process feeding itself in keeping up the high-quality content. This means that while highly professional members create high quality content to promote their own expertise, same time the other members of the community can feel that the contents in the community are high in quality which again encourages them to also post high quality contents.

One of the interesting things to note is also that people liked to refer to some specific publication while discussing, thus making a point that they follow journals and studies and are well informed about what is happening in the industry. All three communities appear to have noted this as they

all share links to different publications in the industry. In general, all three communities seemed to have researched quite well about their target group's preferences, and taken them into consideration in building and managing their virtual communities. This is again an example of the sponsoring firm knowing about the needs and interests of their customers. Throughout this study, it has been evident, that in the case of all three case communities, knowing ones customers and catering to their needs is the key approach guiding the management of the communities.

While relatively much focus has been placed on building the virtual communities and fit them to target group's requirements and needs, relatively little focus seems to be put in how to use the virtual communities as part of organizational strategy. Both Innovations in Health and Collaborative Working Champions were formed to the needs of their target group. They seem to be in fact own entities, somewhat separate from the rest of the organization. Even though some of the ideas and insights from the group are conveyed to the rest of the organization, mostly, it seems that the groups are formed just to let members to talk with each other. Insights from the groups are observed quite loosely, only by the employees involved with the everyday management of the community in Innovations in Health's case, and by call group in Collaborative Working Champion's case. They then pass on those insights to the other parts of the organization that they feel to be useful. So as there is no clear process for recognizing what insights could be used further, this recognition of useful insights is quite subjective and definitely unable to catch all the useful information. On the other hand, even those insights that have been recognized to be useful will not be used in the other parts of the organization, as the community is treated as a separate entity to the firm. As there is no clear process for transferring insights from virtual community to business functions, even when some manager is told about the insight, he or she might forget this insight and not utilize it in the business function. E.g. if a R&D manager is told that customers value a specific type of function in their products, this manager is likely to just register this knowledge without doing anything about it, as they have a separate protocol and processes for product development. Product development might be done with other customers, and the insights from the community are not part of that process. Therefore as there is no specific protocol for looking for insights from the communities and passing them on to the rest of the organization, many of these insights are likely to be lost in the chatter. This is why I think it is important for companies to actually create clear protocols on how to recognize the insights and ideas from the information and discussions in the virtual communities, and how to then translate

these recognized insights into actions within the company business processes. There should be a clear protocol for this, as otherwise many of the potential insights are likely to be lost. As Ramaswami et al. (2009) pointed out, companies should follow and measure the effect of its activities on the overall market performance of the firm.

Out of the three communities, only NetForum community has some kind of protocol for passing on information from the virtual community to rest of Philips. However, even in this case, this information is not passed on automatically, but instead the teams involved with the community have to "*proactively offer*" the insight to different parts of the organization. There are also no follow up on ROI or any other metrics for the investment in virtual communities. In fact, none of the communities have used any performance metrics mentioned by Tzokas et al. (2003) to study the performance of their virtual communities. Naturally, the situation is a bit different in case of Constructing Excellence, as it is a non-profit organization in a sense, as its product is in fact white papers and other documents. From that respective, it could be said that they have had performance metrics, which would be the amount of white papers produced yearly by the virtual community. In Philips' cases, the managers felt that their communities strengthened customer relationships and affected positively on brand image. While these two effects are definitely important ones and have been recognized by various researchers (Algesheimer et al., 2010; Hagel and Armstrong, 1996; Nambisan and Baron, 2007; Kozinets, 2002) as common for virtual communities, in Philips' case, they are just guesses and managers' view about the situation. Philips doesn't actually have proof to back up these claims, and no systematic way of measuring these.

