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Employee perspectives on order- to-delivery process in public Health Care

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<p>Helsinki has an urgent need to reform its Home Care processes, since the limited amount of resources cannot meet the needs of the growing volume of Home Care clients. Telecare service, started in 2015, is aimed to support Home Care clients' ability to live at home and offer services which wouldn't be available otherwise. Telecare is operated by the municipal enterprise Service Centre for the Social Services and Health Care Division.</p> <p>In order to gather information and to increase knowledge about the ordering process of Telecare service a web-questionnaire link was sent via e-mail to all 2112 Home Care and Client Guidance Department employees. There was also an interest to find out whether an association exists between the employees' attitudes towards the service and their willingness to promote it. A total of 298 responses was collected and analysed using SPSS and categorizing open-ended answers.</p> <p>The results showed that employees who had ordered Telecare service rated their knowledge about the criteria for starting the Telecare service greater than the employees who had no previous ordering experience ($p=0,001$). The employees who had already placed Telecare orders were of the opinion that the service should be available with fewer criteria for suitability of the clients, more often than employees with no previous ordering experience ($p=0,032$). Employees found the order-to-delivery (OTD) time too long. Some issues were related to the technology of the service. There was an association between the NPS groups and employees' opinions regarding the ordering process: if an employee rated Telecare as an all-in-all good service, which eases her workload and also improves the client's ability to live at home, her tendency to promote the service to her relatives and friends rises ($p<0,001$).</p> <p>The results are discussed mirroring concepts from developing public health service and business process improvement (BPI), and could be of importance in developing services' effectiveness. However, to gain in-depth information about employees' attitudes towards telehealth services and to provide more detailed data about the OTD process, further investigations should be conducted.</p>	
Keywords	Telecare, OTD, BPI, public health care, process development

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1 Introduction

Helsinki has an urgent need to reform its Home Care processes, since the limited amount of resources cannot meet the needs of the growing volume of Home Care clients. Deinstitutionalising old age care is part of Finnish policy, which aims to reduce the coverage of traditional institutional care by reducing the number of long-term care facilities and health centres. This policy has led to a shift from providing treatments at physical treatment facilities towards bringing care services to client's home. (Blomgren & Einiö 2015: 334.) Due to growing demand of at-home and digital services, the Division of Social Services and Health Care (sosiaali- ja terveystoimiala), in collaboration with the Service Centre Helsinki (Palvelukeskus Helsinki -liikelaitos), has set a goal of increasing the amount of remote Home Care clients. Telecare is a service-product with an unusually wide range of stakeholders, because it aims not only to solve resource issues in the Home Care, but also to make it possible to offer citizens services which otherwise are not accessible to them at home.

Today the atmosphere towards telehealth services seems to be rather positive both among Health Care professionals and customers (Seppänen & Ramstedt-Sten 2014, 8; Stenberg et al. 2014; Kollveit et al. 2017; Vuononvirta 2011) The study report of the Ministry of Finance (2015) showed that almost half of the Finns preferred the telecare to a regular meeting with a nurse at health premises, if they had the choice. Both the private and public sector in Finland are utilizing versatile telehealth services. There is evidence that via telecare it is possible to enhance access to specialist care significantly and to end up with satisfied patients (Timonen 2004; Kuusisto 2016). The most recent Finnish project about the feasibility of different remote rehabilitation interventions, among people from different age groups having problems with working ability and abilities to function, showed positive outcomes (Salminen–Hiekkala 2019).

Service Centre Helsinki is a municipality-owned establishment, which provides Telecare service and technology for the Division of Social Services and Health Care. The Division, from the perspective of Service Centre, can be seen as an internal customer. This customer-provider relationship enables the Home Care to concentrate on the patient care especially in such cases, where the nurse's physical attendance is necessary. It also places all the Telecare staff under one roof. (Service Centre Helsinki 2019.) Service Centre Helsinki collects yearly reports of customer experience. However, no research focusing particularly on the ordering process towards the telecare services has ever been

done. The employees of Home Care and Client Guidance Department are Social and Health professionals, who meet Home Cares' clients and other citizens on daily basis and are responsible for informing their clients about the service as well as placing the service orders on behalf of the client. To be able to improve the ordering process as well as the technical aspects of the service and to develop customer-centered services, it is important for Service Centre Helsinki to hear Home Care and Client Guidance Department employees' opinions and various points of view on the service. The aim of this thesis project is to give a voice to these opinions and points of view, in order to find out whether some stages of the ordering process are felt to be in need of improvement.

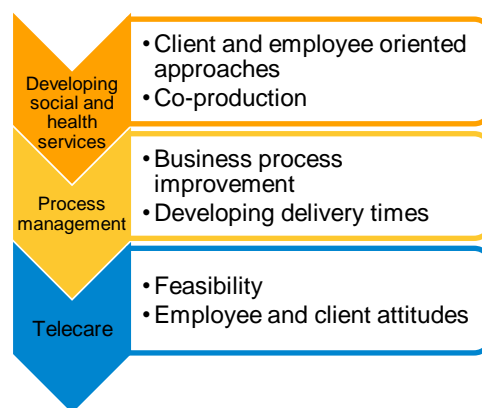


Figure 1. Approaches to the thesis project

The purpose of this work is to collect information about the 'front-line' employees' opinions about the ordering process of Telecare service and attitudes towards the service. The topic is approached from three development perspectives; that of the public social and health services, of business process improvement and of the telecare service.

