Value Creation in Business-to-Business Context – Case Medical Technology Business

Saks, Markus

2016 Leppävaara

Laurea University of Applied Sciences
Leppävaara

Value Creation in Business-to-Business Context – Case Medical
Technology Business

Markus Saks
Degree Programme in Service
Innovation and Design
Master's Thesis
May, 2016

Markus Saks

Value Creation in Business-to-Business Context – Case Medical Technology Business

Year	2016	Pages	84

The aim of the thesis is to create better understanding about value creation in business-to-business context in a relation to marketing science development. Development of marketing science theory has created a paradigm shift with service- and customer-dominant logic perspectives in the early 2000's and it has caused a debate in value creation thinking. Research design utilizes the service design approach. Research context is in medical technology business and focuses more closely to diabetes supplies business. Target groups for the research are case company representatives and diabetes nurses in public healthcare sector.

Value creation thinking was viewed from the perspectives of three dominant logic's of marketing; goods-dominant, service-dominant and customer-dominant. Service design was utilized in planning and executing a holistic approach to research design using the double diamond service design process model and service design toolkit of chosen methods as a base for the project. Medical supplies business represents classical economics marketing logic with provider- and goods-dominant approach to value propositions. Customer base in public healthcare sector typifies the slavish habits in holding on to prevailing structures and practices. That narrows down value creation opportunities for goods- and provider-dominant approach which contradicts to the nature of public healthcare that in essence is a very service-oriented public service. Regional localized structures and practices in public healthcare create very heterogeneous business environment for medical supplies business which can be interpreted so that customer-dominant logic approach would best meet the requirements and individual needs of the market and customers.

The contribution of the research is both theoretical and practical. Theoretical contribution is to deepen the understanding of value creation thinking in a relation to marketing science development. In medical supplies business it relates to shifting from goods- and provider-centricity to service- and customer-centric business approach. Practical contribution is to create better understanding on how the case company should develop its marketing logic and approach with value propositions matching the market and customer needs in public healthcare today; what are the main challenges of diabetes care in public healthcare sector and how value is created in medical supplies business. Understanding the challenges of diabetes care in public healthcare enables critical challenge of current value propositions while understanding the value creation process from the provider's perspective creates a possibility to reveal defects in customer management process from the value creation perspective. Based on the research the case company with its current value propositions is selling solution to a non-existing quality issue in the market while the diabetes care in public healthcare sector is in a need for service- and customer-oriented partners to offer mental and physical resources to cope with ever-growing patient mass in a rapidly changing working environment.

Key words: Value creation, service-dominant logic, customer-dominant logic, research design, service design, healthcare, diabetes, medical supplies

Table of Contents

1 Introduction to service revolution

1.1 Services – the future business driver in medical technology business (?)

The services sector has become dominating global economy in the past decade; in the Fortune 500 companies list, service companies are overruling the dominance of manufacturer companies and in the developed nations, services present up to 80% of the gross domestic product, GDP (data from The World Bank 2016).

Moritz (2005, 23) defines four different drivers that lead to "service revolution": the service economy is booming, the product market is satisfied, technology enables services and humans have individual needs. Boom in the service sector doesn't only mean that service companies are growing but also that production companies are turning into solution companies and creating additional services to create better value for their products. Product market has reached to its end by already satisfying the market needs with massive competition.

According to Polaine et al. (2013, 18) people are evolving out of the materialistic wealth because our consumption and other habits are threatening our existence. This means that fundamental needs are changing more towards sustainable and healthy future, not just on individual level but on planetary level too. Focus today is towards green ideologies, networks and intangibles and people are looking for new experiences to enrich their lives instead. In addition new technologies have enabled new service channels with better accessibility, faster response time and possibility in networking on a global level. Technology has also created more challenging business environment with less control due to uncontrollable factors such as social media and global transparency. With the massive information flow and massive amount of service opportunities companies are forced to increase understanding of client's behavior, wants and individual needs to have better possibility to succeed in creating more attractive service for today's market.

As the market is taking steps away from goods-centered thinking, new sort of business and marketing logics are evolving as the understanding of the changing business world and new marketing science increases. Service-dominant logic by Vargo & Lusch (2004) and customer-dominant logic by Heinonen et al. (2010) are challenging companies' value creation thinking by creating discussion over the positioning and the roles of company, goods, services, customers and other stakeholders as well as re-thinking what is actually exchanged when a customer is buying an information, a product or a service from a company.

Today customer value is re-positioning to form the center of the business strategies for companies but the roots for customer centricity go all the way back to 1960 when Levitt argued

that companies are too much focused on internal processes and not enough on how to better deliver customer satisfaction (Levitt 2004). To have a better customer value understanding and enabling customer-center focused services and service system designs the field of service design is evolving as a new form of approach to research design. According to Katzan (2011, 43) service design is adding value to older service systems by enhancing the efficiency, effectiveness and efficacy and to create newer ones with requisite attributes. Stickdorn et al. (2010, 29) argues that service design is a new way of thinking by being is an interdisciplinary approach that combines different methods and tools from various disciplines.

In current market situation all the companies have to be able to adapt to the changing market environment. For many companies in practice this means to come up with a new way to differentiate and to create unique value to customers. One way to do that is to rely on service development. Today more and more companies utilize service design thinking and current marketing science as a way to create new business models and unique value propositions. This phenomenon of creating service- and customer-based business models reflects the current service revolution of world economies.

In more conservative businesses like medical technology business, the service revolution has not yet boomed. The pressure to acknowledge and respond to changing market needs is starting to build up for companies still relying to classical economics business approach such as the case company of this thesis. Company's business has been divided into business segments that form isolated functional units inside the company. This thesis focuses on Diabetes Care which is part of the Medical business segment. Diabetes Care unit in Nordic countries consists of Nordic Sales Manager, local Sales Representatives, Business Support Specialists and Tender Specialist. Diabetes Care focuses on emphasizing the high quality and design of the products (pen needles, insulin syringes and lancets) in marketing and offering material to support clinicians work in patient care.

Case company operates under a procurement law in public sector. The fundamental principles of the procurement law is to ensure transparent and efficient tendering and equal and non-discriminatory treatment for tenderers. Procurement procedures for public organizations follow the open or limited procedure and in medical supplies business open procedure is prevalent. Operating in a very legislated and controlled business environment brings challenges in trying to differentiate from the competitors due to transparent nature of tendering. Transparency ensures open secrecy to all innovations and competitive advantages for every participating company and for its part is also prevents or at least slows down the development of manufacturer companies' business and service offerings.

1.2   Purpose, structure and limitations of the thesis

The purpose of the thesis is to study practices of medical technology business and diabetes care in public healthcare sector and theoretical development of marketing science and value creation thinking. There are three development areas in which the thesis aims to create better understanding on:

- Value propositions in diabetes supplies business in a relation to marketing science and value creation thinking
- Value creation in medical supplies business
- Challenges of diabetes care in public healthcare

Thesis' structure is divided into six chapters. First chapter is an introduction to service revolution, the main business phenomena behind the need to conduct the development project and to framework in which the thesis operates in. Second chapter is the literature overview of marketing science covering the theories of goods-, service- and customer-dominant logic and the development of value creation thinking. Third chapter introduces research design in general and service design approach to research design. Fourth chapter focuses on explaining the research context and how the development project was conducted. Fifth chapter opens up the outcomes of the research. Sixth chapter summarizes and concludes the thesis.

Even though the case company also has business in private sector, this research is conducted focusing only on public sector. That is because only the public sector operates under the public procurement law that creates completely dissimilar business environment to private sector. The choice of business context is justified by the fact the almost all of the sales to the case company's diabetes business comes from public sector.

In the year 2016 Finnish government will implement and go live with a new procurement law. The law is a big factor in the business but trying to study the effects of the implementation at this stage would be too early in the process. Still the current procurement law plays part of the framework in the business and a natural part of the research context. The social welfare and health care reform in Finland affects the public sector but since it is still on a planning phase it will mainly be left out from the research but it's good to keep in mind as a context.

Structures of public diabetes care units vary from customer to customer and considering the nature of the disease, the patient mass is very heterogeneous. This leads to a multidimensional research environment so during the research keeping in mind the case company's interests helps to keep focus on the right path.

2   Development of value creation thinking

Second chapter aims to open up the literature of marketing science and explain value crea-
tion thinking based on theories of goods-, service- and customer-dominant logic.

2.1   Goods-dominant logic – grounds of classical economics

According to Vargo et al. (2008b, 255) the roots of goods-dominant logic go back to the work
of Adam Smith. In the year 1776 Smith published the opus An Inquiry into the Nature and
Causes of the Wealth of Nations which is seen as the fundamental work in classical econom-
ics. Smith was reflecting the economics of the early industrial revolution with topics such as
free markets, labour and productivity. Description goods-dominant logic comes from Vargo
and Lusch (2004) but in the literature goods-centered logic has been also referred as "neo-
classical economics research tradition" (Hunt, 2000), "manufacturing logic" (Normann, 2001),
"old enterprise logic" (Zuboff & Maxmin, 2002), and "marketing management" (Webster
1992).

According to Vargo et al (2005, 42) classical and neoclassical economics focus on supply, de-
mand and value of tangibles and their relationships. Vargo et al (2005, 42) argues that the
focus is limited and rooted in the philosophic and scientific thought which preceded the de-
velopment of economic science and that it was intentionally used by its early scholars for lim-
ited purposes. Being a very provider-centric view, the goods-dominant logic focuses on inter-
nal factors in maximizing the company's profits. This view can still be recognized as the mar-
keting logic of the medical technology industry where goods are in the center of marketing
strategy and services are reflected as additional deeds, processes and performances. Value in
the medical technology industry is defined in product quality and design and for the public
healthcare customer the added value often appears in the form of a user-friendly and reliable
product. This premise highlights the importance of value-based research in the industry.

Gummesson (2007, 8) argues that goods have never been generically defined but in the main-
stream literature it has been claimed that goods are tangible in comparison to services which
are defined being intangible. Goods-dominant logic uses this comparison to separate goods
from services and traditionally goods-dominant logic has defined services as deeds, processes
and performances and the services marketing referring to marketing of activities and process-
es rather than objects (Lovelock 1991, 13; Solomon et al. 1985, 106).

According to Gummesson (2007, 15) seller has been seen as the active and customer as the
passive part in the exchange by the traditional mainstream marketing management. Vargo et
al. (2004, 5) state that the essence of goods-dominant logic is that units of output (prod-

ucts/"goods") are the fundamental objects of economic exchange, the value is embedded into the goods in manufacturing process, the focus is on maximizing the profits, standardizing the production and goods can be inventoried until demanded and then delivered to customer. The essence of goods-dominant logic is summarized in Table 1.

Table 1. The essence of goods-dominant view (edited from Vargo et al. 2004, 5)

1.	The purpose of economic activity is to make and distribute things that can be sold.
2.	To be sole, these things must be embedded with utility and value during the production and distribution processes and must offer to the consumer superior value in relation to competitor's offerings.
3.	The firm should set all decision variables at a level that enables it to maximize the profit from the sale of output.
4.	For both maximum production control and efficiency, the good should be standardized and produced away from the market.
5.	The good can be then inventoried until it is demanded and then delivered to the consumer at a profit.

2.2 Service-dominant logic – challenging the traditional marketing logic

Moving from traditional goods-based marketing logic to a service-based marketing logic has meant a new era in the marketing science. It has slowly changed the whole view of who what companies and people are exchanging, what the roles of different actors are and who is creating value, when and where.

According to Gummesson (2007) real debate in service marketing became when the new dominant logic of marketing, service-dominant logic was introduced by Vargo and Lusch at 2004. Compared to traditional goods-dominant logic where people exchange operand resources such as goods, service-dominant logic argued that people exchange operant resources, such as services, skills and knowledge and that goods are a transmitters of operant resources. According to Vargo and Lusch (2004) customer is a co-producer of service and marketing is a process of doing things in interaction with the customer and that value is perceived and determined by the consumer and not by the producer. Main differences between the traditional goods-dominant logic and service-dominant logic are explained in Table 2.

Table 2. Goods-dominant logic vs. service-dominant logic (Vargo et al, 2004, 7)

	Traditional Goods-Centered Dominant Logic	Emerging Service-Centered Dominant Logic
Primary unit of exchange	People exchange for goods. These goods serve primarily as *operand resources.*	People exchange to acquire the benefits of specialized competences (knowledge and skills), or services. Knowledge and skills are *operant resources.*
Role of goods	Goods are *operand resources* and end products. Marketers take matter and change its form, place, time, and possession.	Goods are transmitters of *operant resources* (embedded knowledge); they are intermediate "products" that are used by other operant resources (customers) as appliances in value-creation processes.
Role of customer	The customer is the recipient of goods. Marketers do things to customers; they segment them, penetrate them, distribute to them, and promote to them. The customer is an *operand resource.*	The customer is a coproducer of service. Marketing is a process of doing things in interaction with the customer. The customer is primarily an *operant resource*, only functioning occasionally as an operand resource.
Determination and meaning of value	Value is determined by the producer. It is embedded in the *operand resource (goods) and is defined in terms of* "exchange-value."	Value is perceived and determined by the consumer on the basis of "value in use." Value results from the beneficial application of *operant resources sometimes* transmitted through *operand resources.* Firms can only make value propositions.
Firm–customer interaction	The customer is an *operand resource.* Customers are acted on to create transactions with resources.	The customer is primarily an *operant resource.* Customers are active participants in relational exchanges and coproduction.
Source of economic growth	Wealth is obtained from surplus tangible resources and goods. Wealth consists of owning, controlling, and producing *operand resources.*	Wealth is obtained through the application and exchange of specialized knowledge and skills. It represents the right to the future use of *operant resources.*

According to Fisk et al. (1993) the characteristics of service were first defined as intangible, inseparable, heterogenic and perishable in 1970s. According to Gummesson (2007) those characteristics were not distinguishing services from goods and the dominant era of traditional goods in marketing continued until the end of the late 1990s. Vargo et al. (2006) argue that at the end of 1990s and the beginning of 2000s service marketing started to challenge the traditional goods-based marketing and opening up the debate of separately created value and value being co-produced.

Service-dominant logic originally had eight foundational premises that presented the patchwork for the evolving logic (Vargo et al. 2004). At 2008 Vargo and Lusch considered that the original foundational premises were too dependent on goods-dominant logic and altered the premises and added two new foundational premises (Vargo et al. 2008a). Out of the 10 foundational premises Vargo and Lusch later found that four capture the essence of service-dominant logic and consider them as the axioms of the logic (Lusch et al. 2014). Table 3 introduces the original foundational premises from 2004 and the 10 foundational premises as they were presented in 2014 (Vargo et al. 2004; Lusch et al. 2014).

Table 3. Foundational premises and axioms of service-dominant logic (edited from Vargo et al. 2004; Lusch et al. 2014)

SERVICE-DOMINANT LOGIC 2004 – FOUNDATIONAL PREMISES	SERVICE-DOMINANT LOGIC 2014 – **AXIOMS** and FOUNDATIONAL PREMISES
FP1: The application of specialized skills and knowledge is the fundamental unit of exchange	**AXIOM 1 (FP1): Service is the fundamental basis of exchange**
FP2: Indirect exchange masks the fundamental unit of exchange	FP2: Indirect exchange masks the fundamental basis of exchange
FP3: Goods are a distribution mechanism for service provision	FP3: Goods are a distribution mechanism for service provision
FP4: Knowledge is the fundamental source of competitive advantage	FP4: Operant resources are the fundamental source of competitive advantage
FP5: All economies are service economies	FP5: All economies are service economies
FP6: The customer is always a co-producer	**AXIOM 2 (FP6): The customer is always a co-creator of value**
FP7: The enterprise can only make value propositions	FP7: The enterprise can only make value propositions
FP8: A service-centered view is customer oriented and relational	FP8: A service-centered view is customer oriented and relational
-	**AXIOM 3 (FP9): All economic and social actors are resource integrators**
-	**AXIOM 4 (FP10): Value is always uniquely and phenomenologically determined by the beneficiary**

According to Vargo et al. (2008a) the customer is always a co-creator of value and that a firm cannot deliver value. Grönroos (2011) argues that this is simplistic conclusion and only partly true since fundamentally the customer is a value creator, a firm is a facilitator of value for the customer and it can also engage with its customer's value creating process with direct interactions. Grönroos (2011) also argues that a firms role is not only make value propositions but also to directly and actively to influence the customer's value creation. Vargo et al. (2008a) state that value is always uniquely and phenomenologically determined by the beneficiary and Grönroos (2011) argues that the statement is correct but incomplete. According to Grönroos (2011) value is also experimentally accumulating and not only determined but also experientially and contextually perceived by the customer.

Service-dominant logic was the result of decades of discussion of the roles of services and goods in marketing. It turned the roles of provider and customer upside down and shifted the

focus from goods to services and value propositions. The basic statements of service-dominant logic are: service is the basis of exchange, goods are appliances, customers are an operant resource, value is determined by the beneficiary, firm-customer interaction is relational and economic growth is an application of specialized skills and knowledge (Lusch et al. 2014). Backed up by the science of service-dominant logic business models of medical technology companies could create service-centered value propositions to the service-centered approach of healthcare centers and care providers.

2.3 Customer-dominant logic – latest on marketing science

"The ultimate outcome of marketing should not be the service but the customer experience and the resulting value-in-use for customers in their particular context" (Heinonen et al. 2010, 16).

According to Heinonen et al. (2010, 16) the question in marketing should be how the companies can support the activity and experience structures of the customer. Heinonen et al. (2010, 16) argue that both the goods-dominant logic and service-dominant logic are provider-dominant logics and by only focusing on customer-provider interaction marketing excludes the role of the company in customers life. To start shifting the focus the other way around Heinonen et al. (2010) introduced the new perspective of customer-dominant logic of service.

According to Heinonen et al. (2015, 474) the focus of the customer-dominant logic is on how customers embed service in their processes beyond customers perceptions and market interactions. To better understand the logic Heinonen et al. (2015) presented five essential foundations of the customer-dominant logic: business perspective, customer logic, offering, value formation and customer ecosystems. From the business perspective the essence of marketing in customer-dominant logic is that it is seen as a holistic strategic foundation for a revenue management and a mean to staying competitive. It highlights the need to understand customer's logic in creating appropriate and profitable business processes and designs. Essential for the customer-dominant logic from the customer logic point of view is that it is defined as customer's idiosyncratic reasoning and sense making of appropriate ways to achieve goals. Customer logic according to Heinonen et al. (2015, 478) is cognitive and affective and only partly explicit and it influences how customers choose between offerings and how they experience value. Customer-dominant logic defines offering as a generic concept of holistic entity containing material and immaterial elements designed by the provider aiming to help customer receive its own goals and to gain sales. For value formation according to customer-dominant logic it is essential to focus on value formation instead of value creation to stress the emerging characteristics of value-in-use in contrast to the notion of value creation. Customer-dominant logic also addresses the possibility of positive and negative value formation out-

comes. Essential for customer ecosystem from the customer-dominant logic aspect is that the ecosystem can be described at different levels of abstraction. It is a system of actors and elements related to the customer and specific service. Service ecosystems are only a part of the customer ecosystem which also contains commercial, physical and virtual features. Five essential foundations of the customer-dominant logic are summarized in Table 4.

Table 4. Five essential foundations for customer-dominant logic (modified from Heinonen et al. 2015)

Customer-dominant logic-essential foundations	Explanation
Business perspective	Definition: *Marketing is seen as a revenue management and as a ubiquitous mental model with customer logic as a foundation for business* Description: *A managerial approach based on a conceptualization and realization of how the provider participates in customer value formation and simultaneously earns money. Focused on customer uniqueness. Pinpoints the need to understand customer logic to create appropriate, profitable business processes and designs*
Customer logic	Definition: *Customer logic is defined as customers' idiosyncratic reasoning of and their sense making about appropriate ways for achieving their goals and conducting their tasks* Description: *An idiosyncratic logic that informs customers' behavior* *Customer logic is cognitive and affective and only partly explicit. Customer logic influences how customers choose among available offerings and how customers experience the value of different offerings*
Offering	Definition: *Offering is a generic concept for the holistic entity the provider has designed and intends to provide/sell, containing material and immaterial elements to achieve its own goals* Description: *Offering as a concept covers traditional concepts, such as products, services, service, solutions, value propositions and relationships. It also includes outcome aspects (products/services), process aspects (service) and extension over time (relationship) Service is different for the provider and the customer: From the customer perspective, service denotes how providers participate in customer value formation through interactions and presence, considering technical (what), functional (how), temporal (when), spatial (where) and actor-related (who) aspects. From the provider perspective, service is how a provider chooses to design its offering based on customer logic to achieve appropriate value*
Value Formation	Definition: *Customer value formation is defined as customers' emerging behavioral and mental processes of interpreting, experiencing and integrating offerings in their everyday lives/businesses, with either positive or negative outcomes. Provider value formation is defined as the provider's evolving process of strategizing, designing and implementing offerings based on its capabilities and skills and interpretation of customer logic, with either positive or negative outcomes* Description: *Value formation is used rather than value creation to stress the emerging characteristic of value-in-use in contrast to the notion value creation*
Customer ecosystems	Definition: *A customer ecosystem is defined as a system of actors and elements related to the customer and relevant to a specific service.* *This includes service providers, other customers (individuals or business actors) and*

		other actors (such as communities), as well as installed physical and virtual structures related to the service
		Description: *Service ecosystems are only a part of a customer ecosystem. Customer ecosystems are not only social, but also have commercial, physical and virtual features. Customer ecosystems can be described at different levels of abstraction*

From the value formation aspect customer-dominant logic argues that it is not necessarily an active process but a multi-contextual and multiple dynamic contexts in customer's life and is experienced longitudinally and personal (Voima et al. 2010, 10). This differs from the traditional provider-dominant logic's view that value creation is an active, cognitive and conscious process. According to Heinonen et al. (2015, 479) value in customer-dominant logic is formed in two processes that are separated but related, the customer value formation and the provider value formation. The customer value formation is driven by customer logic and activities and influenced by actions by other actors whereas the provider value formation is driven by the business logic and activities and influenced by the actions. In provider-dominant logic the value is formed in a temporal context defined by the company. Main differences between customer-dominant value logic and provider-dominant value logic are explained in Table 5.