Nevertheless, it was surprising that even though Philips was highly advanced what came to virtual communities, they didn't really have strategy towards integrating new product development to their communities. In fact, while they used insights from the communities in their new product development processes, they kept the two concepts separate from each other, with no integration between new product development team and virtual community. This sort of weak or lack of integration between the virtual community and sponsoring organization's other business functions also supports the findings and experience of the virtual community specialist that I interviewed in my study. She also mentioned that one of the weakest links in organizations what came to their virtual communities were the integration related topics. She mentioned that she has often came across situations where information from the virtual community is not passed on to the rest of the organization. When thinking about this weak integration, it seems to be again that communities

are seen as a separate unit not that closely tied to the rest of the organizations. It almost seems like they are built as a playground for customers to showcase that the company is actively following trends in technology, without any real consideration of how these virtual communities fit in the overall business operation of the company in question. This kind of behavior is again quite typical to many firms, as firms often engage in some projects (e.g. CRM-system, intranet) without having thought through why they want to engage in this project and what they are going to do about it. There have been many incidents where firms have jumped into doing something just because others are also doing it (e.g. social media), without really thinking through their strategy. Following this, there is less consideration on integration with the rest of the organization.
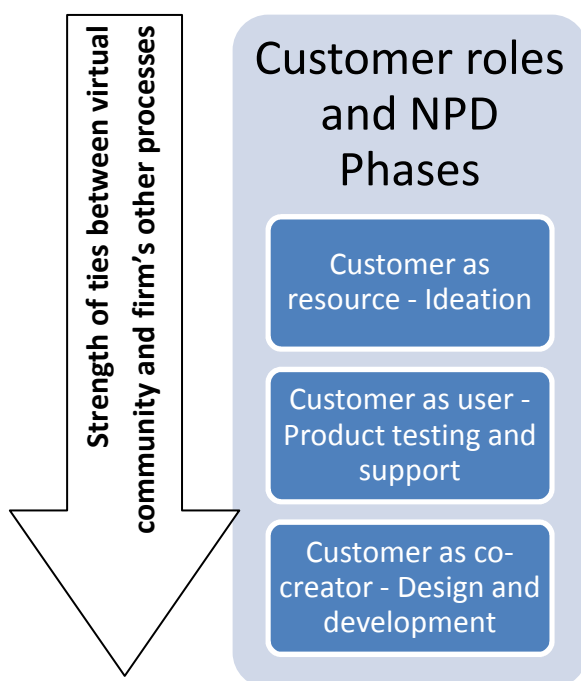
In general, the problem with the communities I've studied seem to be that sponsoring companies put no effort or thought into gathering information and ideas from the community and using it in other business functions of the firm. Rather, all their effort goes into creating and managing the community.

Another surprising finding from the research was that Philips had no strategy towards its competitors when managing the two communities. Naturally, in Innovation in Health's case, it wasn't that important whether competitors could access the communities or not as the discussions focused on general issues in the industry as opposed to product related. However, with respect to NetForum community, as all best practices and cases could have been utilized also by competitors, it seems a bit odd that there is no strategy at all for this. Obviously, the strategy could be not to limit entrance as well, but a lack of consideration about the topic seems to be quite questionable. This lack of strategy towards competitors might in fact be linked to the independent nature of the communities from the sponsoring organization, as with tighter integration and links to organization's overall strategy, it is likely, that also competitor aspect would be covered. As many researchers (Fusfeld and Haklisch, 1985; Belderbos et al., 2006; Burreau and Dogan, 2010) have studied, companies do engage in cooperative actions with their rivals in order to share costs, gain synergy or pool resources. Also in regulated industries like Philips', rival companies might engage in cooperating with goals to affect regulations and industry standards (Belderbos et al., 2006).

With respect to new product development, it is clear that in these three cases, using customers as resources for ideation phase of new product development, i.e. having customers share ideas and

discuss with each other, seem to be the most popular method. However, due to the weak integration between the virtual communities and the sponsoring organization and the weak cross-sectional integration of functions, using customers for ideation through their discussions seems to be the most effective and least troublesome way to involve them in new product development. With respect to e.g. product support, i.e. publishing ExamCards and best practices, the sponsoring organization would need to place much more effort in managing the community and its content, as all the content should be checked before publishing. One cannot really publish incorrect best practices. In fact, I believe that organizations are almost always able to use contents generated in virtual communities for ideation in new product development. It is the other phases in new product development that require more commitment and more developed virtual communities from the organization.