2 Background

This chapter presents some background for the study presented in this thesis. Telecare services are gaining ground not only in the capital area, but in the whole of Finland. Public services, such as the Telecare service, may be run by the municipality or be sub-contracted to a third party. In Helsinki, the service is produced by the municipality. This process is introduced in greater detail in Chapter 2.1.

Helsinki City strategy 2017–2021 underlines the importance of understanding and utilizing technological development. Global changes are mentioned as well: Helsinki aims to be the city in the world that makes the best use of digitalization, which is even mentioned in the official city strategy for the years 2017–2021. Demographics in Finland are changing; the percentage of persons over 65 is growing rapidly (Table 1).

Table 1. Finnish population forecast for the upcoming decades (Tilastokeskus 2018).

YEAR	2020	2030	2040	2050	2060
POPULATION FORECAST (MILLION PEOPLE)	5,595	5,769	5,861	5,914	5,979
AGE (% OF THE POPULATION)					
0-14	16,2	15,3	14,8	14,6	14,3
15-64	61,2	59,1	58,9	58,1	56,9
65-	22,6	25,6	26,3	27,3	28,3

According to primary health care statistics, more than 2,6 million home visits were made in Helsinki in 2014. In addition, 34 000 visits were bought as external services. (Helsinki 2018 (1).) This reflects the great need of Home Care for the elderly, and predicts a massive increase of demand.

Telecare has shown to be a cost-effective service in Helsinki; Home Care nurses make 15 physical visits per shift, whereas telecare nurses manage 50–60 visits a day. An estimation is that the city of Helsinki has saved approximately 9 million euros per year by replacing regular home health care visits by telecare visits. (Sandelin 2017: 15)

Due to many previous and on-going Finnish private and public sector telecare and rehabilitation projects, internet offers several project reports and project web sites (Salminen et al 2016: 19). In the projects about elderly care services, e.g. the VIRTU project, the goal was to support elderly peoples' living at home and increase their social interaction. Services that aim to improve peoples' quality of life at home, enhance their functional abilities and offer more possibilities for interaction were outcomes of this project. (Karppi et al 2013.) More than ten municipalities and hospital districts in Finland implemented the governmental program ODA (Self-Treatment and Digital Value Services) in 2018. Through the program, many key health care operating models and services were renewed. (Kuntaliitto 2018.)

Several Finnish municipalities are reporting of projects concerning telecare services. The City of Helsinki, as the biggest telecare provider in Finland, is providing remote Home Care for ca. 750 Helsinki citizens as a support service to regular Home Care (Helsinki 2019 (3)). Many municipalities and districts in Finland, such as Lahti, Kainuu, Jyväskylä, Espoo, Vantaa, Kerava, Ylä-Savo and Ala-Savo, report at their websites either having piloted or providing at present telecare.

Terveyskylä is a common project of all of the university hospital districts in Finland and funded by the Ministry of Social and Healthcare. It is an online service, which offers evidence-based information, guidance and eHealth services to its users. (Terveyskylä 2019.) The private health care sector uses telehealth services widely and especially the remote doctor visits seem to be a standard practice for large providers such as Pihlajalinna, Mehiläinen and Aava.

The Finnish Student Health Service (FSHS) provides general, mental and oral health care services for students of universities and other institutions of higher education. Early 2019 FSHS piloted remote consultation service in all units for health checks, nutrition counselling, physiotherapy follow-up visits and general health and mental health follow-up visits. (FSHS 2019.) In addition to this, presently ongoing remote consultation project, the FSHS has piloted remote diagnostic tools during the remote consultation visits. It was found out that even if the costs of a remote consultation visit with some remote diagnostics might be higher than costs of a regular consultation, the remote diagnostics can improve the accessibility of some health services in areas with shortage of physicians (Metsäniemi 2019).

2.1 Service Centre Helsinki as a service provider

Helsinki Service Centre (Palvelukeskus Helsinki, Palvelukeskusliikelaitos) is a municipal enterprise owned by the City of Helsinki, which employed 1465 people in 2018 (Annual Report 2018: 8.) A municipality can found an enterprise to provide services mainly for its own use. Municipal enterprises are part of the municipalities' organizations and their financial statements are available for assessment separately. (Kuntaliitto 2014.)