Table 5. From a provider-dominant logic to a customer-dominant logic (modified from Voima et al. 2010, 10; Heinonen et al. 2015, 479)

	Provider-dominant logic	Customer-dominant logic
HOW	• Value creation is an active process • Value creation is a cognitive and conscious process	• Value is formed in two separate but related processes, one for customers and one for providers. The customer value formation process is driven by customer logic and activities and is influenced by the actions of other actors. The provider value formation process is driven by the provider's business logic and activities and is influenced by other actors' actions
WHERE	• Value creation has a special focal context • The scope of value is the (extended) service • Value creation takes place in the control zone of the company	• Value-in-use always emerges for a customer in a certain context. In the customer's world, activities and experiences occur that are related and unrelated to a specific provider and may lead to value formation
WHEN	• Value creation has a temporal context defined by the company	• Value-in-use evolves as a process that extends over an indefinite time, including favorable and unfavorable phases and elements. • Value-in-use is interpreted and re-interpreted, and it is a relative evaluation at different points of time

WHAT	• Value creation is relative in a service context • Value creation may by measured through traditional research instruments	• Customer logic, tasks and needing (not needs) determine how the offering is experienced and forms value-in-use
WHO	• Value is perceived subjectively • Value is embedded in the object (interaction, service) • Value is often individual • Value creation is orchestrated by the service provider • Value is created in the mutual co-creation process	• **Customer (who)**: There are many types of customers, such as consumers, firms, organizations or other actors represented as individuals, groups or other units. Customers orchestrate value formation • **Provider (who)**: Providers may be firms, organizations, persons or other actors who provide offerings to customers

Being a relatively new marketing and business approach, more empirical research is still needed to illustrate how the customer-dominant logic perspective can be applied in practice and implemented in business strategy (Heinonen et al. 2015, 481). It can be stated that the customer-dominant logic focuses on customer logic and directs companies to become more involved with customer's lives and to acquire better understanding on the customer's personal ecosystems. According to Voima et al. (2010, 12) shifting from customer segmenting to customer profiles is one way to focus on a person behind the customer and better understand the dynamic life of the customer and the life in which the company also plays a role. From a medical technology company's aspect customer-centered business approach could also bring better understanding on what are the decisive elements in customer's life and ecosystems that drive towards certain business decisions.

2.4   Summary of value creation thinking

As a summary from the main marketing logic's can be stated that the essentials in value creation are the definition of value, roles of customer and provider, approach to when and where value is created and who actually creates value. In this thesis service- and customer-dominant logic perspectives are used as a theoretical approach to development project.

Value definition in marketing is: "The extent to which a good or service is perceived by its customer to meet his or her needs or wants, measured by customer's willingness to pay for it. It commonly depends more on the customer's perception of the worth of the product than on its intrinsic value" (Business Dictionary 2016).

According to Grönroos (2011, 282) value can occur in a form of a physical use, a mental use or a possession. Grönroos (2008b, 303) also states value being is feeling better off after a self-service process of a full-service process. According to Vargo et al. (2004, 7) value is some-

thing perceived and determined by the consumer. Heinonen et al (2013) extend the value construct by recognizing value as multi-contextual and dynamic based on customers' lives and ecosystems.

According to Heinonen et al. (2015) value is created in two separate but related processes by customer and provider. Lusch et al. (2014) argue that value creation is orchestrated by the provider but the provider can only make value propositions as the value is co-created by the customer. According to Grönroos (2011) provider can participate to customer's value creation process with direct and indirect interactions. All mentioned statements take notice to both provider and customer participating in value creation process whereas the goods-dominant logic excluded the role of the customer in the process.

According to Heinonen et al. (2015) related customers ecosystems participate in value creation and value is created in different points of time. Grönroos (2008, 303) points out that we are not able to understand the whole process of how and where the value creation process starts, what are all the elements and factors involving to the process and when and where does the process end. Helkkula et al. (2012, 61) argue that customers' value experiences iteratively flow back between current, future and past experiences and that even if value is defined and lived in a particular moment, new experiences appear, old experiences reshape and future imaginary experiences evolve and so does the experienced value. All the statements recognize that the provider isn't fully able to control or understand the customer's value creation process which therefore logically moves the focus in trying to have better understanding of the customer's life and ecosystems in enabling to provide better value propositions and services.

According to Grönroos (2008, 303) and Heinonen et al. (2015, 479) value creating process can also create negative value. Similar point was also stated by Echeverri et al. (2011, 34) that value is not only co-created but also co-destroyed. To be able to create value to customer and to avoid destructing practices, it is important to understand the level of service the customer is expecting to have. According to Ojasalo (2001) managing customer expectations is a challenge to companies especially in professional services. Customer expectations are based on e.g. personal needs and the past experiences (Zeithaml et al. 1990) but also on desired service (Zeithaml et al. 1993) referring to what level of service the customer is hoping to have. The expectations can be fuzzy, implicit and unrealistic and may need to be managed by the company to create more precise, explicit and realistic expectations to enable long-term quality for customers (Ojasalo 2001).

Based on the literature overview of marketing science the following statements can be made to form the value creation thinking for this thesis:

- Value is always individually perceived and attached to the moment.
- Both the provider and the customer have influence in value creation but also related ecosystems affects the process.
- There are many factors affecting how value is formed, some of the factors are manageable to companies and others are not.
- To be able to deliver value, provider has to understand the expectations that customer has and how those expectations are being built.
- Expectations can be filled in interaction practices but it also has to be taken into account that interactions and value creating process can have a negative outcome.

Classical provider-centric approach to marketing excludes the negative outcome of value creation even though throughout the modern economic history the consequences of a bad customer experience have been recognized. Customer expectations create a level of minimum delivered value requirements and they are set not only by the provider but the whole customer's service ecosystems. By managing the customer expectations company increases understanding on how to exceed the expectations set by the customer's service ecosystems and create competitive edge in the market.

New dominant logic placing the customer in the center of the value creation process considers the sensitiveness of the process and its dependency of each factor in the customer's service ecosystems. Logically thinking that creates more pressure in networking with the other operators in the customer's service ecosystems and creating new kinds of service networks and service systems. Even though bigger networks can increase the influence for the network it can also decrease decision making-power for individual actors in the network.

For companies participating in customers value creation process recognizing the complexity of the customer's service ecosystems and by understanding the company's own personal role and manageable areas can provide knowledge and means to create better value to customers and other stakeholders. Allocating company resources to study customers' personal service ecosystems and value creation process may prove to be challenging to more conservative-minded industries but whether wanting or not, the companies will have an impact to customer's everyday lives and value creation and experience, positive or negative.

3   Research design of development project

Third chapter aims to explain research design in business development, service design approach to research design and to introduce service design processes and tools.

3.1   Research design in business development

"The development of a good research design permits us to obtain the best research data possible. From the experimental question to the research hypothesis and data collection variables, we can begin to consider the optimal research design. Details pertaining to the selection of the research design are considered within and very much in relation with the knowledge of the researcher and the support of his research group" (Toledo-Pereyra 2012, 279).

Ojasalo et al. (2014, 18) states that research design aims to solve practical challenges, reform practices and create better understanding and knowledge of work practices and the function of research designs is to ensure that during the design process data is systematically and critically collected and evaluated with versatile usage of data collection methods and tools. According to Delost et al. (2014, 237) appropriate research design plan is essential and leads to successful research outcomes.

Ojasalo et al. (2014, 14) argue that the importance of business development expertise is growing all the time. Rapidly changing operating environment, considering e.g. digitalization, networking and increasingly global business environment and information overload, has brought new challenges and opportunities to professionals and work communities. According to Ojasalo et al. (2014, 12) companies need continuous research design to:

o improve profitability and gain growth
o develop, test and commercialize new business models, products and services
o create more functional organizations and motivate personnel
o increase understanding of customer preference changes
o forecast future demand and other affecting business factors
o improve operational efficiency and develop processes
o expand to new markets and going international
o solve organizational problems

According to Ojasalo et al. (2014, 18) research design positions in between scientific research and everyday thinking. It differs from scientific researches traditional scientific approach by exploring the research setup with more experimental research methods and tools and by not trying to create new scientific data but create new practical solutions. Main differences to

everyday thinking are that in research design active interaction is emphasized and there the process is structured and the collected data is critically evaluated. According to Ojasalo et al. (2014, 22) in research design new information mainly forms in the environment in which the action takes place and from real practical activities and a need to solve issues.

According to Ojasalo et al (2014, 22) research orientation in research design occurs in data acquisition approach, being systematic, analytical and critical and by creating and sharing new information. Process is not about random actions but a process consists of justified and documented choices and data is being collected from both, scientific and practical sources. Research choices, process, data and results are being critically evaluated, documented and analyzed to form different and alternative perspectives to enable new, well documented information to be shared.

Research design processes differ based on research topic and initial goals. According to Creswell (2014) there are three types of approaches to research design: qualitative approach, quantitative approach and mixed methods approach. Ojasalo et al. (2014) introduces seven different approaches to research design: case study, action research, constructive research, service design, innovation production, foresight and network research. Research approaches are described in Table 6 and service design more comprehensive in chapter 3.2.

Table 6. Research design types and descriptions

DESIGN TYPE	DESCRIPTION	REFERENCE
Case study	Qualitative design in which the researcher explores in depth a program, event, activity, process or one or more individuals in an aim to generate development proposals and ideas.	Creswell 2014 Ojasalo et al. 2014
Action research	A form of social science that is experientially rooted, practice-oriented, actor based and self-reflective and aims to solve practical challenges and lead to change.	Coghlan 2016 Ojasalo et al. 2014
Constructive research	A problem-solving method that both relies on different research tools and is also associated with interpretive epistemology, positivist epistemology and empiricism aims at producing novel solutions to both practical and theoretical problems.	Oyegoke 2011 Ojasalo et al. 2014
Service design	An interdisciplinary approach that combines different methods and tools from	Stickdorn et al. 2010 Ojasalo et al. 2014

	various disciplines and aims to develop business models, business strategies, products, services and service ecosystems.	
Innovation research	Method of combining existing knowledge and resources in a new way to develop new products, services, service systems, processes, approaches and business models.	Fageberg et al. 2012 Ojasalo et al. 2014
Foresight	Contemplates the future shaped by complex, uncertain and multiple visions with mostly qualitative tools and aims to create future possibilities and scenarios to target.	Fernández-Güellet al. 2013 Ojasalo et al. 2014
Network research	Offers concepts and measures that shed light on an entire world of structures and relationships and aims to increase company's competitiveness through improved networks.	Chauvet et al. 2011 Ojasalo et al. 2014

The simplified process in modification projects consists of three stages: planning, execution and evaluation. Research design processes differ by the case and can't always be divided into clear steps and they also jumps back and forth between steps. Typical research design process consists of six steps: recognizing the development target and setting preliminary goals, orienting to development target in theory and practice, determining and delimiting the development target, drawing up the knowledge base and planning the research approach and methods, executing the research and publishing it and finally evaluating the outcome and process. (Ojasalo 2014, 22-24.)

As a summary it can be stated that research design plays increasingly important role in business environment for both individual professionals and companies. Research design is used in development projects, such as this thesis project, to gain better understanding on customers and business environment and therefore it is self-evident that the theory of research design forms a backbone for the project. Another argument is that the thesis part of a degree programme of service innovation and design that relates to service design approach to research design.

3.2   Service design approach to research design

"Service design is an interdisciplinary approach that combines different methods and tools from various disciplines. It is a new way of thinking as opposed to a new stand-alone academic discipline" (Stickdorn et al. 2010, 29).

According to Katzan (2011, 43) the role of design has been to create improved artifacts and processes and science has been concerned with the study of socially and natural developed phenomena. Katzan (2011, 43) also explains how service has been important part from ancient times of societal culture and therefore the notion of service as the co-creation of value by provider and client is well established and It necessarily follows that the objective of service design is to add value older service systems and to create newer ones with requisite attributes.

According to Ostrom et al. (2010, 17) service design brings service strategy and innovative service ideas to life. Mager et al. (2009, 34) argues that service design aims to ensure that service interfaces are useful, usable and desirable from the client's point of view and effective, efficient, and distinctive from the suppliers' point of view. Service design mediates as a bridge to connect organizations, customers and other stakeholders (Moritz 2005, 41). It is a way of thinking and a way of creating added value to build sustainable customer relationships. Andreassen et al. (2016, 26) argue that service design can improve consumers wellbeing by improving their return on time with maximizing the benefits gained in a relation to resources invested. Polaine et al. (2013, 38) points out that service design should not be an add-on to business proposition but it should be part of a company culture that focuses on creating sustained value and innovations. Moritz (2005, 40) adds the notion that service design at best is an ongoing process that never stops.

According to Moritz (2005, 39) service design is designing the overall experience of a service and Katzan (2011, 44) argues that service design is primarily concerned with service systems (collection of resources, economic entities, and services processes capable of engaging in and supporting one or more service events). According to Heinonen et al. (2010, 522) value is not just being created with service systems but value is also emerging from customers own mental and emotional experiences and Vargo et al. (2008a, 9) argues that value is always uniquely experienced.

According to Stickdorn et al. (2010, 34) there are some core principles in service design thinking that helps to define the service design approach: user-centered – services should be experienced from the customer's point of view, co-creative – all the stakeholders should be included to the design process, sequencing – service should be visualized as a sequence of inter-

related actions, evidencing – Intangible services should be visualized in terms of physical arte-facts and holistic – the whole environment of the service should considered.

Andreassen et al. (2016) highlights the importance of service design to value creation and service research based on three arguments. First argument relates service design to well-established concepts within the domain of service research. Second argument states that service design implies an emphasis on co-creation of value. Third argument argues that service design can improve consumers' work-life balance or as they describe it return on time which can be done via two mechanisms: saving time and buying time that can be invested in other activities. (Andreassen et al. 2016.)

As stated by Kimbell (2009) service design is executed by people of many sorts of professional backgrounds and it is still only developing towards a discipline of its own. There is no mutual understanding on what service design is but at the moment the most common definitions don't rule out the Stickdorn et al. (2010) definition that it combines tools and methods of various disciplines with user-centered, co-creative, sequencing, evidencing and holistic na-ture which is therefore to be considered as the service design approach in this thesis. From the value point of view it could be stated that even though service design aims to design the overall experience of service, value emerges from the customers own ecosystems, mental and emotional experiences and is always uniquely experienced.

3.3   Service design processes and tools

The nature of service design process and design process is different, yet similar. Newman (De-sign Sojourn 2016) illustrates the characteristic of a design process with "the Squiggle" (see visualization in Figure 1), image that visualizes how designers work - starting to wander around the problem and working towards the solution. Stickdorn et al. (2010, 124) points out that "Although design processes are in reality nonlinear, it is possible to articulate an outline structure. It is important to understand that this structure is iterative in its approach".

UNCERTAINTY / PATTERNS / INSIGHTS   CLARITY / FOCUS

RESEARCH   CONCEPT   PROTOTYPE   DESIGN
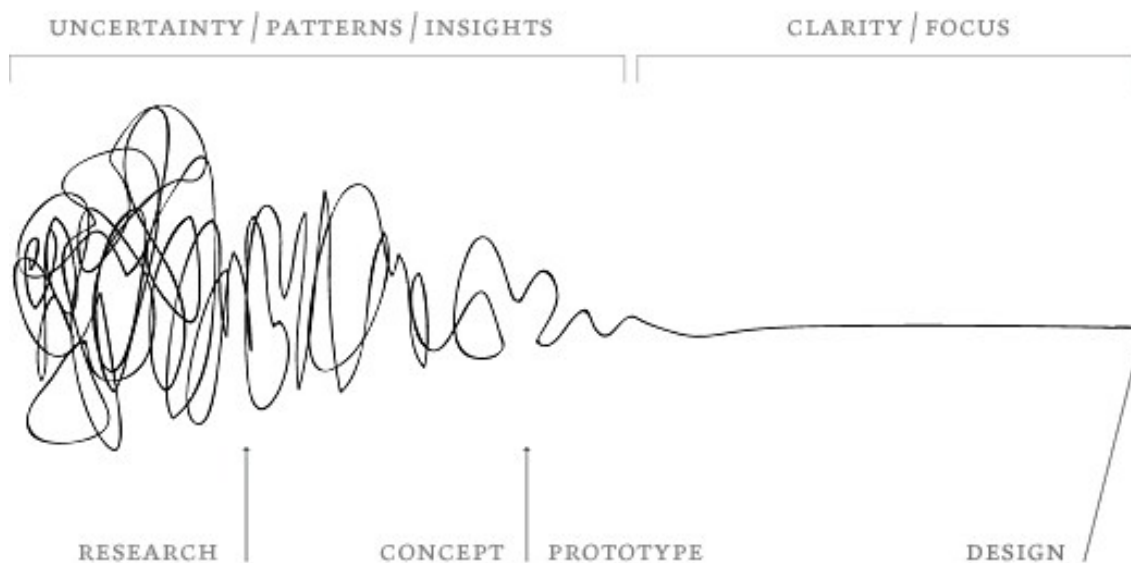
Figure 1. The squiggle of the design process by Damien Newman (Design Sojourn 2016)

There are many different forms of service design process proposed. They fundamentally consist on three to seven steps but share the same mindset of the squiggle of the design process. This thesis takes a closer look at three of them. Four step processes by UK Design Council and Stickdorn and Schneider and six step process by Moritz.

The Double Diamond model by UK Design Council

The "double diamond" design process model (see visualization in Figure 2) is developed by the UK Design Council through in-house research. The two diamonds are divided into four phases: Discover, Define, Develop and Deliver.

Figure 2. Double Diamond model by UK Design Council – design by Kaishin Chu (Kaishin Chu 2016)

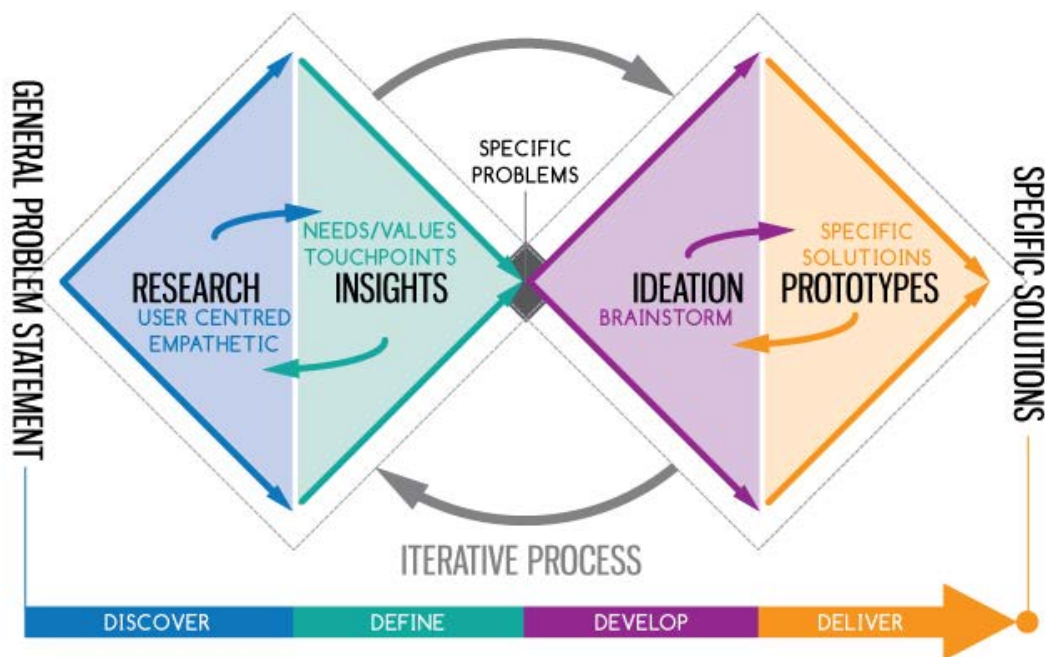Discover phase begins the design project with an idea or an inspiration which then needs further researched. This can happen by conducting market research, user research, design research groups and managing overall information. Second phase of the model is definition stage where business needs of the project are set through project development, management and sign-off. The second diamond in the model consists of developing and delivering. Develop phase includes multi-disciplinary working, visual management, development methods and testing. Delivery stage finalizes the project with final testing, approval, launch and evaluation of the project.