To summarize the discussion, I will highlight the main points found in this study with respect to each of the four themes presented in the conceptual framework.

Strength of ties between virtual community and firm's other processes

Customer roles and NPD Phases

Customer as resource - Ideation

Customer as user - Product testing and support

Customer as co-creator - Design and development

Customer roles and new product development phases customers are used for depend on the strength of ties between the virtual community and the sponsoring organizations. The stronger the ties, the more of the customer roles and respective new product development phases are likely to be used. In general, it seems like most of the communities can be used for ideation with customers as resource. With the increase in strength of ties and commitment and with communities developed further, also customers are used as users for product testing and support and also as co-creators for design and development.

With respect to member related topics, there were no specific lead users recognized for product development. While in each of the communities, there were some members that were more active and contributed more, those members were not actively recognized by the firms for new

product development. In fact, firms had recognized those customers that they actively involved in their processes from somewhere else, e.g. past cooperation, and didn't look for any lead user from the community. Regarding strategy for competitors, the case communities hadn't considered this aspect. However as the community was treated as a separate unit not part of other business functions, it could be thought that with tighter links and integrations between the firm and the community, there would also have to be more clear strategy for competitors. From my study, one of the aspects that arose from the data was community guarding. Firms all have some guarding of the community, but same time wanted to stress their openness. This paradox is explained by practical uses of guarding and the perceived outside pressure for being seen as an open place with nothing to hide.

Member related topics
- Member selection
- Strategy for competitors
- Community guarding

The type of content varies a lot depending on the community in question. While Innovations in Health had just discussion forum and polls, NetForum community had best practices, case studies, utilization dashboards etc. One thing to notice from this was that the more consideration there has been put into the development of the community, the more likely there is going to be also special features like utilization dashboard in NetForum community. Naturally features like discussion forums and blogs were quite common and didn't require that much development than the more special features. With respect to content development, one similar point was that the sponsoring form had to be highly involved in the content generation. However, they did not need to start or generate all the content, but rather

Interaction related topics
- Type of content
- Content creation
- Moderation
- Trustworthiness

facilitate the content generation. New factor that came up during my study was the importance of moderation in the communities. It is through moderation, that communities were able to create a trustworthy environment for their members.

Integration related topics were the most difficult ones for the firms. Both types of integration seemed to be the Achilles heel for the firms, and they didn't have clear ways of translating the insights from the communities to the rest of the organization. This is most likely due to the independent nature of the communities and the lack of consideration of how the community belongs to the organizational strategy of the firm. Following this, also link to organizational performance was weak. In general, the problem with the communities seem to be that sponsoring companies put no effort or thought into gathering information and ideas from the community and using it in other business functions of the firm. Rather, all their effort goes into creating and managing the community.

Integration related topics

- Integration between virtual community and sponsoring firm
- Cross-functional integration within sponsoring firm
- Link to organizational performance

7. Conclusion

In this chapter, I will first summarize the findings from this study, and then shortly present the theoretical and managerial implications. I will also suggest few questions for further research.

The aim of this research was to shed more light on the topic of building and managing virtual professional communities for new product development in the business to business context. In my research, my main objective was to find out "*How can companies innovate and carry out NPD with their B2B customers using professional communities?*" The findings of from the literature review suggested that firms have to consider various factors when designing their virtual communities. These factors include the type of customer role and new product development phase the community is built for, what kind of member palette the community consist of, how communication is carried out in the community and finally how the community is integrated to the rest of the organization.