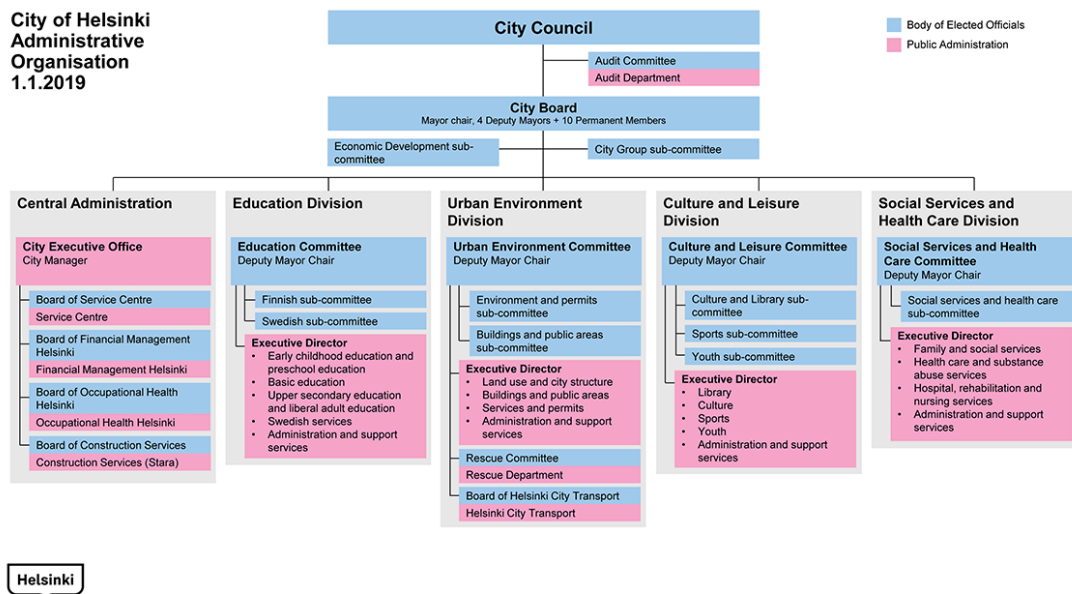


Figure 2. Administrative organization of the city of Helsinki (Helsinki 2019 (2)).

Service Centre works in partnership with the Divisions of the city of Helsinki (figure 2), providing Divisions a selection of services which aim to support and help Divisions to achieve their own goals. Service Centre delivers more than 100 000 meals to schools, Health Care facilities and citizens' homes, provides cleaning and logistics services, and develops and produces telephone and well-being services supporting citizens living at home. (Helsinki 2018 (2); Annual Report 2018: 41-42.) From an organizational perspective, Service Centre can be seen as a service provider, whereas the Divisions with their representatives are its internal customers.

2.2 Telecare service description

Telecare service of the city of Helsinki consists of two-way video- and audio-transmitted care provided via a tablet device. The service is based on the customer's needs, in accordance with the Home Care's personal treatment plan. Most often visits concern medication and reminders of nutrition, guiding an exercise session or testing blood glucose – visits, that do not necessarily require physical attendance of a Home Care professional. (Helsinki 2019 (3); Helsinki 2016)

Service Centre Helsinki provides Telecare service for the Home Care in Helsinki as a service-product, providing both the remote nursing and technologies. Starting the service requires a written consent from the citizen and a documented care plan concerning the contents of the Telecare services. Home Care employee, who then contacts Service Centre to inform about a new Telecare client, adds this information to the clients' electronic health records. Service Centre contacts the citizen in order to schedule time for installation home visit (figure 3).

A modified service blueprint is a tool for visualizing the relationships and dependencies between a service user (in this case a Home Care client) and service provider. Frontstage is connected directly to the service user, whereas backstage processes and support services are not visible to the user (Home Care client). (Stickdorn – Schneider – Hormess – Lawrence 2018: 3).