Service design process by Stickdorn & Schneider

The Stickdorn & Schneider's service design process (see visualization in Figure 3) consists of four steps: exploration, creation, reflection and implementation. The process highlights the iterativeness as the focus point is to success in delivering the best possible outcome as to explore as many mistakes as possible during the early stages of the process.
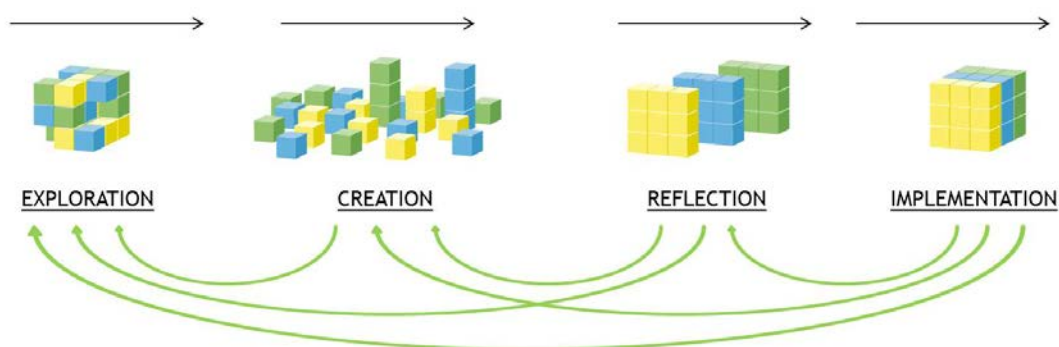
Figure 3. Service design process by Stickdorn & Schneider (Stickdorn et al. 2010, 122-123)

Even though the customer is at the center of the process, Stickdorn et al. (2010, 128) highlight that the background work is usually done within the target company. To be able to conduct research the designer must understand the culture and goals of the company before involving customers into the research and identifying the real problem from customer's perspective. The key in the exploration stage is not to make assumptions but to collect empirical data and keeping in mind the big picture and to visualize and structuring the findings.

Creation stage is about testing ideas and concepts and generating solutions based on identified problems and collected insight. According to Stickdorn et al. (2010, 130) It is important to explore as many mistakes as possible to be able to achieve holistic and sustainable solutions. These solutions are the being transformed into prototypes of a possible service in reflection stage. Prototypes are being tested and retested with customers and it is important to create a good mental picture of the concept and consider the emotional aspects of the service. Creation and reflection stages walk hand in hand towards the process outcome and might require a lot of iteration before finding the final solution.

Change management is an art of its own. Implementation stage is about process of change: planning, implementing and reviewing the change. Stickdorn et al. (2010, 134) argues that for a company it's important to involve employees to the process from the beginning so they understand clearly the vision of the service, support and can sell it. After the implementation the process is followed by process evaluation which leads to an iterative process of service design thinking.

Service Design Process by Stefan Moritz

Service design process By Moritz (see visualization in Figure 4) is divided into six different steps: understanding, thinking, generating, filtering, explaining and realizing. Moritz (2005, 40) points out that the service design process is not a simple project that can success by just

going through the process step by step but it needs to be constantly evolving process so that the service keeps the customer satisfaction on a high level.
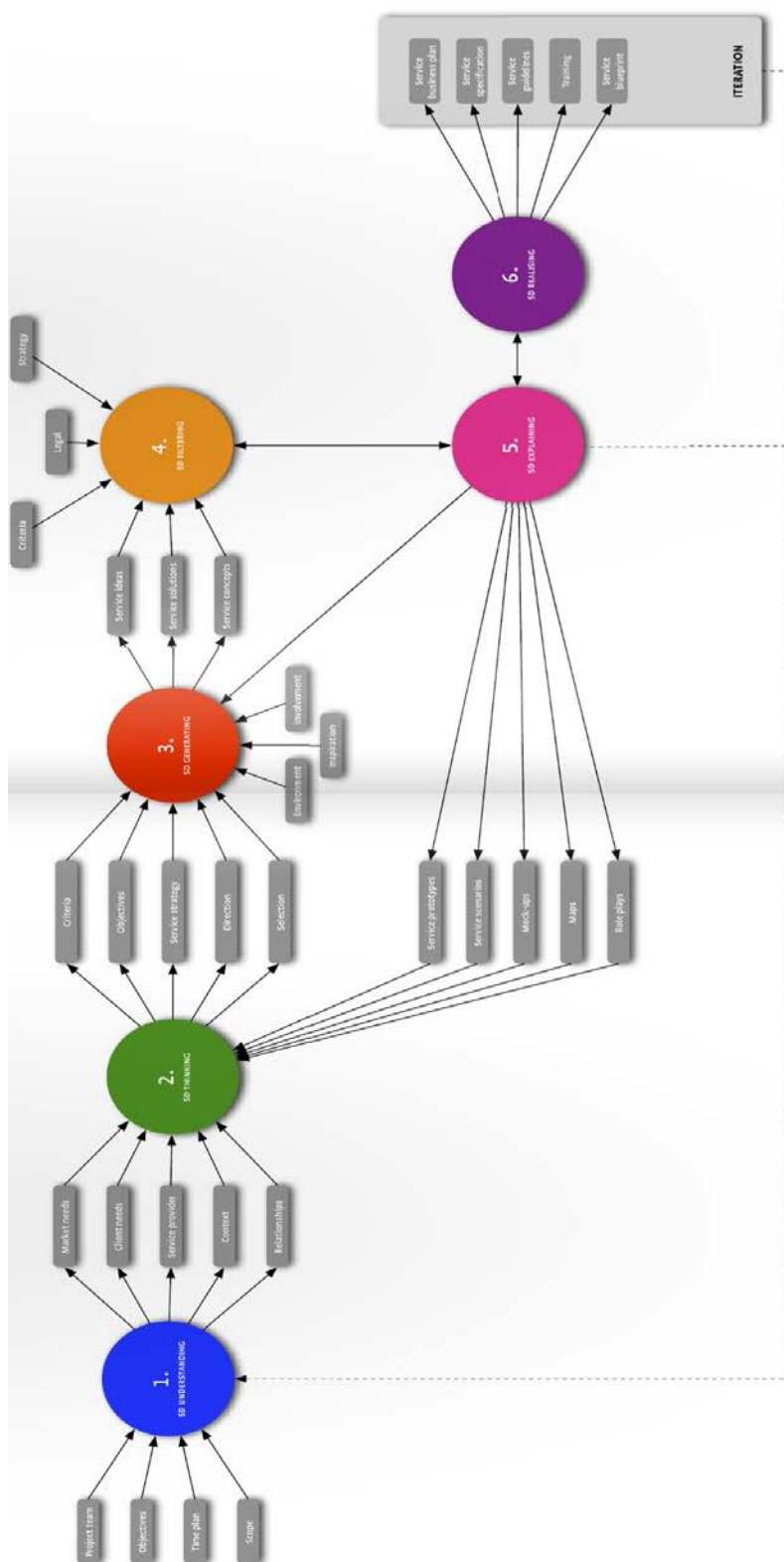

Figure 4. Service design process by Stefan Moritz (Moritz 2005, 158-159)

Service design process by Moritz begins with understanding phase which is about bringing the project into reality, finding out and learning. Moritz (2005, 124) states that company has to understand what motivates the customer, what are the core jobs they are trying to get done and verify or change the assumptions and interpretations. In addition the understanding of surrounding contexts, providers and different relationships need to be taken into account.

Service design thinking step finalizes the strategy, the objectives and the framework of the project from the results of the previous step. It is based on different information that is digested usually with a common sense. Service design thinking step plays a crucial role in between the other steps where the company decides which elements will be used and what way. According to Moritz (2005, 128) the tasks of the phase are: identifying problems and focus, setting the goals, planning, analyzing the content and competition, reviewing insights and setting the time plan, design guidelines, team setup and specification.

After the set up it's time to start generating. Moritz (2005, 133) highlights that generating phase needs the involvement of right people, right environment and most important research insights and strategy. The step might take from few hours to many days and within that time a large amount ideas, solutions and concepts can be developed without discrimination. The main goal for the team is to be inspired, productive and open minded towards the goals of the project. The ideas will be developed from an idea to a concrete solutions and concepts. Service design generating consists of developing ideas, solutions and processes, creating concepts and scenarios, finding inspiration and ways to work with the clients, implementing the corporate design and crafting the evidences, touchpoints, interfaces and experiences.

From the amount of ideas it's then time to narrow and evaluate the results - meaning filtering which ideas are most relevant strategically and match the project goals. Moritz (2005, 137) points out that there might exist ideas and solutions that doesn't match the projects visions but can be put on hold for other service design projects but the ones that are be most appropriate are to be taken into more close consideration. Again it's a project team work and by digesting and challenging the ideas, concepts and solutions they should find a way to pick the ones to proceed with. Filtering step is about selecting the ideas, testing and measuring the performance and quality and evaluating legal, technical and economic aspects and the subjective.

Going forward with the chosen concepts and solutions is based on visualizing them. How the service actually would work in practice and does it match with the original purpose, target group and context. The goal according to Moritz (2005, 141) is to get a mutual understanding of the developed ideas so the company has a clear vision of what are the concrete results of

the ideation parts. Service design explaining is about visualization of the ideas and concepts, processing the maps and models, interacting and experiencing.

At the final step of the service design process by Moritz all the pieces are finally evolved into detailed outcomes, put together and taken into market for a test. Moritz (2005, 145) argues that services will never be perfect and therefore the final step of the process should not be considered as the end of the process but the beginning of a new one. The final step consists of testing the concepts, developing business plans and providing the necessary training, guidelines, templates, instructions and specifications. Collecting feedback comes important from this point on because the service should not stop evolving.

There are tens of different service design methods from which to choose a service design toolkit for a service design process. Service design community encourages designers to experiment the existing methods in new ways and that is how new methods are often being born. According to Stickdorn et al. (2010, 148) there is no real right or wrong way to work with the tools, there is only the challenge of finding a suitable combination of methods to every process. This thesis combines the following methods to a service design toolkit: *stakeholder map*, *E-Survey*, *personas*, *interviews* and *scenarios*.

Stakeholder map is a visual or physical representation of the various groups involved with a particular service (Stickdorn et al. 2010, 150).

E-Survey is conducted with open questions. According to Keegan (2009, 113) open questions are good when researching broad topics by giving the participant the possibility to focus on important areas and the researcher to explore them more later on.

Personas are fictional profiles, often developed as a way of representing a particular group based on their shared interests (Stickdorn et al. 2011, 178). Personas can be used to shift focus on wants and needs of real people instead of abstract demographics. In this thesis personas were built fact-based meaning that each of the personas is based on a real person. Information was gathered through E-Survey and the goal was to understand the wants and needs of a real customer.

Depth interview is simply the routing of an ordinary conversation that permits both the researcher and the interviewee to interact and explore the issue (Sreejesh et al. 2014, 47). Depth interviews have three subtypes: unstructured, semi-structured and standardized interviews. In this thesis unstructured and semi-structured interviews are conducted. Unstructured interview was used in interviewing the sales people of the case company. According to Sreejesh et al. (2014, 48) for unstructured interview it is characteristic that the interviewer brings

up topics of interest and the respondent is given the freedom to choose the direction of the conversation. Semi-structured interview is more structured and while it gives the respondent some amount of flexibility, the interviewer keeps the conversation at the topics.

Scenarios are particularly useful for service design as they offer designers a way to prototype and communicate service opportunities and improvements that could result from design intervention (Meroni et al. 2011, 161). Stickdorn et al. (2010, 184) states that scenarios can be presented many ways such as plain text, storyboards and videos and that research data is used to construct a plausible situation.

4   Research context and development project

Fourth chapter focuses on explaining the research context consisting of public healthcare, diabetes care and medical technology business with a case of diabetes supplies. Chapter also explains how the development project was conducted.

4.1   Public healthcare sector as a business environment

Public healthcare is a form of a healthcare system that is fully or partly funded with public funds such as taxes. Healthcare in Finland is divided between public and private sectors where the basic healthcare is organized by public sector and occupational healthcare by private sector. The aim of public healthcare in Finland is to maintain and improve people's health, wellbeing, work and functional capacity and social security, as well as to reduce health inequalities. The system is based on preventive health care and well-run, comprehensive health services. The Ministry of Social Affairs and Health (MSAH) is responsible for social and health policy and preparing associated legislation. (STM 2016.)

Healthcare is organized by municipalities with the guidance of the Ministry of Social Affairs and Health. Some of the services are outsourced to private sector. It is up to municipalities if they want to form bigger social and health care districts together with other municipalities or maybe some services from them. It is also a possibility to outsource services to private sector.

The whole public healthcare sector in Finland is currently under a huge political pressure by the government. Partly because of the Finland's weak economic situation, a major structural reforming is being made to social welfare and health sector. According to the Finland Ministry of Social Affairs and Health (STM 2016) the objective of the social welfare and health care reform is to safeguard equal, client-centred and high-quality social welfare and health care services throughout the country. The reforming is one of the main topics in government's agenda and therefore this thesis touches on a hot topic at the moment.

One of the main focus points of the reform is to balance the cost-structure nationwide. Today the level of service varies depending on the place of residence and all the districts, cities and municipalities have their own service structures. This also leads to a huge vary of the costs, us much as 2,300–5,500 Euros/inhabitant (STM 2016). By standardizing the structures of the sector the Finland Ministry of Social Affairs and Health aims to create more equal and cost-effective services. The pressure to cut down public healthcare costs is commonly known and addressed topic in Finland and it also goes right into the heart of medical technology business.

Public sector business is regulated by the procurement and the contract laws which are carried out in accordance with national procurement and contract legislation and the directives of the European Union. The fundamental principles of the procurement law is to ensure transparent and efficient tendering and equal and non-discriminatory treatment for tenderers. According to the Ministry of Employment and the Economy (TEM 2016) the main purpose is to increase the efficiency of the use of public funds and also to enhance the competitiveness of European businesses – including Finnish businesses. National threshold for supplies and services is 30 000€ and EU threshold is 209 000€ (Hankinnat 2016). New procurement law is currently under development and it is estimated to become effect 12/2016 (Hankintalaki 2016).

Procurement procedures for public organizations follow the open or limited procedure. In medical supplies business open procedure is prevalent. Open procedure process starts with procurement notice and sending the tender out or placing it available online. Next step is for the providers to deliver offers before set deadline. After delivering the offer in time the provider suitability is checked and then offer is check for tender conformity. All accepted offers are then compared, scored and decision is made with arguments before it's time to send the official decision, sign contract(s) and send the post-notification. (Hakala et al. 2008, 71.)

4.2   Diabetes' growing effect to national health and economy

Diabetes is group of diseases that are related to long-term high blood glucose levels that in time will cause damage to blood vessels. There are two main types of diabetes: type 1 diabetes and type 2 diabetes. The cause of type 1 diabetes (T1D) remains to stay unknown. It appears at young age (most patients diagnosed are under 40 years old) and due to the total lack of insulin production T1D patients need commit to life-long insulin treatment to stay alive. Type 2 diabetes (T2D) is often seen as a lifestyle disease of elderly people but today even younger and younger get diagnosed with the disease. This phenomenon will have an effect on working aged people's health status also in Finland and therefore to Finland's national economy on a larger scale. Also the awareness of long-term symptoms and additional diseases (and costs) are widely recognized and approached nowadays. (Diabetes 2016.)

Diabetes is a massive health challenge on a global scale. International Diabetes Federation (Diabetes Atlas 2016) states that there were 415 million adults with diabetes around the world in 2015 and by 2040 the amount will rise to 642 million. According to The Finnish Diabetes Association approximately 1 out of every 10 adult Finn is a diabetic. That would make the total amount of diabetics to ~550 000. This figure includes around 300 000 type 2 diabetics, 50 000 type 1 diabetics and also diabetics yet to be diagnosed. Some estimations claim the numbers could go even up to 600 000 diabetics in actual total (DEHKO 2016). According to

study coordinated by the Finnish Diabetes Association (DEHKO 2016) the amount of diagnosed diabetics (Table 7) went from 186 544 to 295 254 between year 1998 and 2007.

Table 7. Total amount of diabetics by type 1998-2007 (DEHKO 2016)

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Diabetics	186544	194292	202933	212170	222748	233221	247057	261304	275015	295254
T1D	37110	37464	37972	38479	39023	39674	40379	41196	42007	42548
T2D	149434	156828	164961	173691	183725	193547	206678	220108	233008	252706

According to Finnish National Institute for Health and Welfare (THL 2016a) approximately 18 percent of Europe's total healthcare costs goes to diabetes treatment and in 2007 the percent in Finland was 9. According to study coordinated by the Finnish Diabetes Association (Diabetes 2016) the costs in diabetes treatment in Finland almost doubled (Table 8) between 1998 and 2007. In the year 2007 a cost per patient with diabetes and no additional diseases was approximately 1 300€ a year and a patient with diabetes and additional diseases around 5 700€ a year. Additional diseases for diabetes are losing an eyesight, kidney failures, leg amputations, strokes and memory and cardiovascular diseases (THL 2016b).

Table 8. Total cost of diabetes treatment by cost items 1998-2007 in millions, in 2007 currency rate (DEHKO 2016)

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Treatment supplies	29,3	30,5	31,7	32	33,2	34,6	36,3	37,8	39	40
Medicines	158,9	173,9	191,8	211,1	239,2	258,3	288,6	310,7	303,4	324,8
HCC* inpatient	160,6	168,2	179,4	184,9	191,2	202	206,7	218,3	233,7	239,7
HCC* outpatient	105,9	112,7	121,6	130,9	141,2	152,1	166,1	181	197,2	219,3
SHCC** inpatient	189,9	197	218,8	229,2	244,6	262,1	281,1	300,5	314,4	333,8
SHCC** outpatient	69,3	72,7	75,8	80,2	88,3	96,4	105,8	115,7	132,7	146,4
In total	713,9	755	819	868,3	937,6	1005,6	1084,6	1163,9	1220,4	1304

*Healthcare centers
**Specialized healthcare centers

Diabetes also causes massive economic loss to the society in productivity costs. According to study coordinated by the Finnish Diabetes Association (DEHKO 2016) the total loss of productivity costs in the year 2007 due diabetes was 1333,2 million Euros in lost potential labor input. Productivity costs include sick days, early retirements and premature deaths.

4.3   Case of diabetes supplies in medical technology business

Market is constantly changing for diabetes supplies companies. Patient volumes keep rising, the price competition is reaching its end-point and new procurement law will be implemented soon that will give more liberties for buyers with public tenders and contracts. Market is creating a tough competition between the suppliers but also creates a possibility for innovative

companies to utilize the situation by differentiating from competitors with new business models.

In diabetes supplies market in public healthcare the price plays a crucial role in winning the businesses and add-on services are not a very big differentiator at the moment. Today there are many companies in the market offering some sort of patient care tools, additional materials and trainings but they are more or less the same. Also the presence of pharmaceutical industry that is providing resources to same customers as medical technology companies seem to take off some of the service development interest.

Case company is a medical technology company that operates in over 50 countries around the world. Company manufactures and sells medical supplies, devices and technology. Portfolio is divided into three top level business segments; medial, diagnostics and bioscience. Diabetes care is a sub-segment for medical business.

Value propositions of the case company focuses on promoting the company as an innovative company that contributes in helping patients live healthier lives. Case company's value propositions in diabetes care are enhanced patient experience to enable better diabetes therapy and outcomes and leading technology and design. This shows how the company places all their cards on the product quality which is very typical for conservative manufacturer companies.

Diabetes supplies that the case company manufactures and sells are quality products with sharp and user-friendly needles which improve patient care. In practise the innovativeness that the case company promotes applies to product design that has a limited effect on overall patient care. Prove of ineffective value propositions can be seen directly in the recent history when the case company has struggled in delivering at some of the crucial elements of value creation - the products have not been able to win business by themselves. The fact that current value propositions have no echo in customer's ear makes a good statement that it would be time to reconsider the current business model.