The main findings from the empirical part of this research was that the case companies in this research seemed to put much more focus on building the virtual community to the needs of the target group rather than considering how the community is part of the overall organization and suits with the strategic goals of the organization in whole. In fact, the virtual communities are treated almost separately from the rest of the organization, as it was not really part of the overall organizational strategy. Other findings from this research included how firms facilitated and encouraged interaction between their target groups and how firms controlled the access to the community. For example, trust was one of the most important themes rising from the study. Firms moderated communities so that they could build an environment of trust. The aim was that members were able to trust the contents presented in the community site.

All in all, the findings of this research suggest that there are still much more to learn about this phenomenon of virtual communities, and potential further research topics include in-depth studies on any of the themes mentioned in this research, e.g. the role and status of virtual community in firm's organizational strategy. In addition, as this topic of virtual professional communities is still relatively new, any further case study on a specific virtual community would broaden our understanding of the phenomenon.

7.1. Theoretical implications

Building on the works of other researchers including Nambisan (2002), this thesis provided more insight especially into those topics that have not been covered earlier by other researchers. These topics include how member guarding takes place and how sponsoring firm manages and moderates interaction within the community. Member guarding took place in the three communities by registration. All the prospective members had to register to the community, and in general all were accepted. Management and moderation of community activity varied between the communities, while in NetForum community, every content had to be checked by the moderation group before allowing the post through, in Innovations in health, all posts were allowed through, with the group leader then checking if some of the posts included forbidden contents. In addition to these new themes, this thesis also included insights into how organizations chose to use their virtual community members for specific customer roles and their respective new product development phases. It was obvious that using customers for ideation by having them freely post ideas and discuss with each other, was the most common and easiest method for the sponsoring companies. Using customers for product support on the other hand, e.g. having them come up with best practices, was much more troublesome for the sponsoring company, as it had to check the validity of such best practices always before allowing such posts through to the site. This thesis also shed more light on the integration between virtual communities and the respective sponsoring organization. in fact, it was the lack of such integration that was found emerging throughout the study. Firms seemed to put very little effort on thinking about how to use the content in their communities further in the organization, and how these could improve overall organizational performance. As this research was comprised of multiple case studies, the aim was not to produce results that could be generalized. Instead, the aim of this research was to broaden our understanding of the current phenomenon and shed more light on the topic from the perspective of the three chosen cases.

7.2. Managerial implications

While the results of this thesis are case-specific, and cannot be generalized as such, there are still some points that managers can use when thinking about building their own virtual community.

General guidelines for building a virtual community would be to study whether there is a need for one in the target group of the firm. Firms should pay close attention on what are the key issues and considerations their target group has and what purposes the target group would want to use the virtual community for. Following this, firms should study their own organization and its strategy, and place the community as part of that. This step seems to be missing from various virtual communities.

Firms need to consider carefully how the day to day management of the virtual community is carried out, who the members of the community are, and what type of activities should be present in the community. Firms need to also prepare for unexpected scenarios, and have strategies on how to respond to them. All in all, managing a virtual community is hard work with high commitment to the community needed.

In respect to using virtual communities for new product development, the most common method seems to be for ideation through analyzing contents created by the members. With the rest of the new product development phases, more work is needed and community should also be more advanced. Naturally, the more advanced the community is, and more new product phases it can accommodate for, the more measurable are also the return on investment for the community. As a general guideline, firms should always have some performance metrics guiding their communities.

One of the most important considerations firms should have when deciding whether to build a virtual community or not, is to consider and assign enough resources for the project. it is not enough to just have people manage the community, but more importantly to have people and processes in place to track and analyze the contents shared in the community. Otherwise, the community could be seen only as a sunk cost with some positive effects on relationship with customers. Firms should always establish a process for getting information out of the community to other business functions. This naturally requires that other business functions are also dedicated to the community and the process. In other words, firms should first sell this idea of

community internally, and only then when they have the right process in mind and in action, they should build the community.

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