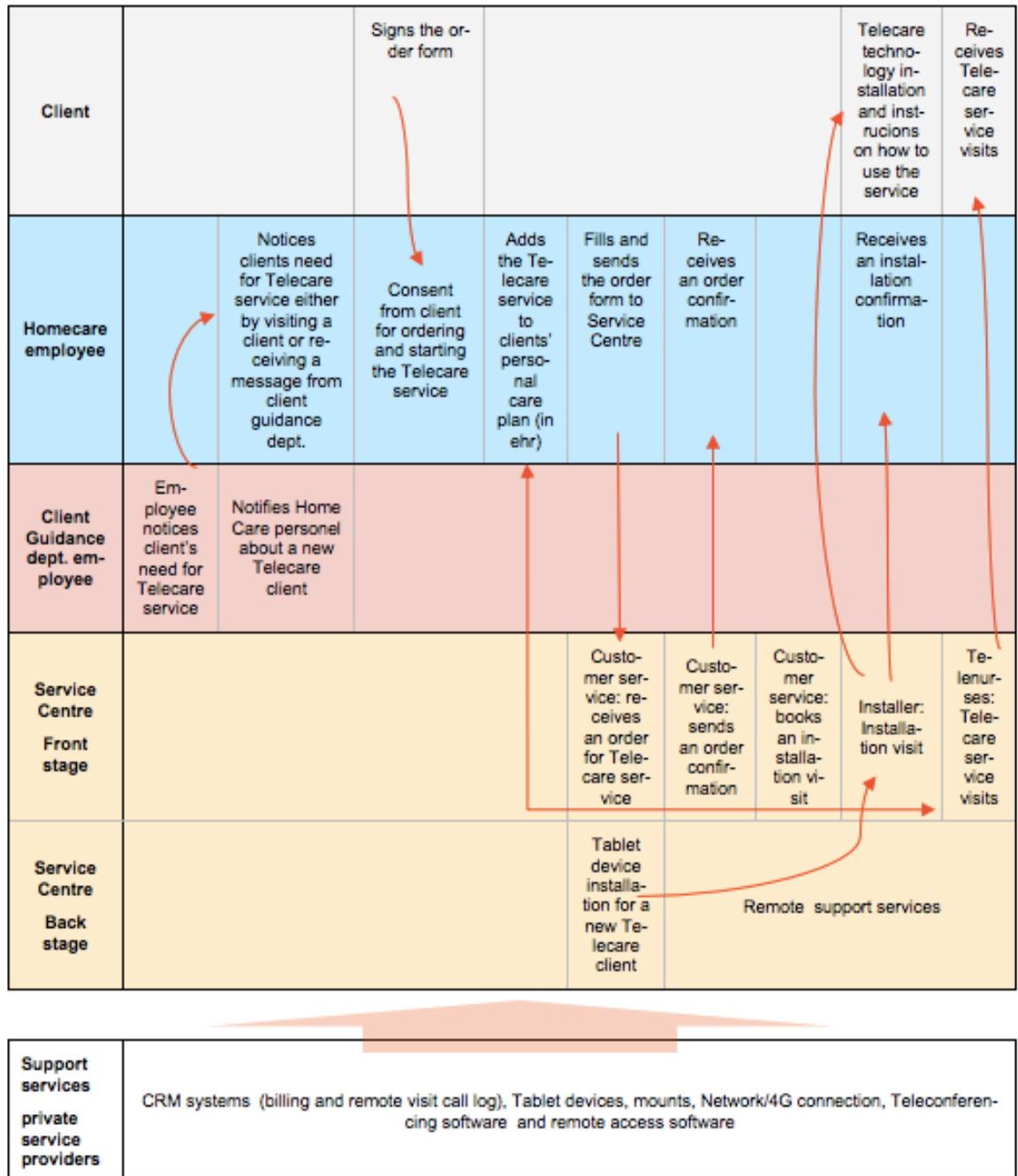


Figure 3. Service blueprint concerning the order and delivery. Costs and billing processes are excluded from the blueprint

Figure 3, created by the writer, visualizes the responsibilities flow between the Service Centre, Client Guidance department and Service Centre.

3 Developing Public Social and Health Care services

This chapter presents some key perspectives to Social and Health service development and touches upon the differences between developing public and private services. It highlights the importance of involving various stakeholders in the service development, for which reason employee and customer involvement are discussed separately.

3.1 Public services

According to Stenvall & Virtanen (2012: 43–46) a service usually aims to respond to client's needs and expectations, but not in all cases; some services do not respond to any client need, but e.g. to society's requirements. Police services can be seen as an example of this type of service, which aims to ensure community's safety. Essential service-related concepts are demand and supply. Demand of services refers to what kind of services are needed in order to respond to peoples' needs, expectations and habits. Noteworthy is that the demand of publicly funded services is strongly connected to policy-making. Supply of services refers to the production and selection, and is dependent of the demand. Hence, demand of services can be increased by increasing service supply; e.g. adding low-threshold health services in shopping centres has increased service demand for such easy-access services.

Stenvall & Virtanen (2012: 47–48) highlight that the demand and supply of public services differ in many terms from private services. Their connection to policy-making and legislation means that a public Social and Health service provider can't choose its clients or markets, nor freely steer the demand of services. The main purpose of many public services, and a great difference between public and private service logics, is to solve problems, thus to decrease demand for services. The main purpose of many public services is to decrease demand for services – a great difference between public and private service logics. Preventive services aim to decrease the demand for Social and Health services, which can save costs. Private business usually aims to build long-term relationships with clients, whereas public service tries to solve service user's issues as fast as possible.

3.2 Service quality

Oulasvirta (2007: 8) defines public service quality as follows:

The quality of the service and the process with help of which the users of the service receive the service must satisfy the integrated demands of the users of the service and its various interest groups in all the features of quality.

Stenvall & Virtanen (2012: 54) utilize the expression "functioning service" ("toimiva palvelu"), which combines both the customer value and service quality. The services should add value to customers, but also be beneficial in terms of public organizations and their goals. The service quality is influenced by the concrete technical and functional qualities, but also customer's expectations towards the service. Expectations, however, are influenced by the image of the service and its provider, which means that the private services are often considered to be of higher quality, despite of similar technical qualities. On the other hand, citizens trust the public services, perhaps due to their nature of being available even if access to other possibilities is obstructed for one reason or another.

Services should be assessed and their quality measured on a regular basis. Measuring is done to assess the functionality of processes and their responsibility. There are various quality management systems and concepts that can be utilized especially in the Social and Health sector. (Stenvall – Virtanen 2012: 56–57.)

3.3 Service development through co-operation

Stenvall & Virtanen (2012: 75, 260) suggest that reforming Social and Health Care services should be carried out by means of innovations and development work, but not looked at only from the customer-oriented perspective. Best outcomes are reached by developing services from all three perspectives; with client-, employee-, and system-orientation. Virtanen et al. (2011: 36) define co-production as a process where service users, their communities and professionals all take part in developing services, each using their particular resource and knowledge. Prahalad and Ramaswamy (2014: 8) consider that co-creation is not only having focus on the customer, it is, rather, joint problem solving, dialogue between the parties, creating customer or company value, and allowing the customer to co-construct the service to suit her context. Co-production has lately

become a popular and rather effective way of developing both private and public services. It enables citizen involvement and service development, improves service innovations and service development, and ensures that the services respond to a need. (Virtanen et al. 2011: 36).

According to Melton and Hartline (2010: 412), frontline employee refers to an employee who operates directly in the customer interface. Their involvement in developing new services is known to be important; customer and frontline employee participation in specific stages of the New Service Development process indirectly affects sales performance and project development efficiency outcomes. Melton and Hartline (2010: 420-421) suggest that best outcomes are reached by involving customers in the design and development stages and frontline employees in the full launch stage to effectively promote and deliver the new service.