Challenge for the company's diabetes supplies business is the decline of sales and market share. In diabetes supplies business, trends tend follow and reflect the trends in national economy in general. Current trend is cost-cutting and the case company provides quality products and product-related value propositions. Company uses price margins as a way to point out the quality statement. In recent years when there was no high pressure to cut down costs, quality products and stabile service level were enough. Today the situation is different. Many decision makers no longer see the value in paying higher prices for the quality and service gap that in all fairness said is not a huge gap against the main competitors. Problems also

with the add-on services today are that even though they are not outdated, they have already been available for quite some time and customers no longer see the unique and novelty value. Considering the positive side of the situation, market seems to be open for anyone taking the giant leap towards studying the life of the customer and creating value propositions beyond the current set-up.

From the case company's side the customer management is always an ongoing process due to the nature of public tenders. Customer management cycle consists of three phases: pre-tender, tender and post-tender phase (see visualization in Figure 5). Pre-tender work is often the defining phase in in the business. Pre-tender phase is the time to sell your value propositions and convince the customer that your company would be the perfect partner for the up-coming contract period. Tender period is the time when the heat turns on. Tender specifications show the success in pre-tender work. If the customer is impressed by company's value propositions, the tender can be built in favor of the company by adding comparison factors that suit that the preferred provider the best. To help customers to do it, companies need to have differentiation factors, such as services or unique product characteristics. It could also be that the tender has not been built to favor any supplier and then the business is decided only based on tender phase - often meaning that the price is the only decisive factor.
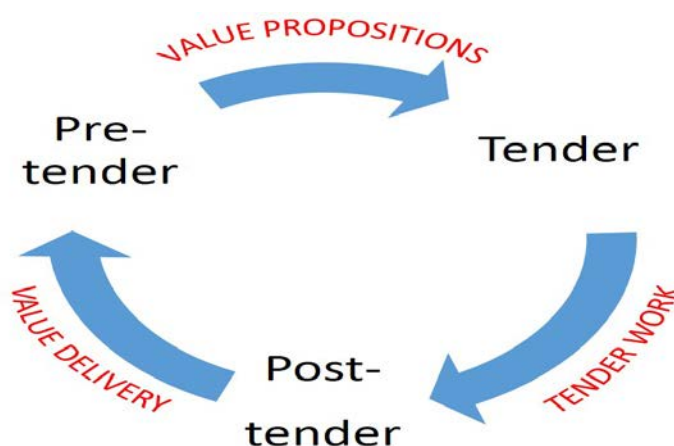
Figure 5. Tender cycle for public tenders

In case the tender is lost, mistakes must be learned from and a new plan for next pre-tender phase needs to be put in place. In case the business (tender) is won, starts the work of delivering the value propositions. Pre-tender work starts months before the valid contract is expiring and that means that then the post-tender and pre-tender phases go simultaneously if the business has been won at the previous tender. This means that post-tender phase is a chance to impress the customer with good service level and ease the pre-tender work with a good delivery.

There are lot of departments in the company working for sales, some directly and some indirectly. In the background there are a lot of functions working towards better value propositions and delivery for customers but this thesis covers only directly involved stakeholders in the diabetes business. Sales process starts with analyzing the potential of the customer and planning the sales process based on segmentation and identifying the "pains" (business challenges) the customer has. Based on the customer data value propositions are built and sales actions delivered. Before the tender comes out, if the pre-tender work has been a success the customer asks for consultation on building the tender and tender specifications. The consultation requires most of all a good overall, current understanding of the market and especially competitors. Sales team is mainly responsible for conducting the pre-tender phase. From the customer's side diabetes unit, procurement unit and in case product trials take place the patients are involved.

Tender phase at best is about delivering a good, solid offer. Still often the tender specifications are challenged by potential vendors and the tender management process requires a lot of re-thinking, reacting and re-doing before the final offer can be delivered. The main responsibility for delivering an offer meeting the requirements is on the shoulders of a tender specialist and responsible sales person. Business support functions are usually needed to deliver the requested documentation and materials. From the costumer side the procurement department is responsible for the tender process but they use internal consultation for the process.

In case the tender and business are won and contracts are signed, starts the post-tender phase. It is the phase where the company starts working with all the available cylinders. All the promises need to be concretized with good standards and service level. Customer care organization and logistic partners take big roles in coordinating and satisfying the customer needs and running the day-to-day operations as the sales team is training the personnel and solving practical issues together with business support.

Managing customers under public sector require special skills and knowledge. Understanding the business comes from experience and to keep a team full of competence can be a challenge if the stuff goes through constant changes. Working with public customers also challenges the service level stability and delivering the value propositions. To be able to keep hold on existing customers depends on performance that is constantly under evaluation. There are a lot of different stakeholders involved with running day-to-day operations and it requires a good operative control and coordination.

4.4 Development project execution

For this thesis the stakeholder map method was used to start the development process with mapping the business environment. Stakeholder mapping was conducted in a workshop to-gether with the case company's diabetes team. Figure 6 represents the stakeholder map ver-sion used in this project.
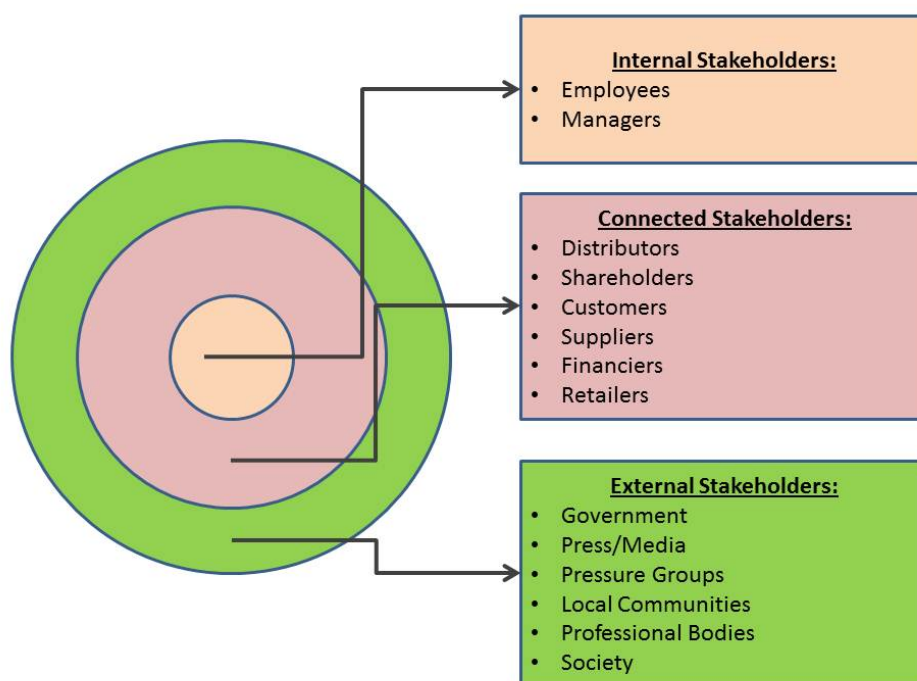

Figure 6. Stakeholder map by Professional Academy (Professional Academy 2015)

Stakeholder mapping was used to paint a view from the stakeholders having an influence on the diabetes care business. Stakeholders were divided into three groups: internal stakehold-ers, connected stakeholders and external stakeholders. Internal stakeholders were mapped in pink post-its, connected stakeholders to violet post-its and external stakeholders to green post-its. Out of the stakeholder map key stakeholders in business sense were chosen to defin-ing who the real customers are and further to planning the next steps of the study.

To start scratching the surface of diabetes care in public healthcare, E-Survey was conducted via Webropol. Webropol is an online survey tool service provided by The Webropol Group. Survey was send via Webropol to 57 diabetes nurses nationwide and they received the survey link via E-mail. Questionnaire consisted of two sections, first was the personal information section and second section contained open questions about job requirements, challenges and development projects. E-Survey (in Finnish) can be found as APPENDIX 1.

E-Survey serves for two purposes:

1. Based on the answers of each respondent, fact-based personas were built. Two of them were taken into a deeper analyze as an example and rest of the personas can be found as attachments.

2. All the questions and answers received were analyzed for seeking patterns and trends. The topics for the diabetes nurse interviews were then decided based on the findings.

To have a better and deeper understanding of in diabetes care in public healthcare, the challenges from the E-survey questionnaire were analyzed and further developed to form a theme structure used in interviewing diabetes nurses face-to-face. Interviews were semi-structured which means that the questions were open but planned beforehand. Interview theme frame can be found as APPENDIX 2.

Five (5) diabetes nurses were asked to take part in the research. Interviewees were chosen due to their long experience in nursing diabetics and overall view of the disease and treatment. They were interviewed about six topics: *maintenance of professional skills*, *manager's role*, *patient care in practice*, *patient motivation*, *resources* and *electronic services and tools in patient care*.

To cover the case company's view on value in the business, three (3) persons working with medical technology sales were interviewed. Before the interviews, interviewees were asked to think about personal positive and negative experiences with customers (similar to Echeverri et al. 2011) and those cases were then further discussed during the interviews. In addition the interviewees were asked about their opinions of competitive edge in medical technology business. Collected data was analyzed under three themes: value co-creation reflecting the positive experiences, value co-destruction reflecting the negative experiences and blocks of competitive edge reflecting how a company can build a competitive edge to competitors.

In this thesis scenarios was used to vision the future market situation based on today's signals. Signals are a collage of industry trends, market trends and current research.

Development project (see visualization in Figure 7) was conducted based on the double diamond service design process relying with the chosen methods executed in the following order: stakeholder map, E-Survey, personas, interviews and scenarios.
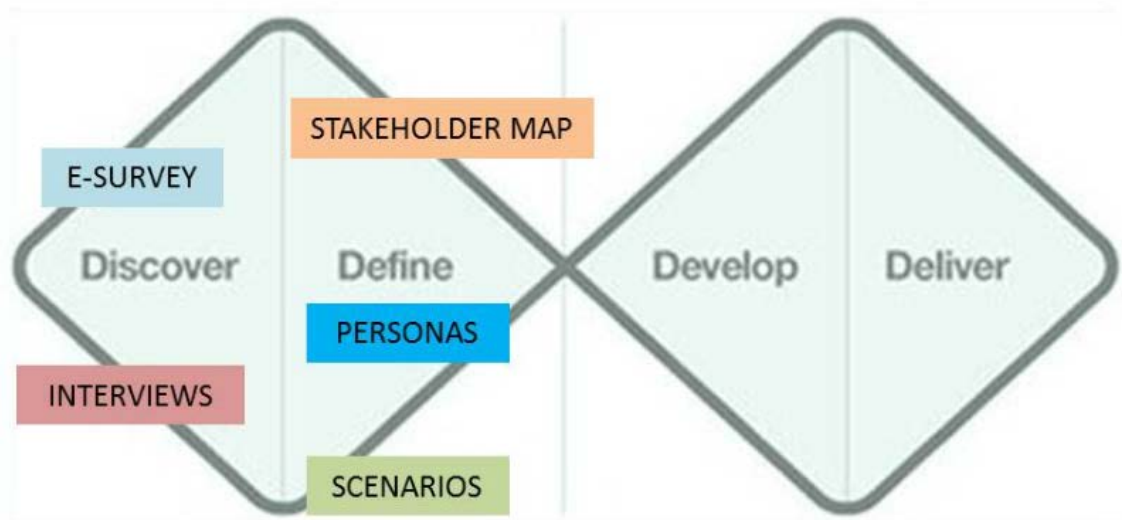
Figure 7. Service design process for the development project

5   Research outcomes

In the fifth chapter the outcomes of the research is opened up. Each of the research methods
is being dealt separately in its own sub-chapter.

5.1   Stakeholder map for diabetes supplies business

Based on diabetes business' stakeholder map (see Figure 8 map in progress) the business envi-
ronment consists of multiple direct and indirect state level organizations and operators, di-
rect public and private customers, external partners and internal employees. All of Direct
customers (municipalities and hospital districts) were chosen for further consideration. Under
the public operators, three main directly involved (sub-)stakeholders were chosen as having a
biggest influence on day-to-day business: diabetes care team (diabetes nurses particularly),
patients/end-users and procurement units.
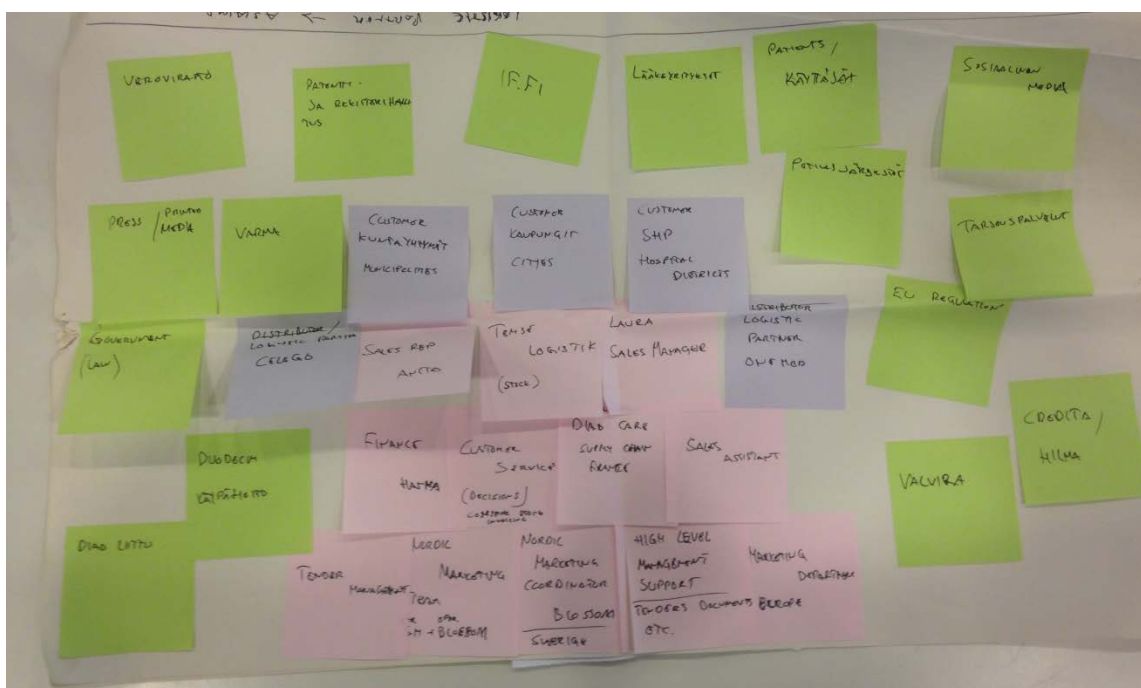
Figure 8. Stakeholder map in progress for diabetes business from the workshop

All the three (sub-) stakeholders could form a base to a research. Best case would be to con-
duct a research covering view from the all the stakeholders the size of the research would be
too massive. For this thesis the focus was chosen to cover diabetes nurses point of view. The
reason for that was that by studying the diabetes nurse view, the research has a touchpoint
for both the procurement unit and the patient/end-user. In case to focus of the research
would be on the studying either a procurement unit or a patient/end-user there would be no
touchpoint between them.

SUMMARY

All though many stakeholders play a role in world of diabetes care, in business sense there are quite a few actors to be influenced in day-to-day operations. Diabetes nurses are the main responsible for treating diabetics in public healthcare and it would be a mistake to ignore covering that aspect from the research. Diabetes nurses have the insides of the daily routines in treatment and understanding of the life of a diabetic. They also have a direct touchpoint to procurement units and even though a communication and an influence gap can often be detected between the diabetes unit and the procurement unit, the possibility to influence business from adding value to diabetes treatment can still be seen a better possibility to gain business than to shifting focus on the procurement work.

5.2   Co-creation and co-destruction – experiences from sales

VALUE CO-CREATION

Value co-creation was divided into two main topics based on the interviews: *way to work* and *work life support*. Positive experiences in *way to work* reflect how the customers see the case company through the sales person. Positive feedback has often been received from hands-on and proactive approach in such that can be seen as an entrepreneur approach. On the best case scenario the customer seeks support on daily matters from the case company representatives showing the level of trust and reliance for the presence of the company. One key element for this kind of customer relationship is the company to know the customer and its individual needs and working ways. Another key element is a trust between the people in contact from the company's and the customer's side. This trust, according to the interviewees is based on people chemistry, open communication, integrity and transparency. Building the trust was seen as based on history but more importantly by the current setup.

Work life support forms out of three sub-topics: professional skills maintenance, development of working methods and offering tools for practical (patient and procurement) work. Professional skill maintenance included different sorts of trainings and delivering work related analyses, studies and researches. Even though training is commonly included in tenders, according to the interviewees the level of delivered training varies depending on the partner company. Examples of training failures were based on the contract partner to come up with a minimum effort training execution that wasn't meeting the expectations of the customer or fulfilling the promises made in tender. Tailored trainings planned and executed together with the cus-

tomer, based on the customer needs were seen as the bottom level execution and essential in ensuring the proper use of the contract products.

Development of working methods includes consulting and evaluating on practical working routines and providing tools for customer to use e.g. as an internal training resource. These sorts of services were seen as way to further develop the relationship on a deeper level and to possible to have a long-lasting effect. Tools for procurement work comes from knowing the market, the customer, competitors, procurement law and being able to provide consultancy in e.g. grouping the product and building specific product requirements. Tools for face-to-face patient work didn't really come up much during the interviews other than the obvious product portfolio and patient materials for contract customers. That leaves a room for an interpretation that patient's/end-users aspect could be out the landscape for the case company.

VALUE CO-DESTRUCTION

Based on the interviews value co-destruction (negative experiences) can be divided into *possibilities* and *threats*. Possibilities have a negative image and a short-term negative impact but can also be seen as a good contact and sales possibility when turned into positive outcome. Typical for these kinds of cases is that they are quite everyday type of events such as backorders and complaints. According to the interviewees customers also see them as a normal part of the work and by taking the proper approach and actions they are a good customer relationship management. The other side of the paper is that when issues grow bigger for any reason (such as continuous product quality or delivery issues) the possibility to turn issues into positive events start to fade and events turn into threats of losing clients or at least sales of issue related products. The possibility for that situation rises if there is a viable option in the market. One other challenge that is very typical is the conversion to new products after changing to new vendor. According to interviewees estimation there are always 30% of healthcare workers that have some level of change resistance related to new medical devices and instruments. Change resistance puts a little more pressure to new product user trainings but the hint could be that the smaller the trainee group and more personal the training contact is, less room for resistance remains.

Threats possess capabilities to have a long-term negative impact on business and customer relationships. Not meeting the customer's expectations and making empty promises pose a threat of losing the customer and the business. Whether it is a matter of a spoken promise or a tender requirement, the threat remains the same. Challenge comes from the nature of the business since vendors tend to promise everything in tenders and buyers have realized a window there to outsource some of their own functions through public tenders. On a smaller scale under-achievement can mean continuous inflexibility and communication, a way to

working that reflects the attitude of "I am only working here" which seems to be acceptable if the customer has no experience in better service level. There is also the possibility of people chemistry failures when the sales person and the customers do not get along. Direct business impact can be seen if the customer doesn't get help in building the tenders in which case they tend to turn to competitors side or the supplier fails to deliver proper tenders responses in which case the customer is lost.

BLOCKS OF COMPETITIVE EDGE

Based on the interviews competitive edge in medical technology business is based on a combination of three blocks: products, networking and services. Products-block means focusing on quality control, product portfolio and product innovations. The product quality by default is on a good level with the main manufacturers in the market so quality for customers comes more from maintaining the quality level that is up to the level of minimum customer expectations which requires proper quality monitoring. On the other side of the *products* are product portfolio and product innovations. Product portfolio is more crucial to bulk supplies for offering product group differentiation from competitors and also to match the need of supplies range requested by the customers. For bigger medical devices and instruments the innovations that help the customer to improve hands-on practices and create better service to their customers were seen as important part of the business by the interviewees.

Networking is an inclusive concept of partnerships inside and outside of the industry. All the different therapy areas have their own key opinion leaders (KOL's), clinicians, researchers, public institutions, public organizations and publications to partner with in seeking for building credibility and gaining influence. It makes a great different in the big picture whether the company is seen as a bulk manufacturer or influential actor in the eyes of customers. Good networking inside the industry can provide leverage to policy-making and building up more self-suitable market. Networking external partners such as logistic partners can provide flexibility and better customer service for companies. Another way of networking is the social media in which the industry is slowly exploring and learning how to utilize. According to the interviewees there are attempts and ongoing projects at some parts of the world in social media, especially in Facebook, but it might take a while before there will be better understanding on how to benefit from social media in the Nordic level. All together there was a consensus that social media's influence is growing constantly.

Services can be divided into three sub-topics: *physical services*, *non-physical services* and *service image*. Services are seen as an add-on function and are sort trying to find their place in the business. Because of the nature of the business in public sector goes currently mainly for price comparison, many companies only offer the required minimum services requested in the

tenders. The level of service is decided by the manufacturer companies at the market and they are all more focused on what the others do and adding cheap me too- services to their portfolio. For example physical materials are often copied from the internet just for the tenders and after the contracts are signed there is no follow-up on delivering the promises from either side. In a way some medical technology companies and especially diabetes supplies companies are depending on pharmaceutical companies and public organizations which are sharing the cake for providing physical resources. Non-physical services were seen more as a deal breakers than physical. Follow-up for personnel trainings required in tenders are common and also necessary for safety reasons. In addition to minimum requirements, joint processes and projects are seen as a good way to differentiate from the competitors. They can be seen as an aftermath of *service image* which is something that is built with continuous presence in customer's everyday work-life. It comes back to the way of working, being proactive, available and familiar. Paraphrasing an interviewee: "As long as the customers keep calling, you're on top of the game." This due to the fact that customers need support and are utilizing their networks on daily bases like everyone else and it is important to play a role in their network - bigger the role, better the situation.

SUMMARY

Based on the interviews could be said that benchmarking plays a big, often a key role in the medical technology business. It's a conservative way of observing, providing me too – services and working with minimum resources and filling the minimum requirements. Potential reasons for slow service revolution in medical supplies business two gaps can be stated:

Gap 1 *due to the nature of the business, suppliers can't find the way or don't see the potential in turning value into sales*
Gap 2 *due to the size and status of the market, suppliers see no reason to invest resources to other than direct sales functions*

On the other hand, best response from customers has been given from services representing consultant type of services which states that customers appreciate deeper cooperation and partnering with the suppliers. As can be seen from the value map (Figure 9) possibilities exist for creating better customer value but when companies don't see providing better customer value coming back in currency, competitors aren't creating too much pressure to improve performance and the market is under constant turbulence, no player is willing to bet big on the small size market.
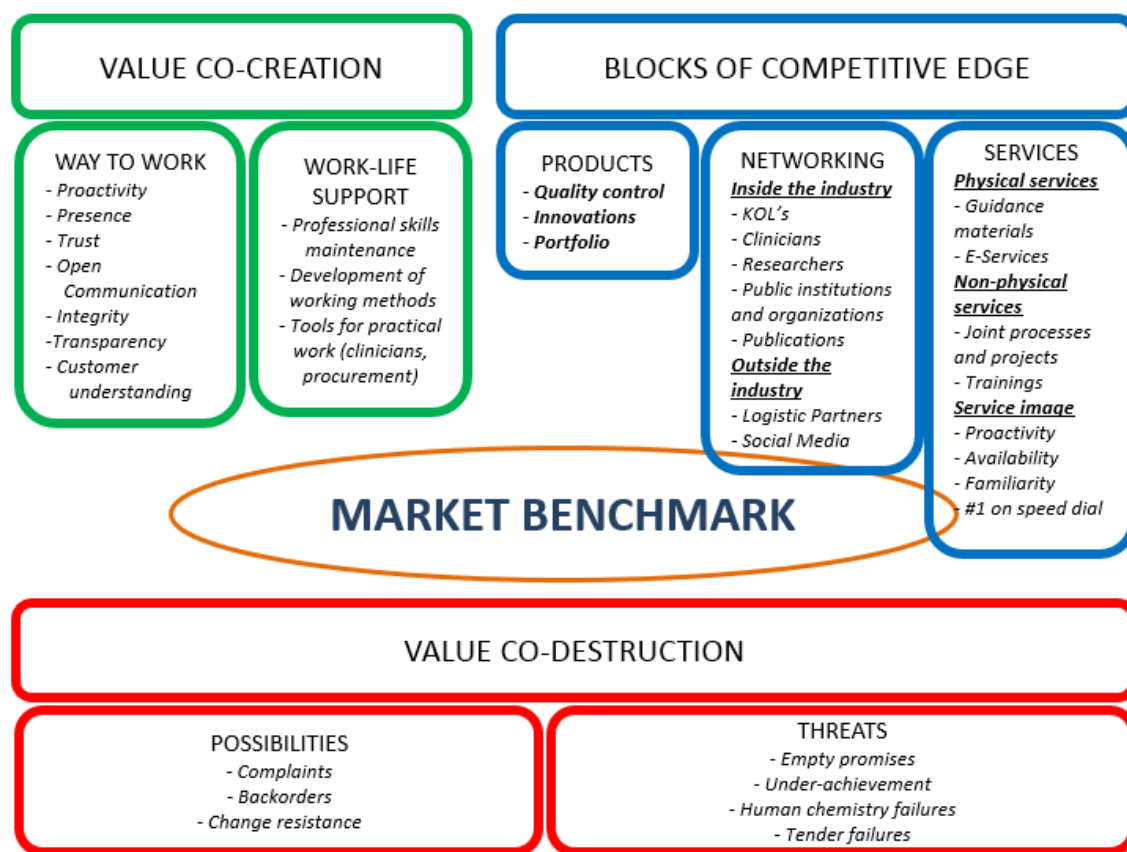
Figure 9. Medical supplies value map

5.3 Findings from the E-Survey

Out of 57 survey links send eight replies were given. Seven out of eight respondents were females and one male responded. Respondents were between ages 40 to 59 years with 2-34 years of experience in caring diabetics. Average age of the respondents was 50.88 years and they had been caring diabetics for the average of 15.75 years. Two of the personas are translated into and explained in this chapter and six personas can be found as appendix 3 in Finnish.

Persona example number one (Figure 10) is a 40 years old woman who has been working for 11 years as a diabetes nurse. By education she is a nurse specialized in diabetes from university of applied sciences. Her work is independent and self-guided and requires knowledge of the disease and medicines. At her workplace there is a lack of doctors so it is up to the nurses to treat patients in practice where the doctors treat patients on paper. Her job requires multidisciplinary skills due to the extensive nature of the disease, e.g. in psychology. She says that current challenges and issues at her work are lack of resources, lack of time in developing working methods, increasing patient mass, bad wage, patient's bad glycemic control and obesity, know-how in treating type 1 diabetics and challenges in treating immigrants. There are no on-going development projects organized by the employer but there is a project to-

gether with a pharmaceutical company to develop local diabetes practices and cooperation in the area.

SEX
FEMALE

VACANCY
DIABETES NURSE

YEARS AT WORK
11

AGE
40

STUDY BACKGROUND
SPECIALIZED NURSE, POLYTECHNIC

JOB DESCRIPTION – QUALITIES, REQUIREMENTS AND QUALIFICATIONS

Work is independent so you have to be self-guided. Knowledge of the disease and medicine is required in patient care. Lot of responsibilities because of the lack of doctors. Very little available doctor times so the patient care is nurses responsibility. Doctors treat patient on a paper level. Job requires multidisciplinary skills due to the extensive nature of the disease, e.g. in psychology.

CHALLENGES, PROBLEMS AND OBSTACLES AT WORK

lack of resources, lack of time in developing working methods, increasing patient mass, bad wage, patient's bad glycemic control and obesity, know-how in treating type 1 diabetics and challenges in treating immigrants.

ONGOING DEVELOPMENT PROJECTS

Ongoing development projects organized by the employer but there is a project together with a pharmaceutical company to develop local diabetes practices and cooperation in the area.

Open comment:
Nursing diabetics is challenging due to the multidisciplinary nature. Patient relationships get personal by time. Need of additional training and skills maintenance is constant. Employee is not active in organizing training so the support from the industry is crucial.

Figure 10. Persona example number one

Persona example number two (Figure 11) is a 42 years old man who has been working for 14 years as a diabetes nurse. By education he is a midwife and a secondary school graduate. His work requires a nursing degree and constant skills update to stay current. He thinks that a good diabetes nurse is genuinely interested in patient and patient's health, is able to solve problems independently and to sell the patient a new way to live and perceive health.

He says that current challenges and issues at his work are the increasing patient mass, weakening municipal economy, unskilled managers and short-sided and narrow-minded health policy. There are no on-going development projects at his workplace.
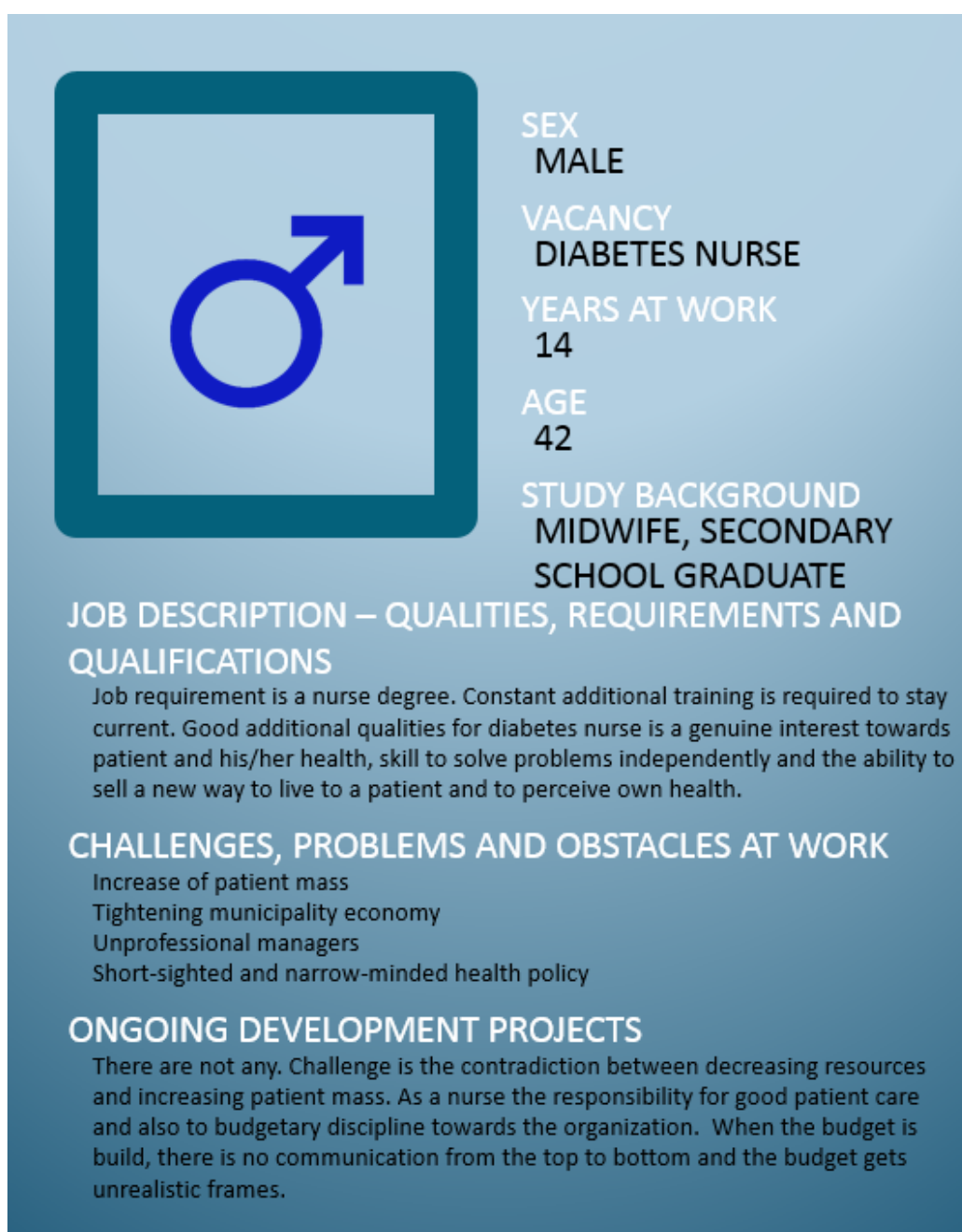

Figure 11. Persona example number two

Based on the open question replies about job requirements, challenges and development projects were analyzed based on what topics had come out and in how many replies. In first question about job requirements education and training was mentioned in all the replies. Second most common topic was about self-reliance, self-guidance and personal responsibility. Cooperation, communication and overall judgement skills were also mentioned each in three replies. For the second question about current challenges at work two topics was mentioned in half of the replies: resource and training issues. Patient motivation, increasing patient population and health policy challenges were all mentioned in three replies. Third question about current development projects did not form any patterns. Excel summary of E-Survey results is in Table 9. Most common themes from the questionnaire are marked in green and yellow.

Table 9. E-Survey findings summary

1. Question: Job description - Qualities, requirements and qualifications	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Person 7	Person 8	TOTAL
Degree, specialization, experience and continuous training	x	x	x	x	x	x	x	x	8
A genuine interest towards patient and patient health	x								1
The ability to sell a new way of living to patients	x					x			2
Wide overall situation judgement		x		x		x			3
Cooperation with the nursing team		x		x	x				3
Cooperation and self-reliance, assertiveness and responsibility	x		x		x		x	x	5
Knowledge of threatment path and medication				x		x			2
Interpersonal and communication skills				x	x			x	3

2. Question: Challenges, problems and obstacles at work	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Person 7	Person 8	TOTAL
Time, overtime work, lack of resources		x	x	x			x		4
Patient's motivation, patients with multiple health issues			x	x		x			3
The increase of patient population	x		x			x			3
Tightening of appropriations, local government and health policies	x				x	x			3
Unskilled managers	x					x			2
Training - skills updates and maintenance		x	x		x	x			4
Low quality of care supplies						x			1
Equal level of threatment regardless of residence						x			1
Poor salary			x						1
E-services and management systems		x							1

3. Question: Current development projects	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Person 7	Person 8	TOTAL
Hiring an extra diabetes nurse		x							1
Plan for internal training program		x							1
Developing an electronic blood sugar form		x							1
Ideation group to develop diabetes care in the city area			x						1
Continuous training				x					1
Working community drives to develop working methods and process				x					1
Resources are shared by combining health centers					x				1
Collecting complaints of medical supplies					x				1
Co-appointments to newly diagnosed						x			1
Physio counseling for overweight and sedentary people						x			1

SUMMARY

Based on the replies to the web-questionnaire few topics rose above others: maintenance of professional skills, patient care in practice, patient motivation and resource challenges. In addition there were other topics mentioned and especially two were seen relevant with a view to diabetes nurse interviews: electronic services and tools in patient care and manager's role. Replies were more or less in-line with the case company's presumptions on what kind of topics would surface. Interesting notion was that there were no alike on-going development projects or solutions found which simply shows the fragmentation of the nationwide care structures.

5.4   Nursing diabetics in public healthcare – the clinician view

MAINTENANCE OF PROFESSIONAL SKILLS

One of the main challenges of a Diabetes Nurse is to keep up with changing world around dia-
betes and diabetics. There are different means to maintain nursing skills as can be seen in
Table 10 but although many channels exist, the massive information flow is making it chal-
lenging to stay on a wake of rapidly developing working environment. In addition, diabetics
also have more knowledge and more information sources nowadays and that puts some addi-
tional requirements to skills maintenance.

Table 10. Means to stay current in nursing diabetics

Industry (Pharma and Med Tech Companies)	*Sales visits, materials / studies, news on drugs/devices/instruments*
Networking With Colleagues	*In trainings, meetings and other events*
Professional Literature	
Trainings	*National, Regional, Local, Internal, Industry-based*
Web sources	*Terveysportti.fi, Diabetesliitto.fi (open discussion forums where not seen as a useful source of information)*

Role of the industry

Cooperation with industries was seen as an important part of the work. Companies organize
trainings and share the latest studies and patient materials which help to stay current in nurs-
ing diabetics. Topics of the trainings can usually be decided together with the organizing
company to cover relevant information and topics which was seen a positive matter. Sales
visits were seen important but the number of visits is declining, presumably due to reduced
resources at industry side.

One major concern that came up from the interviews has to do with the regulation on phar-
maceutical marketing. Marketing regulation prohibits some drug-related information to be
shared with nurses. This leads to a situation where the doctor and nurse have different level
of drug information. Considering that nurses also play a key role in drug treatment in many
nursing teams this gap could be important to address by the regulatory authorities. For exam-
ple often it is the doctor who writes the prescription but the adverse reaction profile is dealt

afterwards with the nurse when the diabetic has self-read it since the doctor has not gone through the list of possible side effects of the prescribed drug.

Trainings

Trainings were seen as a necessary tool to maintain professional skills. Trainings can be difficult to reconcile inside working hours and therefore they are often arranged after work on spare time. Nurses have an obligation to maintain professional skills but still to seek, apply and participate in trainings is usually purely a self-dependent act. Interviewees had no formal training plans but the topic is discussed in personal development discussions at work. Usually trainings are supported by the employee if the participation can be well reasoned. On the other hand education budgets are reduced which makes it harder to participate in trainings with participation fees. Sometimes Nurses pay the trainings by themselves if they see the training crucial for themselves but some important (national) training events can be missed out due to the lack of funding.

There were some training topic issues that rose up from interviews. IT skills were mostly self-studied and learned just to cope with the IT infrastructure at work. It could be stated that many of the diabetes nurses today have started their work life before computers and IT became mainstream tools at everyday life and therefore they have had to self-learn the basic skills to cope with the development. Motivational patient interview was a training that was seen as a very useful in practical work.

One training topic that was seen as a "would be useful" was supportive psychiatric training. Patient with e.g. substance abuse and/or depression background may need psychological counselling and it was seen as a useful skill to be able to master at some basic level at least to be able to recognise the special needs and knowing how to deal with that kind of patient's on treatment wise. Another important topic to be addressed was related to the change in the patient population. People from many different backgrounds and cultures are adopting the western world's live style and that trend can also be seen in lifestyle disease population. People with different ethnical backgrounds may have biological differences and responses to drug treatment. This matter has not been addressed in the Finnish diabetes treatment recommendations but is more and more current in diabetic's population and every day work for diabetes nurses. At an overall level there was a mutual view that working as a diabetes nurse, one has to master a lot of aspects outside the expertise skills.

MANAGER'S ROLE

Even though the role of the manager as an issue came up in the personas questionnaire, none of the interviewees felt it was a matter that needs to be addressed. Nursing diabetes is a self-reliant and independent job and the role of the manager was seen more or less as a person responsible for taking care of the practical issues and upper level management. Interviewees saw no need for directive managers or for them to show interest towards neither nursing practices nor development. Following the bigger and more structured teams today the re-sponsibilities of mangers have grown and become more distant. This has also unified working methods and cleared job descriptions and responsibilities which were seen as a positive thing. Overall feeling was that a good manager is a one that battles the fights with bureaucracy and decision level management keeping the practice level's interest side.

PATIENT CARE IN PRACTICE

Diabetes nurses have to consider many variables in patient care. Every diabetic is a unique persona with individual needs and every treatment plan needs to be planned based on and build from the patients "story". Around the patient is a rapidly changing working environment that has to be taken into account in each step of the treatment. There are many challenges in diabetes care today and in the future (summarized in Table 11) but in the end it all boils down to chemistry and trust between the patient and the nurse which are crucial in building patients motivation and commitment to treatment.

Table 11. Main findings of nursing diabetics in practice

TOPIC	MAIN FINDINGS
It's all in the days work for diabetes nurse	• Patient mass continues to grow • Focus to patient care is the key to motivation • High motivation leads to a better patient care and a work balance • Group meetings and planning tools help to cope with the work balance
Nurse - patient relationship	• Workmanship is tested in relation-ship skills • Best relationships are built on a personal level • Better the chemistry between a nurse and a patient, better the treatment outcome
Care team	• More centralized and better con-nected care teams lead to a better service and patient care

Patient materials	• Patient materials are important especially with a new drug or device
Lifestyle and diabetes	• Lifestyle choices and commitment to treatment have direct reflection to glycemic control
Future challenges	• The effect on working-age population • Culturally enriching patient mass • Information flow and source criticism
What is missing - could be done differently/better?	• Screening • Psychological services • ICT infrastructure • Best practices vs. worst practices
Other notable observations & current in diabetes	• Diagnosed are getting younger • New diabetics are more interested in technology and have more information

It's all in the days work for diabetes nurse

Patient mass is growing constantly. New diabetics get diagnosed every day and they all increase the work load of diabetes nurses. Only way the patient's disappear from the ques is by either changing the place of residence or diocese. Daily contacts can go up 15 or more which makes it difficult considering time management and work-life balance.

It is obvious that working hours stretches all the time. When treating diabetic's it is important to "make hay while the sun is shining" meaning that no matter how much time was booked for the contact, a diabetes nurse has to utilize moments when the diabetic on a receptive mode to build the nurse-patient relationship and to develop treatment and planning. Working overtime was seen as a flexible and good customer service by the interviewees. Even though it can be difficult to get overtime hours compensated, good customer feedback and a will to give best possible service were seen as the best motivational elements.