Much like other renewing work, developing processes in a complex environment like Social and Health Care, commonly meets with difficulties. A common issue is that the results of the processes are not implemented properly, or the projects are often seen just as attempts to save scarce resources. This usually generates resistance to change, which itself is an obstacle to successful long-term development. Wrong decisions made during the projects can lead to constant organizational changes, development projects without clear goals and lacking documentation. There is no end to the number of impulses for development work in the Social and Health Care, which adds pressure on assessing whether projects truly base on a need, and whether they are in line with the goals set for the organization or community. Some challenges might also stem from bad project management, e.g. by projects being too dependent on one person, or placing too much focus on planning instead of putting enough effort into implementation. (Stenvall – Virtanen (2011: 15-17, 76.)

3.3.1 Customer involvement

In Finland, the *user* of Social and Health Care services became a *customer* or a *client* through the so-called New Public Management, which reformed the public administration in the 1990s. Remarkable aspect of the reform was the emphasis on the service user, instead of the provider. In Social and Health Care environment the position of a customer is rather complex, and it is possible that a patient with health issues has difficulties in perceiving herself as a consumer. (Virtanen et al. 2011: 15.)

What is common to both Social and Health Care services concerning their content, tasks and the diversity of service producers is, that they do not exist without the users to whose needs the service is designed to respond. At its best, customer-oriented operations contribute to better efficiency and productivity in service production. (Virtanen et al. 2011: 10-15.) The customer perspective is needed to keep the services up to date and to bring out new service needs (Kettunen – Möttönen 2011: 65). Studies show that customers are able to develop social and health services as experience experts and by organizing service user teams, yet challenges exist especially in the opportunities to truly influence the service development. Being part of the service development process seems to require self-determination. This in turn improves customers' commitment to the process. (Kaseva 2011: 44.) To reach effective outcomes through New Service Development, customers should be involved especially in identifying market opportunities, generating and evaluating new service opportunities, defining desired benefits and features of a potential service, and providing feedback for product and market testing (Melton – Hartline 2010: 420-421).

Client-orientation is still often being created and interpreted only from the perspective of the service provider while the development mechanisms are inchoate. Usually the services are assessed by the service provider, e.g. by looking at the number of services or utilization rates (Virtanen et al. 2011: 10-12; Kettunen – Möttönen 2011: 65).

In Finland, the right of a citizen to get involved in public service development is provided by laws, such as the Local Government Act, the Law on the Status and Rights of Social Welfare Clients and the Act on the Status and Rights of Patients. In addition, the Social Welfare Act, which entered into force in 2015, emphasizes customer-orientation and involvement (Leemann – Hämäläinen 2015: 587). Finnish government started to put client involvement into practice in 2016 by initiating a key project "Service responsive to client needs" (Palvelut asiakaslähtöisiksi). Its aim is to improve clients' access to services supporting functional capacity and self-management of health, and to make health and social services more accessible. As an outcome, the Finnish Ministry of Social Affairs and Health created an operating model for client involvement. The model describes how to invite clients to participate as equals in different phases of building, planning and developing public social welfare services (Sihvo – Isola – Kivipelto – Linnanmäki – Lyytikäinen – Sainio 2018).

3.3.2 Employee involvement

New processes, due to e.g. digitalization, may cause confusion among professionals and also put pressure on managerial support and training (Rantala 2018: 69-70; Rantala – Karjaluoto 2017, 7). Dissertation of Rantala (2018) presents implications of digitization in health care services for value co-creation in environment where the roles of the professionals are constantly changing. According to the study results, the professionals are not always part of the development work. Their views remain overlooked, which slows down development processes. (Rantala 2018: 75-76.)

Yet, the role of an employee as an important actor in developing services has been acknowledged. Utilizing the experience and knowledge of employees through good interaction and communication, effective service development outcomes can be reached. A significant part of innovations is created using the skills and knowledge of the employees, and through the experience gained from operating at the customer interface. (Klemola – Uusi-Illikainen – Askola 2014: 6-7; Stenvall – Virtanen 2012: 191; Tuominen – Järvi – Lehtonen – Valanen – Martinsuo 2015: 23-26.)

Along with learning from employees' experience and knowledge, involving them in development processes has other, additional benefits. Employees' abilities to use and communicate their knowledge is known to lead to higher efficiency and organizational benefit. New perspectives, which arise through mutual learning and sharing ideas inside an organization, enable positive development of organization's functions, services, and products (Manka – Hakala – Nuutinen – Harju 2010: 8.) Employees usually are familiar with the difficulties in the service delivery and the ways of service production, also from the customer perspective. This knowledge should be leveraged especially in designing the delivery processes. (Tuominen et al. 2015: 26.)

Service productisation is a continuous process, which should be continuously assessed and evaluated by the employees. The process of service development requires usually small, but important organizational change. Involving the employees in planning, decision-making, and implementation can ease the resistance to change. Employees require information about how the new service or process affects their work, and what is going to change. Through involvement, there is not only less insecurity among employees, but also higher level of commitment to the new service. These factors, alongside being aware of the importance of own work, help in implementing the changes needed to successfully produce the new service. (Tuominen et al. 2015, 23.)

Employees can be involved in development processes in versatile ways. Collecting information e.g. through surveys, interviews and conversations are easy to perform: yet the people collecting the data do the most of the work. Accessing more in-depth knowledge requires many resources, such as time. A relatively effortless way to involve employees in the service development process is to organize workshops for employees who operate in the customer interface. In order to implement the workshop outcomes to the organization working models, a project manager has to be assigned. Another, more open, yet more time-consuming way, is to give the employees access to all possible workshops and allowing them to participate in all phases of development process. This model requires not only time, but also strong coordination and management. When allowing employees to productise and develop their own services, a great deal from coordinating the management level is required; the risk is that without proper intra-organizational management of schedules and resources, and service content coordination, the productisation and services might scatter. (Tuominen et al. 2015: 26.)

4 Process Management

This chapter begins with an introduction to basic concepts, such as Process Management, process modeling and continues to more detailed description of Harrington's Business Process Improvement approach (BPI). BPI is only one of many process management approaches, but it suits well for an improvement project, such as presented in this thesis.

4.1 Process development

Many well-known management models and theories, such as activity-based management (ABM), business process re-engineering (BPR), supply chain management (SCM), and time-based management (TBM) are based on understanding development work as processes and projects (Laamanen – Tinnilä 2009: 10–12: 25).

The fundamental thoughts behind Process Management are that processes tend to start from a customer need (Stenvall – Virtanen 2012: 66), and that the organization creates customer value through a chain of actions, which can also be called a process (Long 2014: 1). Hence, successful processes cannot be managed without knowing the customer's needs and expectations. Process Management consists of elements and phases, such as initiation, naming, definition, and developments, which aim to ensure progress of activities and processes. An essential phase of Project Management is to acknowledge the business's core and support processes. To recognize the business's core and support processes is essential in Project Management. This can be done by "process modeling" – a method that helps also in assessing which processes are relevant to the client and which to the organization. (Stenvall – Virtanen 2012: 66–68.)

Process modeling is the activity of representing and visualizing processes of an enterprise in order to analyse, improve, and automate them. It is used to evaluate and assess the actions related to value creation. Process's most critical steps can be visualized through the modeling method (Laamanen – Tinnilä 2009: 25.) Well-managed modeling can lead to higher customer satisfaction and commitment, higher employee satisfaction through better understanding of the intra-organizational processes, better understanding of customers' needs, and higher quality of products and services. A common mistake is modeling processes too precisely. Problematic is also the lack of standardization regard-

ing process modeling. This has led to a situation where companies create their own formulas for modeling, sometimes even several different ones in one organization. As a result, it may be difficult or impossible to combine or compare the used process models, when necessary. (Long 2014: 1.)

Process Management differs from the other management approaches by emphasizing actions; people are not asked to work more, but to act in a new, different way. It has a lot to do with quality management, continuous development and logistics.

The starting point for process development is to define the goals for improvement. There are several process development approaches; Business Process Improvement (BPI) approach is well suited for small improvement needs in already existing processes for shortening a particular lead-time. Business Process Re-engineering (BPR), on the other hand, fits better to larger-scale process development projects aiming to reform and higher the efficiency of all of the process parts. BPI is known to gain a variety of advantages concerning its performance, cost, and quality. Creating and implementing a continuous improvement plan is a key factor in ensuring organizational competitive advantage. (Damij – Damij 2014, 49-51.)

4.2 Harrington's Business Process Improvement

H. James Harrington developed his five-phased Business Process Improvement method about thirty years ago. It was planned to improve an existing business process or to be utilized in developing a new one (figure 4). The main objective of the first phase of BPI is to *“ensure success by building leadership, understanding, and commitment”*. This phase includes choosing the business process for the development work by evaluating whether the possible process fills the requirements for the Business Process Improvement method. Harrington (1991) suggested using criteria, such as financial importance or high usage frequency, while choosing between process options. Each activity of the process gets documented using different tools and techniques, which helps the development team to gain a good understanding of the process as a whole. Hence, the main objective of the second phase is *“to understand all the dimensions of the current business process”*.

Harrington (1991: 21) suggests using interviews with relevant people to collect information and knowledge and to identify important activities. Communication is also crucial

in finding out data that could affect the process from outside the system as inputs, or leave the process as outputs. Descriptions of procedures and activities are collected and presented to the people who are involved within the process. This is done to correct mistakes due to misunderstanding or miscommunication. In the second phase of BPI the reasons that cause flaws in business processes and make it inefficient and ineffective (such as a long delivery time) are identified, analysed, and followed by improvement suggestions and ideas. In the third, “streamlining” phase, the team creates a design for the improved version of the process and for the changes into actions. Possible issues and questions are communicated and discussed within the organization to find best possible solutions. The process is carried out with the help of, for example, automatization, standardization, error proofing, and selecting and training the employees.

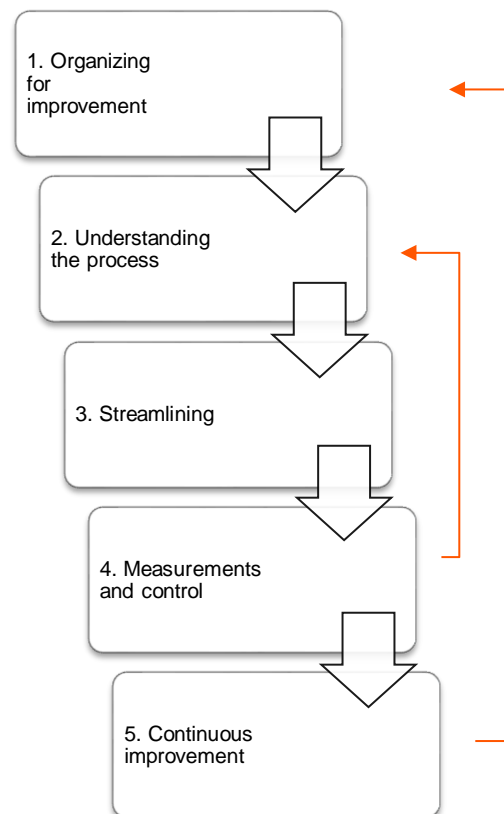


Figure 4. Harrington's five phases of Business Process Improvement (Harrington 1991)

The two main objectives of the final phases are to implement a system to check the process for ongoing improvement and to ensure a continuous improvement process. A

feedback system is established and the change impacts on the business and on customers are evaluated.