One major motivational source is to be able to focus on the essential, the patient care. To be able to focus on treating patients motivates diabetes nurses to keep going and coping with the daily routines. When diabetes nurses are able to fully focus on patient care, they feel they are able to stretch more and give better and focused treatment and service. That was also seen as a good use of resources reducing patient visits and wrong conclusions in treatment. By being allowed to focus on the patient care was also seen a way to reduce sick days.

Group visits are often held after working hours. Usually 2-3 patients are invited at the same time. Group visits are a natural follow up on nurses not having enough time to see all the patient separately. Group visits are an active form of patient care and allows patients with same information gaps to share information and issues even though they do not exclude the need of one-to-one meetings.

One improvement that came up as a positive development was the initial information sheet. It is filled by the diabetic before the actual treatment planning begins. It gives newly-diagnosed diabetics a possibility to think about the disease and future life with it. Initial information sheet also guides the nursing team to the right treatment path and to focus on the right issues from the early steps of the treatment. Initial information sheet helps to build a better, more accurate treatment plan. Other positive development concepts were making an actual treatment plan that stays in the system and can also been printed to patients. Modeling the services and treatment path also came up as positive development concepts.

Nurse – patient relationship

Diabetes Nurse is mainly responsible for creating functional relationship, overall treatment and planning. Patient can be treated in different ways by for example putting the disease, overall health or patient in the central of the treatment. Nursing relationship is build up in time with series of contacts. Interviewees thought that it is crucial to create a relationship also on a personal level to be able to provide best possible treatment and service. Patients often test if the nurse is really interested from the patients' well-being and actually wants to help and if they feel that it is not the case, they quit showing up.
Even though patients often lie about things such as substance abuse, the patient always has to be treated by the patient's story.

Care team

Care team for diabetics includes at least a nurse and a doctor. For patients with special needs, nutrition planner and pedicurist are also available, either as an in-house or outsourced service. Fundus photography and diabetes supply distribution also play a central role in diabetes care. Some of the services aren't necessary for patients with good basic health and therefore they can be treated outside central healthcare centers at the local clinics. Based on the interviews it can be noted that the more physically centralized and connected the care team is, the better customer service and treatment can be provided. If doctor-nurse joint visits were seen as a good and effective service where the patient, a doctor and a nurse are all sit down together to plan the care.

Patient materials

On an overall level it can be noted that the supply for patient materials is at a good level. Finnish Diabetes Association has chargeable materials which were seen very useful. Supplier's patient materials were seen highly practical and are heavily relied on in patient care. According to interviewees patient materials play a huge role especially in the beginning of using new drug or device. Sometimes local decision-makers do not want industry-based materials to be used in patient work but if they are not willing to pay for Diabetes Associations materials, their opinion might be ignored. Sometimes nurses make their own materials if none are available.

Lifestyle and diabetes

Type 2 diabetes is a lifestyle disease but the cause of type 1 diabetes still remains to be unknown. Both types do require commitment to treatment and focus to lifestyle choices. Insulin treatment is obligatory for type 1 diabetics but for many type 2 diabetics, following the treatment plan can sometimes be challenging due to the fact that the overall well-being might not sink after missing a pill of two or after bending on some of the other treatment elements.

Most of the challenges for diabetics are related to obesity, exercise routines and eating habits. One of the main concerns that came up from the interviews was that people have stopped cooking food and tend to eat more and more energy-dense ready meals which include very little essential nutrients and a lot of unnecessary calories. "You are what you eat" amplifies among diagnosed people. It was also pondered that more important than looking at the blood sugar levels for type 2 diabetics all the time is to focus on committing to lifestyle choices because it is possible to improve the living standards and live life in another, healthier way.

Future challenges

One of the main questions in future of treating diabetics according to the interviewees is that the patient population is changing. Obesity is becoming more common among immigrants, different food cultures and diets are becoming more mainstream and most of all type 2 diabetics are getting younger, some already at the age of 30 or even less. Considering that the disease has been seen as lifestyle disease for elderly people, change to a disease affecting massively the working age population and therefore economics at a national level is a huge change is attitudes towards the disease. The role of the occupational healthcare will be growing and incentives towards healthier lifestyle will need to be carefully thought.

Another challenge for future diabetes treatment is information flow and source criticism. Internet and social media are full of contradictory information, lifestyle "gurus" and always the latest striking research results. National treatment recommendations aren't constantly updated meaning that the patient's today are treated based on the information from yesterday. How combine all the factors, guide the patient's towards the "current and relevant" information is a challenge and there is a risk that the nurses become listening students with their patients at some level.

From an industry point of view couple of questions came up in the interviews. First is that there is a group of diabetics that following up strictly the treatment plan will make global companies rich and secondly switching to patient-friendly, shorter insulin pen needle is sometimes difficult because of the price gap in the products.

What is missing – could be done differently/better?

There were some treatment-wise issues that were challenged by the interviewees. Things such as lack of psychological services, lack of screening and nurses not being able talk about drugs in patients were seen as thing missing. Screening could cover people with other arterial issues for example men with erectile dysfunction

Every health centre should have at least one diabetes nurse focusing only on treating diabetics enabling effective and good treatment and service. Treatment should focus on giving younger patients more guidance and monitoring and coaching to elderly patients. For older type 1 diabetics, it was mentioned that the amount of physical visits could be reduced. Patients with good glycemic control and overall health should be treated in primary health care.

ICT systems were mostly seen as inflexible and not supportive in every day work. They were seen better if designed on a national level since patients, especially young people move a lot and the patient information currently does not follow. There was also a worry that areas are modeling ineffective practices from other districts due to the lack of not doing any research on practical level. Service level varies a lot at the moment even inside healthcare districts and quick fix actions were not seen as a part of the solution.

Other observations & current trends in diabetes

Patients are getting younger and are grown into technology and information flood. Where elderly people still rely more on doctor's word and to the power of pill, younger people are more aware of the power of lifestyle choices and consequences follow by those choices. Younger people are more interested in technological tools as a part of treatment and seek

more information which calls nurses to have current knowledge and information all the time. What has not seen to be changed according to interviewees is the attitude towards drug treatment. There have always been patients not willing to take pills but overall it is not a matter that needs to be addressed.

PATIENT MOTIVATION

Second most important (following motivated nursing team) factor in treating diabetes is a motivated patient. Paraphrasing one of the interviewees: "Treatment is a circle of many variables and they all need to be in place." Every patient needs to be treated as an individual, case-by-case. They all have individual sources of motivation and unique characteristics. Profiling or segmenting patients does not lead to good treatment outcome. As every patient needs to be dealt with individual setup, it requires the nursing team to have a genuine interest towards the patient and patient's well-being. If the patient feels that the genuine interest is missing, motivation to commit to treatment drops down often causing long-term problems.

Motivational patient interview trainings were seen as a good way to learn to motivate patients. To be able to motivate the patient, a trust must be built between the patient and a nurse. It is mostly to do with chemistry and nurses professional skills. Building a trust does not happen on one or two visits but has to be built in time. It is a challenge to a nurse with every patient and skills to do that will evolve with time and experience. Sometimes it takes a long time and requires a lot of patience but important is that treatment and service are on a good level so the patient stays on a positive mindset and committed to the treatment. This is not the case with all the diabetics and sometimes patient have been moved to another nurse but there has been no follow up whether the situation has been improved.

Even though all the patients are individuals, according to the interviewees different patient groups all have some common angle to start from. Gestational diabetes (pregnancy diabetes) does not really need a motivation source and the treatment is more about finding the glycemic control. Adults can't be forced to be treated but taking each patient as an individual, showing interest towards the patient and interviewing/ talking to them as an equal person helps building the trust, finding the common language and recognizing sources of motivation. For children and younger diabetics technology was seen as a good motivator. Shorter needle, technical blood glucose meters, electric glucose monitoring systems, mobile carbohydrate handbook etc. all could be used as motivators. It was also noted that pictures and metaphors work are good tools in treatment and a common knowledge of existing web services help in guiding the patient for correct information. Patient's guides were seen as a crucial element especially at the early steps of the treatment.

Concrete, printable treatment plans were seen as an improvement and to possibly have a positive influence to patient motivation. According to the interviewees it is still too soon to make long-term conclusions. Treatment plans have always existed but they have more or less stayed in the structures, forming a framework of the treatment when now are starting to form a crucial part of the treatment.

For diabetes nurses every day work is also about learning and all the experiences build up skills to better understand patients, their backgrounds and sources of motivation. National diabetes treatment recommendations form a base for treating diabetics but nurses are dealing with people with unfamiliar cultural backgrounds, food cultures and diets, financial situations etc. and those are factors that aren't properly addressed in the recommendations.

RESOURCES

Based on the interviews, there are four factors that that form the base for the resource challenge:

- weak national economic situation
- growing patient population
- ineffective care structures / use of resources
- short-sighted and narrow-minded health policy

From practitioners point of view it seems that the way to improve local situation is to seek for best practices among available tools and resources. Upcoming structural reforming of the social welfare and health sector did not seem to cause any fear among the interviewees but it was rather seen as a possibility to unify and merge treatment paths and systems on a national level. Electronic tools and systems were seen as a good tool but not as a solution to the resource challenges, mostly due to the fact that they all are free-standing elements. Current treatment systems are often local and do not really support the practical work and many of the e-services cost money or are additional services from external companies and seem to vanish at some point. One challenge for diabetes nurses is that due to the nature and requirements of the work, it is difficult to arrange competent fill-ins with current resources. It was stated that the circle of treatment must stay solid all the time to be able to avoid possible malpractices and reassure good service level and that can be jeopardized with disorganized nursing staff changes.

ELECTRONIC TOOLS AND SERVICES IN PATIENT CARE

Based on the interviews, available e-tools can be divided into four categories (summarized in Table 12). *Internal e-systems and e-services* form the backbone of the ICT infrastructure. Communication between a nurse and a patient is usually handled via phone but E-mail is also

being actively used in patient care. Local systems were often seen as outdated systems that do not really support patient care in a best possible way. From the customer service point of view the level of e-services was seen improving and electrification of services accepted to be part of the future health care. E-services were not seen being fully able to replace face-to-face care in near future. Tools such as online booking systems, electronic prescriptions, virtual health check and personal coaching, electronic patient data archives and serf-nursing services were all seen as useful services in patient care.

External information sources are available for everyone. Some generally used include information about the disease, nutrition and lifestyle choices and are seen as the primary additional information source for diabetics. *Supplier services* are provided by third party companies that offer additional services to their products or services or as a part of a package deal. These services are usually available during the contract period(s) and therefore were not seen as a long-term solution. *Other external services* haven't really yet found their place in public healthcare. Social media groups have been tested and they were seen as a way of networking and as a platform for discussions for small group of people but not as a crucial element of patient care. Cloud services were seen a useful tool in patient data transmission but if they have failed if being used for wrong patient segment. Patients who are interested in technological solutions have shown commitment towards cloud services. Chargeable external services are very seldom purchased due to lack of funding but tested and useful-proven services are possible to be acquired.

Table 12. E-Tools and E-Services in patient care

INTERNAL SYSTEMS AND SERVICES	Online booking systems, e-mail, electronic prescriptions, virtual health check and personal coaching, electronic patient data archives and self-nursing services
EXTERNAL INFORMATION SOURCES	Nutrition guides, carbohydrate handbooks /calculators and national health associations and organizations (e.g. Sydanliitto.fi, Terveyskirjasto.fi, Diabetes.fi, Fineli.fi)
SUPPLIER SERVICES	Medicine reminders, blood glucose monitoring systems, service channels (registration required) for lecture slides etc.
OTHER EXTERNAL SERVICES	Closed social media groups, cloud services

SUMMARY

The most interesting topic that came out of the interviews was the relationship between the importance of face-to-face patient care and the future of electrification in healthcare. It's

obvious that all the signals point towards moving to more electronic-based services in health care but it is a mystery on if or where the balance between human and electronic interactions will settle. According to the interviewees electronic tools and services are not a solution but will that statement stand the pressure and movements of the outside world, only time will tell.

Interviews gave quite a good overview of the world of diabetes care from the nurse's point of view. Five interviews seemed enough to finding trends and patterns and also the practices that differ from house to house came evident. All of the six challenge topics raised from the web questionnaire were discussed in each of the interviews and analyzed first in more detailed level (above) and on a trend level to form a summary of the findings in Table 13.

Table 13. Summary of findings from the interviews

TOPIC	MAIN FINDINGS	TOPIC	MAIN FINDINGS
MAINTENANCE OF PROFESSIONAL SKILLS	- Expertise skills maintenance and development are crucial in everyday patient work - Rapidly changing world and working environment create pressure to master skills outside the expertise areas - Networking with colleagues and industry, professional literature, trainings and internet were seen as the sources in skills maintenance	PATIENT MOTIVATION	- "Treatment is a circle of many variables and they all need to be in place." - A trust must be built between the patient and a nurse - happens in time - Every patient needs to be treated as an individual with individual sources of motivation and unique characteristics - Electronic tool, technology, pictures, metaphors, printable treatment plans, a child etc. anything could be the source of motivation - For diabetes nurses every day work is about learning and all the experiences build up skills to better understand patients and their sources of motivation.
SUPERIOR'S ROLE	- No need for directive superiors - Superiors have become more distant - Responsible role in taking care of the practical issues and upper level management - Good superior battles the "fights" with bureaucracy and decision level management, keeping the side of practice level's interests	RESOURCES	- Weak national economic situation, growing patient population, ineffective care structures / use of resources and short-sighted and narrow-minded health policy are reasons for current resource challenges - Structural reforming of the social welfare and health sector is seen as a possibility to unify and merge treatment paths and systems on a national level. - Electronic tools and systems are not solutions.
PATIENT CARE IN PRACTICE	- Patient population is growing, enriching culturally and people are getting diagnosed at younger age at the early steps of their working lives - Diabetics today have better access to disease-related information and are more aware of the disease and the effects of lifestyle choices - Diabetics are getting more interested in technology as a part of the treatment - Focus to patient care is the key to diabetes nurses motivation which has a direct influence to a better patient care/service and to a work balance - Patient care is built on nurse-patient relationship and chemistry - Face-to-face visits are at the center of the patient care	ELECTRONIC SERVICES AND TOOLS IN PATIENT CARE	- E-services and e-tools are recognized to play a relevant role in patient care - Internal systems and services are currently outdated and do not support patient care - External information sources are useful and widely used in patient care - Supplier services and other external services haven't still found their place in the diabetes care though some useful tools do exist and are selectively used

5.5 Future scenarios for type 1 diabetes supplies market

Based on todays the business and environment trends and signals three different future scenarios were built for case company's diabetes business. First scenario is based on service revolution to take over diabetes supplies market. Second scenario is based on public procurement to follow up the "Norwegian model" where contracts are state level, one vendor contracts. Third scenario is based on new revolutionary treatment entering the market. Summary of the scenarios in Figure 12.

Scenario 1. Service Revolution

According to Tim Brown (Järvinen 2016), the CEO of a design and consultancy firm IDEO, the true potential of service design is in healthcare. Some baby steps towards service revolution have already been taken in Finland e.g. with Pirkanmaa Hospital District designing patient path with service design approach (Järvinen 2016). Pharmaceutical industry has also begun using service design agencies in an attempt to create better customer value and new collaboration models with healthcare sector. Medical technology companies haven't yet started to take those first steps but as the business environment starts changing towards improved collaboration models between the pharmaceutical industry and healthcare sector it could become crucial to medical technology business to moving towards service-based business models and customer-centric business approach with re-formed value propositions. Possibility for this scenario to become reality is imaginable but even though service-minded and customer-centered approaches and service design are slowly digging in to Finnish public healthcare, it needs a game opener from a medical technology company due the "me too" nature of the industry. Possibility of the industry moving more towards being a bulk-seller rather than a partner for the public healthcare sector is also an imaginable option.

Scenario 2. State level contracts

Since the arrival of procurement law to control public sector purchasing has become more painful and resource consuming function to public organizations. As a result public organizations are increasingly relying on regionally centralized purchase departments or outsourcing purchasing. At the end of this trend is the "Norwegian model" where all the potential vendors compete on state level, one vendor contract. In practice it means that if your company does not win the contract, your sales will be zero for the next contract period. In business sense that means that the business is given to local distributor since it would be waste of resources to form a local functional unit when the business lives or dies after every tender decision on a country level. As a follow up it also means that service level is kept at the lowest possible level where the mandatory services are handled mostly by the local distributor. This scenario is imaginable but the latest signals from the social welfare and health care reform indicates that even though the trend of centralized purchasing keeps increasing, state level contract will not become reality within at least the next 5 years since it looks like the decision of organizing the purchasing is left in the hands of local policy-maker.

Scenario 3. New revolutionary treatment

Western scientific medicine is developing at a rapid pace and so does the understanding of the human body ecosystem. As the scientists and researchers are working to increase under-

standing of the human body functions at some point it comes inevitable that the reason be-
hind type 1 diabetes disease will be discovered. At that point it will be only a matter of time
when the disease becomes preventable or curable. There are constantly encouraging signals
from the medical academic world (see for example CBS News 2016, Harvard University 2016)
from new improved treatments and with every potential new treatment world is one step
closer in making the business for current diabetes supplies companies vanish as its current
form. The scenario of new revolutionary treatment is plausible in time but due to the regula-
tions and rules of the medical world it will take years after finding new solution(s) to type 1
diabetes to enter the market.

Scenario 1. Service Revolution

Key trends: Companies compete in service; suppliers move closer to customers offering resources to everyday
patient work and in-house processes and projects.

Business requirements: Business model adjustments; mindset needs to be switched from sales orientated to
service orientated and value propositions must be re-invented.

Possibility: *Imaginable* - pharmaceutical industry is slowly investing in service design and some of the customers
already have their own service design units. It doesn't necessary mean that technology suppliers will follow.

Scenario 2. State Level Contracts

Key trends: All the vendors compete for one state level contract once every four years. Price is the only decisive
factor after companies fill the technical requirements.

Business requirements: Possibly moving the business to distributor in terms of being able to compete with the
price; services outsourced if tender is won.

Possibility: *Imaginable* – currently *the social welfare and health care reform* shows signals that this scenario is not
reality in at least very near future but the trend is that procurement functions are being centralized. Reality in 5+
years earliest.

Scenario 3. New Revolutionary Treatment

Key trends: T1D no longer requires daily injections, whole business for insulin injection supplies vanishes
overnight.

Business requirements: Close the business or reallocate resources.

Possibility: *Plausible* – Science is working day-in and day-out for discovering new treatments and possibly a cure.
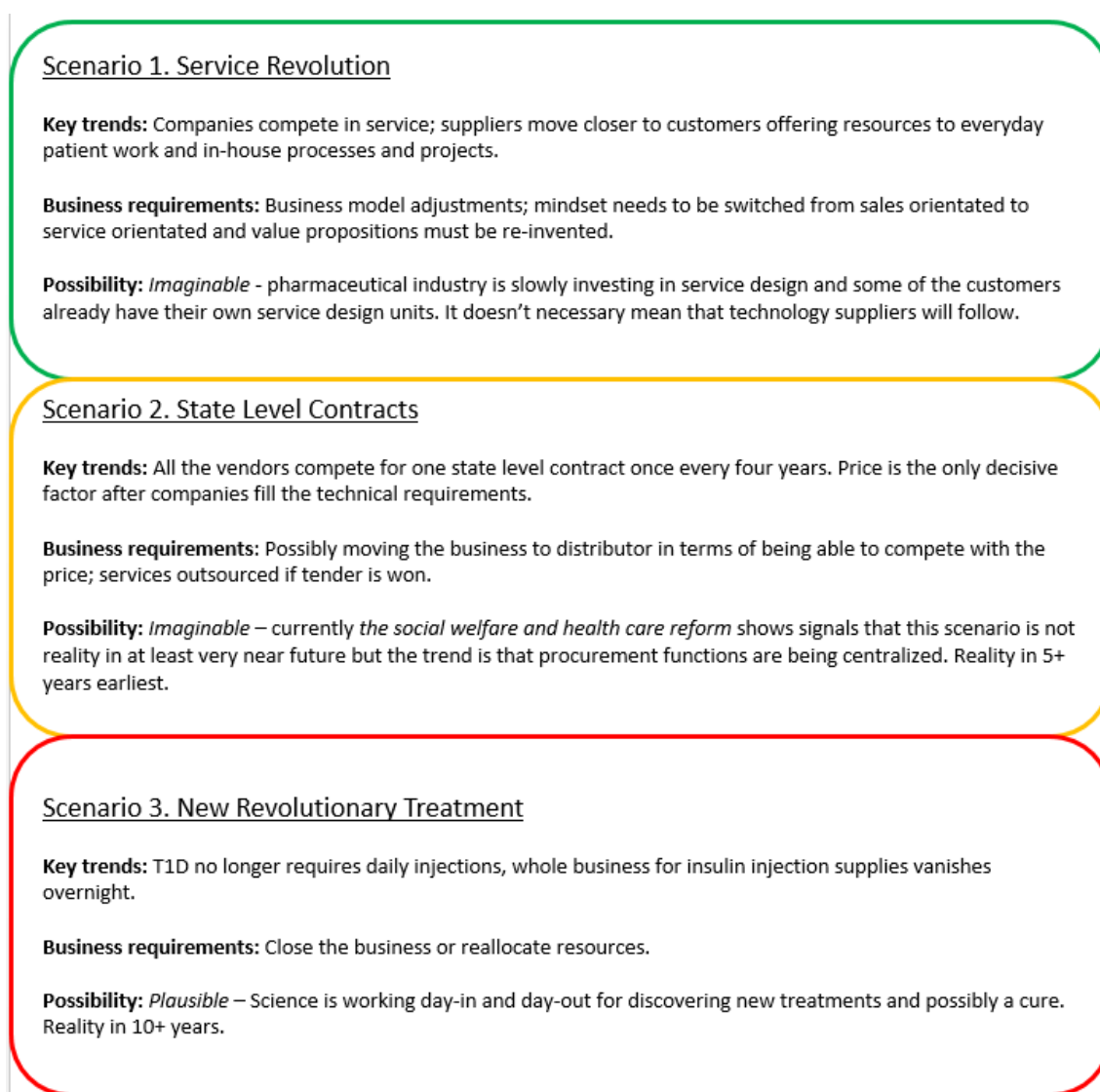Reality in 10+ years.