4.3 Order-to-delivery process

Order-to-delivery process (OTD) consists of all actions starting from the customer's recognition of need to order to finally receiving the service or the goods (Forslund – Jonsson– Mattsson 2009: 43). Order placement, order receipt and processing, manufacturing, warehousing, shipping, transfer and receiving of delivery are all activities of the product delivery process. In terms of planning a delivery process, a key factor is to what extent the service or product is standardized. What this means, is that whilst some products can be delivered straight from inventory to the customer, other products or services require processing and customizing before reaching the customer. Organizations can define different delivery processes depending on customers' needs, which should be noticed when assessing the efficiency of a delivery process (Laamanen – Tinnilä 2009: 64–65.) The most important sub-processes of OTD are visualized in the figure 5 with letters A, B, and C. They indicate the sub-process interfaces; the different processes are dependent on the performance of other sub-processes, which should be noticed when managing and assessing the efficiency the whole OTD process. (Forslund – Jonsson – Mattsson 2009: 44.)

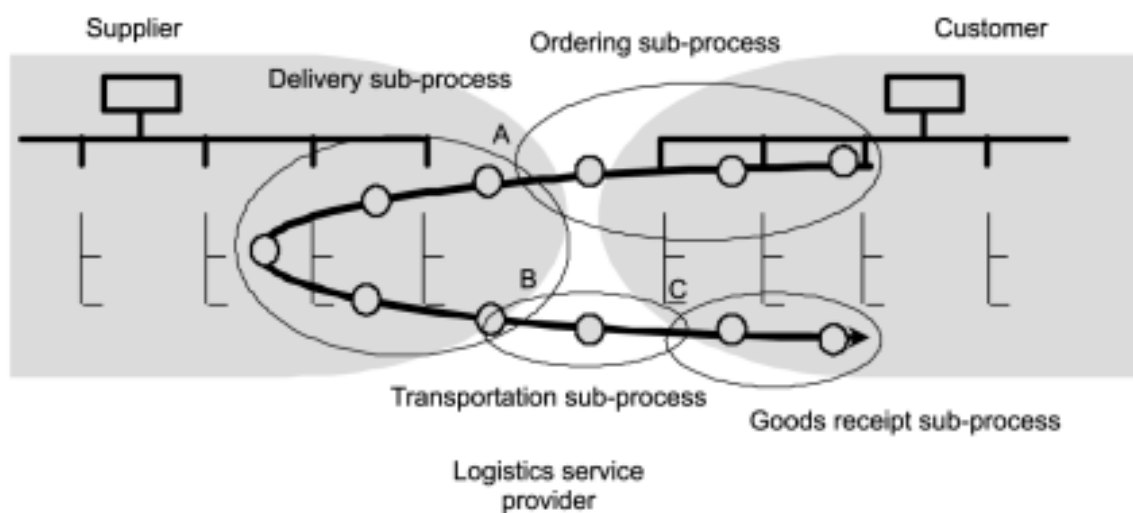


Figure 5. Order-to-delivery process with its sub-processes (Forslund et al. 2009: 44).

Efficiency of the whole supply chain can be measured from various perspectives depending what is important in terms of the corresponding organization or development objective. Total costs, processes, employee knowledge and abilities, and customer or stakeholder satisfaction are examples of areas which can be evaluated by choosing suitable measuring method or objective: monetary changes, time (figure 6), quality, or flexibility. All sub-processes in the supply chain are time-consuming, hence in this respect also measurable activities. (Forslund – Jonsson – Mattsson 2009: 44.)

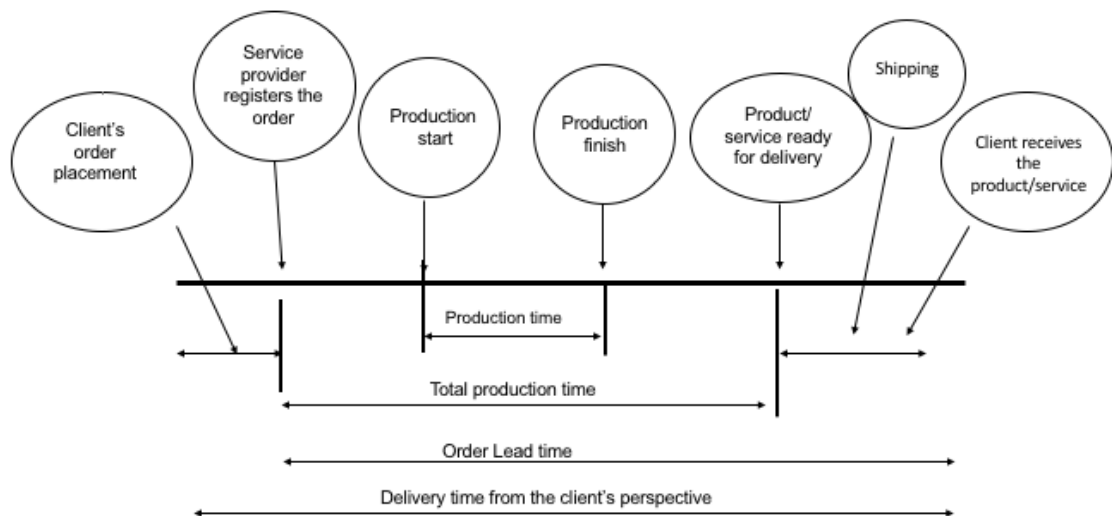


Figure 6. Sub-processes affecting the Delivery-To-Order process (after Sakki 2011:162 & Forslund et al. 2009)