Figure 12. Future Scenarios in type 1 diabetes supplies business

All of the scenarios noted could become reality in near future. They can come separately or
together since scenarios are not exclusive to each other. Each of the scenarios is worth taking
into consideration but while they would if to be realized have a massive effect on the busi-

ness environment, they are not the only possible scenarios of the future. The new procurement law and the reform of the social welfare and health care will be the next future scenarios to be realized for medical technology operators in public sector but as the outcome for those changes is all up to the political parties it would only be speculation

6   Summary

Sixth chapter summarizes the thesis based on the conducted research with conclusions from the research project followed by self-learnings and -thoughts and implications for future research.

Conclusions from the research project

In the center of the thesis are value thinking in current marketing science, value creation in medical technology business and challenges of diabetes care in public healthcare. Theoretical backbone is customer- and service-dominant logic to which the development project outcomes is reflected at.

The debate of roles and nature of goods and services in the marketing science has been going on since 1950's and first steps towards customer centricity took place in 1960's. It took over 50 years for the science and a revolution of services to develop service- and customer-dominant marketing logic's. Even if the medical technology business mainly operates under the role of a manufacturer industry, current marketing science argues that all companies are service companies (Vargo et al. 2004) which requires new approach to business marketing and service offerings. Another main difference to classical economics thinking of goods-dominance is the customer-dominant logic approach that emphasizes company's supportive role in the customer's lives and ecosystems highlighting the importance of becoming more involved with the customer daily routines (Heinonen et al. 2010). This argument is also supported by the research stating that value in medical technology business is created by supporting the clinician in his/her work-life with hands-on approach (Figure 13).
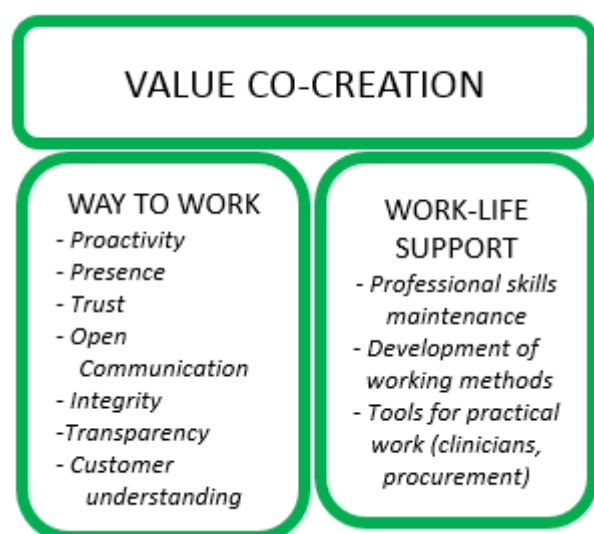
Figure 13. Value co-creation for medical supplies business

Based on the research can be stated that the case company's diabetes business operates with classical economics and provider-centered approach by aiming to compete with product quality and design attributes. Considering the service-centered nature of public healthcare and the potential of service design in public healthcare (Järvinen 2016) new business approach and updated marketing logic of customer- and service-centered logic could bring the company's business model to this date.

As is stated by Ostrom et al. (2010, 17) service design brings service strategy and innovative service ideas to life which argues that service design can work as a bridge in moving from goods-centered marketing logic to customer- and service centered marketing logic. Main focus on updating the value propositions should be on recognizing the individuality of the market and customer's needs which is supported by Vargo et al. (2004) statement that value is always individually perceived by the customer in a particular moment.

Based on the research can be noted that the case company offers ineffective value propositions based on that quality issues (bad quality) of diabetes supplies did not come up during the research stage and the mutual understanding was that quality control has more weight on business than the high quality aspect. Based on these arguments can be stated that the case company is selling solution to a problem that doesn't exist on the market.

Based on the research there is a conflict on how the company and company representatives approach the customer. Even though the company's approach is provider- and goods-centered, the approach of company representatives and understanding the business reflects the customer- and service-centricity approach. Considering the possible factors that has led to this kind of situation a few points could be stated. At first, the sales approaches are persona related. Interviewees have had long careers in the industry and a lot of time developing their "way to work" practices. At second, there has been a limited amount of new solutions brought to the market. This means the focus has been more on developing working ways and building customer relationships than constantly finding new business opportunities. Third point is that there has been an overall satisfaction of business results in recent history and there has been no pressure for intervention inside the company leaving plenty of room for development of individual working methods.

Research showed that the representatives of the case company have a realistic picture from the challenges customers are facing on their daily work lives and where the critical touchpoints for service development could be found. Argument supporting this claim that is that "how to support customer's work-life" (Figure 13) factors reflect the challenges of diabetes care in public healthcare stated by the clinicians (Figure 14). Based on the claim can be stat-

ed that the case company should aim for better supporting the grassroots work and alter the customer approach to be more in line with the practical work.

TOPIC	MAIN FINDINGS	TOPIC	MAIN FINDINGS
MAINTENANCE OF PROFESSIONAL SKILLS	- Expertise skills maintenance and development are crucial in everyday patient work - Rapidly changing world and working environment create pressure to master skills outside the expertise areas - Networking with colleagues and industry, professional literature, trainings and internet were seen as the sources in skills maintenance	PATIENT MOTIVATION	- "Treatment is a circle of many variables and they all need to be in place." - A trust must be built between the patient and a nurse - happens in time - Every patient needs to be treated as an individual with individual sources of motivation and unique characteristics - Electronic tool, technology, pictures, metaphors, printable treatment plans, a child etc. anything could be the source of motivation - For diabetes nurses every day work is about learning and all the experiences build up skills to better understand patients and their sources of motivation.
SUPERIOR'S ROLE	- No need for directive superiors - Superiors have become more distant - Responsible role in taking care of the practical issues and upper level management - Good superior battles the "fights" with bureaucracy and decision level management, keeping the side of practice level's interests	RESOURCES	- Weak national economic situation, growing patient population, ineffective care structures / use of resources and short-sighted and narrow-minded health policy are reasons for current resource challenges - Structural reforming of the social welfare and health sector is seen as a possibility to unify and merge treatment paths and systems on a national level. - Electronic tools and systems are not solutions.
PATIENT CARE IN PRACTICE	- Patient population is growing, enriching culturally and people are getting diagnosed at younger age at the early steps of their working lives - Diabetics today have better access to disease-related information and are more aware of the disease and the effects of lifestyle choices - Diabetics are getting more interested in technology as a part of the treatment - Focus to patient care is the key to diabetes nurses motivation which has a direct influence to a better patient care/service and to a work balance - Patient care is built on nurse-patient relationship and chemistry - Face-to-face visits are at the center of the patient care	ELECTRONIC SERVICES AND TOOLS IN PATIENT CARE	- E-services and e-tools are recognized to play a relevant role in patient care - Internal systems and services are currently outdated and do not support patient care - External information sources are useful and widely used in patient care - Supplier services and other external services haven't still found their place in the diabetes care though some useful tools do exist and are selectively used

Figure 14. Possible areas of service opportunities in diabetes care at public healthcare

Based on the research the following propositions are stated:

What kind of value propositions should be developed for diabetes supplies business to better reflect the current marketing science?

Customer- and service-centered value propositions matching the individual needs of the market and the customer's.

Based on the research and customer- and service-dominant logic theories it can be stated that shifting away from goods-centered business model towards customer- and service-centered business model would better match the current needs of the business environment. Value promises should go right into the heart of the daily routines of the customer and aim to create deeper partnerships and developing innovative purpose-oriented tools and practices to improve patient care. Proposition is supported for example by Heinonen et al. (2015), Lusch et al. (2014) and Grönroos (2011) stating that the company is not creating the value but plays a part of customer's value creation process and therefore it can't be in total control of whether the value co-created or co-destroyed but only influence the value creation outcome with direct and indirect interactions together with the other customer service ecosystems.

> *How value is created in medical supplies business?*
> **By offering mental and physical resources to patient care.**

Based on the research can be stated that the main focus in customer work should be on creating better customer relationships in the long run by integrating into customer's everyday processes and projects. Focus should be on developing the entrepreneur approach in sales tactics, participating strongly in customer's personal skills maintenance and development and to offer tools for developing working methods and supporting the practical work.

> *What are the main challenges of diabetes care in Finnish public healthcare sector?*
> **Rapidly changing operating environment and ever-growing patient mass in a relation to public economic situation.**

Based on the research can be stated that when the world is on a fast lane to futuristic technology-centered society model, diabetes care in public healthcare is only slowly opening up to exploiting the opportunities in technologizing. Part of the problem is the cost-cutting pressure in public healthcare due to challenging public economic situation which also makes the business less profitable for suppliers and eventually could lead to a total regression in service offerings. Together with the explosive growth in lifestyle diseases in western world this could lead to a state that could prove to be tough to manage from government level.

As it has been pointed out by (e.g. Grönroos 2008; Heinonen et al. 2015; Echeverri et al. 2011; Ojasalo 2001) value creating process can also have a negative outcome and companies also has to be able to deliver value and fill the customer expectations. In a business environment where the customer base is changeless the expectations management is amplified. Making improved value propositions is not going to challenge the current setup in diabetes supplies business by itself, the company has to implement the new customer- and service-based business logic into practice. Based on the research the main focus should be on **devel-**

oping partnership in patient care by **utilizing and developing** existing networks, **seeking** for process integration and joint project opportunities with customers and **developing** need-based mental and physical resource offerings.

Self-thoughts, -learnings and implications for future research

Case Company is a global actor and recognized as a quality partner in medical technology business. Brand status helps in inviting key actors and stakeholders to partner in business activities and also the company has huge amount of internal skills and knowledge resources in use. Quality control (especially in diabetes supplies) in a company is on a high level which makes a good base for business development.

The challenge for a global company is that even though the company is slowly taking steps away from conservative goods-based business model it is very slow in its reactions; it takes time for mammoth to turn. Another weakness is that the resources in the Nordic market are structured for direct sales functions with very limited freedom of action and a lot of direct implementation of global practices. It is a very classic example of a sales organization in the Nordics and also from an outdated business approach that is not on a very sustainable ground for the future.

Opportunities for the company's diabetes supplies business are related to rethinking the current business model and recreate value propositions to match the market and customer needs today. In practice it means also to develop better service offerings and utilizing service design for service development would offer a solid, practical approach in designing services to deliver service-based value propositions.

Threats for the case company's new service-based market approach could be divided into internal and external threats. Main internal threat is that the company is not willing to invest to a relatively small-sized hinterland market and settles for the current market trend. The other (but more easily solved) internal threat is the company's human resource management in Nordics. With current, geographically fragmented resources and functions it would require a concentrated and focused team to implement the new business strategy. New strategy would require local resources for research and service development, internal and most likely also external. External threats are sudden market changes. They could come in a form of a new treatment/cure to the disease or perhaps a new player enters the market with a very innovative new business model and of course there is always the possibility to government intervention and redefining the rules of the business.

Biggest wake-up on a personal level from the research project came from the understanding on how in the beginning we still are on a road to new customer- and service-centered society that utilizes the electronic possibilities at full scale in public services. All though a lot is going on in that area, everything is still very new, raw, unfinished and just starting to take steps towards finding ways to run systems on all cylinders.

One of the trends is that individuals are utilizing random tools and out-of-box thinking which can lead to permanent solutions in same way that e.g. in Brazil 9/10 doctors use whatsup to talk to patient (City A.M. 2015). It could be impossible to try to control the development from the government level and maybe the focus should be on giving individuals some leverage at their work and try to benefit from whatever breeds from that kind of freedom.

From the medical supplies business point of view it was not a surprise in realizing how conservative the industry is even when e.g. compared to pharmaceutical industry. It seems that the medical supplies industry is only focused on looking trends from previous tender decisions and sales reports. There are no innovative business strategies or service offerings build in the industry and that is why every actor is constantly focused mostly on filling the minimum customer expectations from previous tender requirements.

It would be easy to just recognize that many of the signals are pointing towards significant market changes in relatively near future and accept that there is no reward in investing to business development and re-inventing the current business model. On the other hand that is a scenario of every business today with the current pace the world is changing. By dropping behind of the development the challenge of staying current grows bigger and in the end it could lead to a total drop out from the market.

One of the main personal learnings from the project was that how service design can work as a tool to implement the customer- and service-dominant marketing science in business models and value propositions and from there to practice. This is also supported by Ostrom et al. (2010, 17) pointing out that service design brings service strategy and innovative service ideas to life. Even though medical technology business is very much still a provider- and goods-centered industry, the transition towards utilizing customer- and service-dominant logic only requires few adjustments, biggest being moving to service mindset. It would be interesting also see how the new business model works in practice as the customers present a very conservative industry, as was stated by the interviewed clinician – the practices in patient work are basically same as they were ten and twenty years age. Personally I see that a new kind of service practices from the supplier company has a strong possibility to guide the patient care practices to certain direction and by that gaining some sort beneficial status on the market.

One of the question that rose up from the project is that why aren't networks being better utilized in value co-creation? This question is supported by Grönroos (2008), Heinonen et al. (2010) and Helkkula et al. (2012) stating that that the provider isn't fully able to control or understand the customer's value creation process which therefore logically moves the focus in trying to have better understanding of the customer's life and ecosystems in enabling to provide better value propositions and services with better network management. Not all the actors in the market are straight competitors and it could be quite easy to build networks to create better patient care with the mental and physical resources that could be available since we are talking about networks of huge global actors. I have a personal experience of how well it works in practice from pharmaceutical industry where the company networked with customers, universities, un-direct competitor's etc.to form a value co-creating networks to improve patient care and services, both in private and public healthcare. It was a completely new kind of way to work over five years ago and it opened many doors and formed completely new concept of partnering in the industry where every actor participated with physical and mental resources.

Research was conducted focusing mainly on the area of diabetes care and diabetes supplies. From the medical technology company's point of view and also from the public healthcare sector's point of view the research could also be conducted for other therapeutic areas where the industry meets healthcare systems. All the difference therapeutic areas have individual working environments, tools, challenges and goals and form alike research context such as in this thesis. Even though public healthcare is widely researched it seems that approaching healthcare from the industry's point of view is missing, perhaps due to the conservative business approach.

The development project was limited to research the development areas from the clinicians, the company's and the theoretical points of view. From the service design aspect more holistic approach could have been considered by conducting a research also from the end-users (patients) aspect and building better and comprehensive understanding on customer's ecosystems. Developing possible solutions and services in patient care would require a research of the patient aspect and committing potential end-user to the creation process as it would also require deeper knowledge of the clinician's ecosystems.

Goods- and provider- based value thinking still define the diabetes supplies business. For that reason actors in the market seem to have been settled for current price competition and it means that the value propositions from the provider to buyer and partnerships that previously have offered at least some level of mental and physical resources will be shifted back to last century form of exchanging money to goods. At the same time treating diabetics gets more challenging all the time with ever-growing patient mass and national economic situation.

With the current business trend services will be cut down for having no positive business impact and now would the perfect time for any actor to start doing some thinking outside of the box. Part of the blame for the trend goes to public healthcare but in the end the game is the same for everyone. The market currently needs that one innovative and bold company to start the service revolution. It requires vision, networking and reformed business model that is focused on service-based value propositions and offerings.

The case company would have the networks and resources to start the service revolution but it will be a question of will more than anything else. As a global actor the small, hinterland market with an on-going margin reduction trend might not sound like a market worthy of investing to but looking at it another way: as an alternative to losing the whole business, it would offer a perfect test environment for new business model in practice. If I could give a personal advice on how to start, it would go something like this: be confident enough to ride on your strengths and brave enough to recognize your weaknesses.

References

Books and Journals

Andreassen, T., Kristensson, P., Lervik-Olsen, L., Parasuraman, A., McColl-Kennedy, J., Edvarddson, B. & Colurcio, M. 2016. Linking service design to value creation and service research. Journal of Service Management, vol. 27, no. 1, pp. 21-29.

Chauvet, V., Chollet, B., Soda, G. & Huault, I. 2011. The contribution of network research to managerial culture and practice. European Management Journal (2011) 29, 321–334.

Coghlan, D. 2016. Retrieving a philosophy of practical knowing for Action Research/Recuperando una filosofía del saber práctico para la investigación acción. International Journal of Action Research, vol. 12, no. 1, pp. 84-107.

Creswell, J. 2014. Research Design: qualitative, quantitative, and mixed methods approaches. Sage cop. 2014. 4th ed.

Delost, M. & Nadder, T. 2014. Guidelines for Initiating a Research Agenda: Research Design and Dissemination of Results. Clinical Laboratory Science, vol. 27, no. 4, pp. 237-244.

Echeverri, P. & Skålén, P. 2011. Co-creation and co-destruction: A practice-theory based study of interactive value formation. Marketing Theory, vol. 11, no. 3, pp. 351-373.

Fagerberg, J., Fosaas, M. & Sapprasert, K. 2012. Innovation: exploring the knowledge base. Research Policy, Vol. 41 No. 7, pp. 1132-1153.

Fernández-Güell, J. 2014. Foresight in designing sun-beach destinations. Tourism Management, vol. 41, pp. 83-95.

Fisk, R., Brown, S. & Bitner, M. 1993. Tracking the evolution of the services marketing literature. Journal of Retailing, vol. 69, no. 1, pp. 61-103.

Grönroos, C. 2008. Service logic revisited: who creates value? And who co-creates?. European Business Review, Vol. 20 Iss 4 pp. 298–314

Grönroos, C. 2011. Value co-creation in service logic: A critical analysis. Marketing Theory, vol. 11, no. 3, pp. 279-301.

Gummesson, E. 2007. Exit Services Marketing – Enter Service Marketing. The Journal of Customer Behavior. Vol. 6 (2). Pages 113-141.

Heinonen, K. & Strandvik, T. 2015. Customer-dominant logic: foundations and implications. The Journal of Services Marketing, vol. 29, no. 6/7, pp. 472-484.

Heinonen, K., Strandvik, T., Mickelsson, K-J., Edvardsson, B., Sundström, E. & Andersson, P. 2010. A customer dominant logic of service. Journal of Service Management, 21, 4, 531-548.

Heinonen, K., Strandvik, T. & Voima, P. 2013. Customer dominant value formation in service. European Business Review, Vol. 25 Iss 2 pp. 104–123

Helkkula, A., Kelleher, C. & Pihlström, M. 2012. Characterizing Value as an Experience: Implications for Service Researchers and Managers. Journal of Service Research: JSR, vol. 15, no. 1, pp. 59-75.

Hunt, S. 2000. A general theory of competition: resources, competences, productivity, and economic growth. Thousand Oaks, California: Sage Publications.

Katzan, H. 2011. Essentials of Service Design. Journal of Service Science (Online), vol. 4, no. 2, pp. 43-60.

Keegan, S. 2009. Qualitative Research: Good Decision Making Through Understanding People. Cultures and Markets.

Kimbell, L. 2009. The turn to service design. In Design and Creativity: Policy, Management and Practice. Edited by J. Gulier and L. Moor. Oxford: Berg, 157-173.

Kuusniemi-Laine, A. & Takala, P. 2008. Julkiset hankinnat: käsikirja. Edita, Helsinki.

Levitt, T. 2004. Marketing Myopia. Harvard business review, vol. 82, no. 7,8, pp. 138-149.

Lovelock, C. 1991. Services Marketing. 2d ed. Englewood Cliffs, NJ: Prentice Hall.

Lusch, R. & Vargo, S. 2006. The service-dominant logic of marketing: dialog, debate, and directions. M.E. Sharpe, Armonk, N.Y.

Lusch, R. & Vargo, S. 2014. Service-dominant logic: premises, perspectives, possibilities. Cambridge University Press, Cambridge.

Mager, B. & Gais, M. 2009. Service design. Fink, Paderborn.

Meroni, A. & Sangiorgi, D. 2011. Design for services. Burlington, VT: Gower.

Moritz, S. 2005. Service design, practical access to evolving field. Germany: Köln International School of Design.

Normann, R. 2001. Reframing business: when the map changes the landscape. Chichester, New Sussex: Wiley.

Ojasalo, J. 2001. Managing customer expectations in professional services. Managing Service Quality, vol. 11, no. 3.

Ojasalo, K., Moilanen, T. & Ritalahti, J. 2014. Kehittämistyön menetelmät: uudenlaista osaamista liiketoimintaan. 3. uud. p. edn, Sanoma Pro, Helsinki.

Ostrom, A., Bitner, M., Brown, S., Burkhard, K., Goul, M., Smith-Daniels, V., Demirkan, H. & Rabinovich, E. 2010. Moving Forward and Making a Difference: Research Priorities for the Science of Service. Journal of Service Research, vol. 13, no. 1, pp. 4-36.

Oyegoke, A. 2011. The constructive research approach in project management research. International Journal of Managing Projects in Business, Vol. 4 Iss 4 pp. 573-595

Polaine, A., Lovlie, L. & Reason, B. 2013. Service design: from insight to implementation. Rosenfeld Media, Brooklyn, NY.

Stickdorn, M. & Schneider, J. 2010. This is service design thinking: basics - tools – cases. BIS Publishers, Amsterdam.

Smith, A. 1904/1774. An Inquiry into the Nature and Causes of the Wealth of Nations. Reprint, London 1904: Printed for W. Strahan and T. Cadell.

Solomon, M., Surprenant, C., Czepiel, J. & Gutman, E. 1985. A Role Theory Perspective on Dynamic Interactions: The Service Encounter. Journal of Marketing, 49 (winter), 99-111.

Sreejesh, S., Mohapatra, S. & Anusree, M. 2014. Business research methods: an applied orientation. Springer, New York.

Toledo-Pereyra, L. 2012. Research design. Journal of investigative surgery: the official journal of the Academy of Surgical Research, vol. 25, no. 5, pp. 279-280.

Vargo, S. & Lusch, R. 2004. Evolving to a New Dominant Logic for Marketing. Journal of Marketing, vol. 68, no. 1, pp. 1-17.

Vargo, S. & Lusch, R. 2008a. Service-dominant logic: continuing the evolution. Academy of Marketing Science.Journal, vol. 36, no. 1, pp. 1-10.

Vargo, S. & Lusch, R. 2008b. From goods to service(s): Divergences and convergences of logics. Industrial Marketing Management, vol. 37, no. 3, pp. 254-259.

Vargo, S., Lusch, R. & Morgan, F. 2006. Historical perspectives on service-dominant logic. In Lusch, R. & Vargo, S. (eds.) 2006. The service-dominant logic of marketing: dialog, debate, and directions. New York, United States: M.E. Sharpes. 29-42.

Vargo, S. & Morgan, F. 2005. Services in society and academic thought: a historical analysis. Journal of Macromarketing, 25, 1, 42-53.

Voima, P., Heinonen K. & Strandvik, T. 2010. Exploring Customer Value Formation: A Customer Dominant Logic Perspective. IDEAS Working Paper Series from RePEc.

Webster, F. 1992. The changing role of marketing in the corporation. Journal of Marketing, **56, 1–17 (October).**

Zeithaml, V., Parasuraman, A. & Berry, L. 1990. Delivering quality service: balancing customer perceptions and expectations. The free press, New York, NY.

Zeithaml, V., Parasuraman, A. & Berry, L. 1993. The nature and determinants of customer expectations of service. Journal of academy of marketing science, vol. 21 no 1 pp 1-12.

Zuboff, S. & Maxmin, J. 2002. The support economy. New York: Penguin.

Electronic sources

Business Dictionary 2016. Definition/Value. Accessed 9.5.2016
http://www.businessdictionary.com/definition/value.html

CBS News 2016. Drug shows promise for treating type 1 diabetes. Accessed 25.4.2016
http://www.cbsnews.com/news/drug-shows-promise-for-treating-type-1-diabetes/

City A.M. 2015. Digital health, wearables and apps: 9 in 10 Brazilian doctors use WhatsApp to talk to patients. Accessed 8.12.2015
http://www.cityam.com/230372/digital-health-wearables-and-apps-9-in-10-brazilian-doctors-use-whatsapp-to-talk-to-patients

Design Sojourn 2016. Design process explained. Accessed 25.4.2016
http://i2.wp.com/designsojourn.com/wp-content/uploads/2006/05/process-explained.jpg?resize=520%2C293

Diabetes 2016. Finnish Diabetes Association. Accessed 20.4.2016
http://www.diabetes.fi/

DEHKO 2016. Diabeteksen kustannukset Suomessa 1998–2007. Finnish Diabetes Association & University of Tampere. Accessed 20.4.2016
http://www.diabetes.fi/files/1266/Kustannusraportti.pdf

Diabetes Atlas. International Diabetes Federation. Accessed 20.4.2016
http://www.diabetesatlas.org/

Hankinnat 2016. Public procurement/Thresholds. Accessed 21.4.2016
http://www.hankinnat.fi/fi/julkinen-hankinta/kynnysarvot/Sivut/default.aspx

Hankintalaki 2016. Procurement law. Accessed 20.4.2016
http://www.hankintalaki.fi/

Harvard University 2016. From stem cells to billions of human insulin-producing cells. Accessed 25.4.2016
http://hsci.harvard.edu/news/stem-cells-billions-human-insulin-producing-cells

Järvinen, M. 2016. Palvelumuotoilu, mitä se on ja miten sitä terveydenhuollossa voi toteuttaa. Innokylä. Accessed 25.4.2016
https://www.innokyla.fi/documents/469607/61c43f06-6ce6-4a21-a436-f7354777a29c

Kaishin Chu 2016. Double Diamond Process. Accessed 6.2.2016
http://kaishinchu.com

Professional Academy 2016. External Stakeholders. Accessed 20.4.2016
https://www.professionalacademy.com/blogs-and-advice/stakeholder-mapping---marketing-theories

STM 2016a. Social welfare and health sector reform. Accessed 20.4.2016
https://www.stm.fi/sote-uudistus

STM 2016b. Social welfare and health sector services. Accessed 20.4.2016
https://www.stm.fi/terveyspalvelut

TEM 2016. Ministry of employment and the economy. Accessed 20.4.2016
https://www.tem.fi

THL 2016a. Diabetes expenses. National Institute for Health and Welfare. Accessed 20.4.2016
https://www.thl.fi/fi/web/kansantaudit/diabetes/diabeteksen-kustannukset

THL 2016b. Additional diseases. National Institute for Health and Welfare. Accessed 20.4.2016
https://www.thl.fi/fi/web/kansantaudit/diabetes/diabeteksen-lisasairaudet

The World Bank 2016. World Bank Data. Accessed 16.2.2016
http://data.worldbank.org/indicator/NV.SRV.TETC.ZS

Figures

Tables

Appendices

Appendix 1 Webropol E-Survey

ASIAKASKYSELY

▇▇▇▇▇▇ selvittää kyselyllä asiakkaidensa työn haasteita. Kysely on osa palvelumuotoiluopiskelijan päättötyötä ja vastaukset tullaan käsittelemään ehdottoman luotettavasti ja hyvää tieteellisen tutkimuksen käytänteitä noudattaen.

1. Profiili

Nimi

Toimenkuva

Kuinka monta vuotta toiminut kyseisessä virassa

Ikä

Koulutustausta

Sähköpostiosoite

Yritys/ organisaatio/ osasto

Esimiehen toimenkuva (esim. ylilääkäri)

2. Toimenkuvaus. Kerro lyhyesti työssäsi vaadittavista ominaisuuksista ja pätevyyksistä, sekä työn vastuualueet.

3. Työn haasteet. Kuvaile työssäsi ne kolme-viisi (3-5) keskeisintä haastetta/ ongelmaa/ estettä, jotka tulisi ratkaista juuri tällä hetkellä.

4. Työ kehittäminen. Onko organisaatiossasi meneillään toimenpiteitä edellä mainitsemiesi haasteiden/ ongelmien/ esteiden parantamiseksi? Jos vastaus on kyllä, niin kerro tarkemmin millaisia toimenpiteitä ja miksi organisaatiosi on päättänyt panostaa juuri kyseisiin toimenpiteisiin?

Appendix 2 Themes for clinician interviews

- Patient motivation
  - Committing patients to treatment
  - Tools in telecare and motivation
  - Drug treatment and lifestyle changes
    o Self-steerability
    o Sharing of know-how
    o Care recommendations vs. practice

- Practical work

- Skills maintenance
  - Trainings
  - Responsibility areas
    o Employees responsibility
    o Self-responsibility
    o Industry input
  - Patient with multiple issues

- E-Service and care systems

- Manager's role
  - Management culture
  - Self-responsibility
  - Development of work practices

- Resources
  - Increasing patient mass
  - Budget cut's
  - Overtime work
  - Limited working hours

Appendix 3 Personas based on E-Survey 1/6

SUKUPUOLI
NAINEN

TOIMENKUVA
KONSULTOIVA DIABHOIT

VUOSIA VIRASSA
34

IKÄ
57

KOULUTUSTAUSTA
ERIK.SAIR.HOIT

TOIMENKUVAUS: TYÖSSÄ VAADITTAVAT OMINAISUUDET JA PÄTEVYYDET, SEKÄ VASTUUALUEET

Hoidan ja ohjaan aikuisikäisiä diabeetikoita, joten alle 15 -vuotiaat (lastenosastot) eivät kuulu työhöni. Työhöni liittyy vastasairastuneiden diabeetikkojen ohjausta samoin kuin aiemmin sairastuneiden ohjausta (eri diabetestyypit: T1, T2 , sekundaaridiabetes jne...). Vuodeosastoilla potilaat ovat usein sairaalassa muista syistä kuin varsinaisen diabeteksen takia ja usein vakavasti sairaita. Konsultaatiot vaativat usein laajaa kokonaistilanteen arviointia mm. parenteraalinen ravitsemus, letkuravinteet, kortisonihoidot ja muut sokeritasapainoon vaikuttavat tekijät. Tarvitaan kiinteää yhteistyötä sisätautilääkärin kanssa lääkehoidon suhteen. Työ vaatii erikoisosaamista ja kiinteä yhteistyötä lääkärin sekä potilasta hoitavan koko tiimin kanssa. Työhöni kuuluu lisäksi paljon henkilökunnan kouluttamista , luentoja, koulutuspäivien ja osastotuntien järjestämistä.

HAASTEET: 3-5 KESKEISINTÄ HAASTETTA, ONGELMAA, ESTETTÄ JOTKA TULISI JUURI NYT RATKAISTA

Resurssien ja työmäärän yhteensovittaminen (suoritteiden määrän jatkuva kasvu). Diabeteksen hoidon osaamisen varmistaminen ja tehostaminen eri yksiköissä sairaalassamme koulutuksen keinoin (henkilökunnan koulutuksen tehostaminen ja lisääminen, hoidon laadun tehostaminen).
Sähköiseen potilasjärjestelmään verensokeriseuranta lomakkeen kehittäminen.

KEHITTÄMINEN: MENEILLÄÄN OLEVAT KEHITYSTOIMENPITEET, MILLAISIA JA MIKSI

Konsultoivan diabeteshoitajan työpanosta ollaan lisäämässä 1.5 hoitajasta 2:een. Olemme tehneet uutta,alustavaa esitystä / suunnitelmaa talon sisäisen koulutuksen suhteen.
Sähköisen sokeritasapainolomakkeen kehittäminen käynnistetty ongelmien kartoituksella ja yhteyden otolla päättäviin ja sunnitteleviin tahoihin.

Appendix 3 Personas based on E-Survey 2/6

SUKUPUOLI
NAINEN

TOIMENKUVA
SAIRAANHOITAJA

VUOSIA VIRASSA
2

IKÄ
42

KOULUTUSTAUSTA
SH AMK, DIAB ERIKOIST.

TOIMENKUVAUS: TYÖSSÄ VAADITTAVAT OMINAISUUDET JA PÄTEVYYDET, SEKÄ VASTUUALUEET

Pidän hoitajavastaanottoa sekä sisätautien- ja äitiyspoliklinikalla. Omatoimista, vaativaa työtä. Täytyy olla hyvin kokenut,jotta näkemys laaja-alainen. Hoidan dm1,2 ja gdm-potilaita. Itselläni 15 vuoden kokemus sisätautien akuuttivuodeosastolta ennen tätä toimea

HAASTEET: 3-5 KESKEISINTÄ HAASTETTA, ONGELMAA, ESTETTÄ JOTKA TULISI JUURI NYT RATKAISTA

Aika, ylitöitä tulee.

KEHITTÄMINEN: MENEILLÄÄN OLEVAT KEHITYSTOIMENPITEET, MILLAISIA JA MIKSI

Ei ole

Appendix 3 Personas based on E-Survey 3/6

SUKUPUOLI
NAINEN

TOIMENKUVA
DIABETESHOITAJA

VUOSIA VIRASSA
20

IKÄ
56

KOULUTUSTAUSTA
OPISTOTASO

TOIMENKUVAUS: TYÖSSÄ VAADITTAVAT OMINAISUUDET JA PÄTEVYYDET, SEKÄ VASTUUALUEET

Ensisijaisesti pitää tuntea hyvin diabeteksen nykyhoidon hoitolinjat, insuliinit ja muut lääkkeet. Diabeteshoitajan pätevyys vaaditaan nykyisin pääsääntöisesti. Itse olen käynyt YAMK:n ja tehnyt lopputyön diabeteksesta. Hyvät ihmissuhde- ja vuorovaikutustaidot ovat välttämättömiä, jotta diabetespotilaiden kanssa pääsee hyvään yhteyteen. Lisäksi potilailla on lukuisia muita oireita ja diagnooseja, joiden suhteen pitää olla hyvä tuntemus yleislääketieteestä ja hoitajan osuudesta siinä. 'Diabeteshoitaja tekee yhteistyötä diabeteslääkärin kanssa ja muodostaa hoitotiimin, johon potilas otetaan mukaan.

HAASTEET: 3-5 KESKEISINTÄ HAASTETTA, ONGELMAA, ESTETTÄ JOTKA TULISI JUURI NYT RATKAISTA

Vaikeahoitoiset, moniongelmaiset potilaat, jotka eivät noudata hoito-ohjeita, heidän motivointinsa.Työtä on enemmän kuin pystyy helposti suorittamaan päivän aikana. Haasteena on työn ja ajan hallinta.

KEHITTÄMINEN: MENEILLÄÄN OLEVAT KEHITYSTOIMENPITEET, MILLAISIA JA MIKSI

Saamme runsaasti koulutusta, mm motivoiva haastattelu tai psykologin kannanottoja ja ohjeita silloin tällöin. Työyhteisö pyrkii kaikin tavoin kehittämään työtä, poistamaan päällekkäisyyksiä ja turhia tehtäviä; mm palavereissa yhdessä mietitään keinoja tähän ja sovitaan yhteisistä linjoista. Palavereissa saa myös vertaispalautetta ja yhdessä mietitään potilaiden ongelmia.

Appendix 3 Personas based on E-Survey 4/6

SUKUPUOLI
NAINEN

TOIMENKUVA
DIABETESHOITAJA

VUOSIA VIRASSA
25

IKÄ
55

KOULUTUSTAUSTA
ERIKOISSAIRAANHOITAJA

TOIMENKUVAUS: TYÖSSÄ VAADITTAVAT OMINAISUUDET JA PÄTEVYYDET, SEKÄ VASTUUALUEET

Asiantuntijuus
Vastuullisuus, itsenäisyys
Vuorovaikutustaidot
Diabeteshoitajan pätevyys

HAASTEET: 3-5 KESKEISINTÄ HAASTETTA, ONGELMAA, ESTETTÄ JOTKA TULISI JUURI NYT RATKAISTA

Työssä on aina haasteita, mutta tällä hetkellä ei ongelmia/esteitä.

KEHITTÄMINEN: MENEILLÄÄN OLEVAT KEHITYSTOIMENPITEET, MILLAISIA JA MIKSI

Ei ole

Appendix 3 Personas based on E-Survey 5/6

SUKUPUOLI
NAINEN

TOIMENKUVA
DIABETESHOITAJA

VUOSIA VIRASSA
14

IKÄ
56

KOULUTUSTAUSTA
SAIR.HOITAJA,
TERVEYDENHOITAJA

TOIMENKUVAUS: TYÖSSÄ VAADITTAVAT OMINAISUUDET JA PÄTEVYYDET, SEKÄ VASTUUALUEET

Työssäni tarvitaan laajaa osaamista terveydenhuollon ja sairaanhoidon sektoreilta. Erityisesti sydän- ja verisuonisairaudet, joihin diabetes kuuluu on tärkeää hallita pääpiirteittäin. Pätevyyksistä tarvitaan ensinnäkin aiempaa työkokemusta erilaisten sairauksien hoidosta, itse olen toiminut mm. kotisairaanhoidossa ja aikuisvastaanotoilla. Diabeteskoulutukset säännöllisesti tukevat osaamista, varsinkin kun tällä sektorilla lääkehoidot kehittyvät vauhdilla. Työn vastuualueet ovat diabeetikoiden mahd. hyvä hoitotasapaino sekä heidän omahoidon opastus. Diabeetikoiden omaseurannan motivointi ja vastuu omasta terveydestä painottuu jatkuvasti.

HAASTEET: 3-5 KESKEISINTÄ HAASTETTA, ONGELMAA, ESTETTÄ JOTKA TULISI JUURI NYT RATKAISTA

Potilaiden motivointi diabeteksen omaseurantaan sekä painonhallintaan.
Potilaiden määrän lisääntyminen/diabeteksen lisääntyminen.
Määrärahojen tiukentuminen hoitajatyölle esim. koulutuksiin pääsy vaikeutunut.

KEHITTÄMINEN: MENEILLÄÄN OLEVAT KEHITYSTOIMENPITEET, MILLAISIA JA MIKSI

Yhteisvastaanotot juuri sairastuneille diabeetikoille. Liikuntaneuvonta ylipainoisille ja vähän liikkuneille potilaille.

Appendix 3 Personas based on E-Survey 6/6

SUKUPUOLI
NAINEN

TOIMENKUVA
DIABETESHOITAJA

VUOSIA VIRASSA
6

IKÄ
59

KOULUTUSTAUSTA
SH YAMK

TOIMENKUVAUS: TYÖSSÄ VAADITTAVAT OMINAISUUDET JA PÄTEVYYDET, SEKÄ VASTUUALUEET

Sh tai th perustutkinnon lisäksi, koulutuksia joko Diabeteskeskuksessa tai ammattikorkeakoulussa dm hoidon erikoistumisopinnot. Vaatimuksena myös vähintään kolmen vuoden kokemus itsenäisestä hoitotyöstä. Diabeteshoitaja tekee yhteistyötä lääkärien kanssa, mutta tekee myös itsenäisesti hoitopäätöksiä. Toimii konsulttina muille ammattiryhmille mm osastojen ja kotihoidon henkilökunalle. Diabeteshoitajalla on myös koulutusvelvollisuus. Työssä tarvitaan hyvät vuorovaikutus- ja yhteistyötaidot. Kärsivällisyyttä ja rauhallisuutta tarvitaan, mutta toisaalta määrätietoista työskentelytapaa kohti hoitotavoitteita

HAASTEET: 3-5 KESKEISINTÄ HAASTETTA, ONGELMAA, ESTETTÄ JOTKA TULISI JUURI NYT RATKAISTA

- hoitotarvikkeet tuottaa paljon ylimääräistä työtä, välineiden laadusta tulee valituksia lähes päivittäin
- hoitotyönresurssien jakaminen tasapuolisesti, eli kuinka potilaat saavat samat palvelut riippumatta asuinpaikasta
- kuntien tiukka rahatilanne karsii koulutusmäärärahoja, kuinka pitää yllä ammattitaitoa??

KEHITTÄMINEN: MENEILLÄÄN OLEVAT KEHITYSTOIMENPITEET, MILLAISIA JA MIKSI

- niukkuutta jaetaan yhdistämällä esim pari terveysasemaa suurpiiriksi, jonka sisällä on mahdollista siirrellä henkilökuntaa...
-hoitotarvikkeista on kerätty reklamaatioit, ne eivä näytä johtaneen minnekään...
- esimies ei tue ammatillista kehittymistä...
Mielestäni panostamista ei ole nähtävissä