Lead time (Figure 6) refers commonly to the time that is used from the customer order placement to delivering the service or product to the customer. Lead time development requires fast supply chain process. This importance is emphasized in customer-oriented service production, where either planning or production starts from the order placement. (Huuhka 2017: 202–203.)

5 Telecare

The literature I have used here consists of studies that concentrate on evaluating the effects of telecare especially in Home Care or care homes.

5.1 Nomenclature

The nomenclature employing the prefix “tele” is confusing. The words telehealth, telemedicine, and telenursing are often used as synonyms (Schlachts-Fairchild – Elfrink – Deickman 2008: 135). American Academy of Family Physicians (2013), however, defines the term *telemedicine* (etälääketiede) as “the practice of medicine and remote clinical services using technology to deliver care at a distance”. *Telehealth* (etäterveydenhuolto) refers widely in general use to electronic and telecommunications technologies and services, *telenursing* (etäsairaanhoito), again, to the use of technology to deliver nursing care and to conduct nursing practice (Schlachts – Sparks 1998: 558–559). *Telecare* (etähoito) means “the use of information, communication, and monitoring technologies, which allow healthcare providers to remotely evaluate health status, give educational intervention, or deliver health and social care to patients in their homes” (Solli, Bjørk, Hvalvik, Hellesø, Ragnhild 2012).

Translating terms from Finnish to English is challenging. There is a fairly scarce amount of material about Telecare services published in Finnish but Vuononvirta's doctoral study generated information about the adoption of telehealth in the Finnish health care system. In clarifying the terminology of the field, Vuononvirta (2011: 20-21) does not include the word “etäsairaanhoito” (telenursing) at all. This might stem from the fact that in the Finnish language the word “etähoito” (telecare) seems to be the most commonly used term for all such service. The biggest telecare provider in Northern Europe, Service Centre Helsinki, uses the word “etähoito” (telecare), for delivering telenursing, and in presentation material for English-speaking residents the same service name has been translated either into *remote care* (Helsinki 2016) or into *virtual care* (Helsinki 2019 (4)). In my thesis, I will use the word *telecare*, since it seems to be the most commonly used term in the English literature. The prefix “tele” is also used in terms concerning rehabilitation. A telecare service provided by a professional of rehabilitation, e.g. physical therapist, occupational therapist, is commonly referred to as *telerehabilitation* or *remote rehabilitation* (etäkuntoutus).

5.2 Applicability

Research about use of telecare has been conducted across many countries, for example in the UK, in the Netherlands (Newbould – Mountain – Hawley – Ariss 2017), in Finland (Vuononvirta 2011) and in Ireland (Bryan – Lawson – Bolton 2011). Their results give evidence on its usefulness, especially in supporting regular health care services.

Newbould et al. (2017: 5) support the use of videoconferencing in patient care, but they suggest that more research has to be conducted to understand more precisely what are the most important factors in successful videoconferencing. Karlsen et al. (2017) conducted a systematic review on the experiences of community-dwelling older adults with the use of telecare in home care services. Its outcomes coincide with the results of Newbould et al. (2017); telecare has potential in promoting feeling of safety at home, but the service must fit individual needs. Graham et al. (2011) studied the benefits of telecare for older people choosing to remain at home rather than move to live in a nursing home. The findings of this research were positive and supported the concept of telecare being a substantive component of home care services. The study results suggest that telenursing and telehealth decrease effectively the number of outpatient and emergency room visits, as well as shorten hospital stays, improve quality of life in matters concerning health, and decrease the cost of health care (Kamei 2013).

Access to specialized Health Care can be limited due to long distances or limited resources. Research points out possibilities of teleconferencing in substituting live meetings with a specialist. According to Fatehi, Gray and Russell (2011: 8–14), a significant proportion of outpatient consultations for patients with diabetes could be managed remotely via teleconferencing.

Telehealth systems might also create alternative ways for managing and supervising exercise programmes in the home (Lai et al. 2018). According to Vedel et al. (2013), a great number of studies have evaluated the outcomes of telecare technologies as positive in terms of “clinical processes, patients’ health outcomes, productivity, efficiency and costs, clinicians’ satisfaction, patients’ satisfaction and patients’ empowerment”.

However, studies also point out possible risks and problems in Telehealth. In 2014, a literature review was undertaken to identify patient safety risks associated with the use of telecare services in the homecare setting (Guise – Anderson – Wiig 2014). Through

the research 11 types of patient safety risks emerged. These risks were mainly related to the nature of homecare tasks and practices, person-centred characteristics of homecare clients and their capabilities, and to a lesser extent, problems with the technology and devices, organisational issues, and environmental factors

A study has recognized clients' need for support with technology that is required locally, even if the health care service is provided remotely (Martin-Khan et al. 2015). There seems to be room for improvement in simplifying the use of technology as well (Vedel et al. 2013, Karlsen et al. 2015). There is also some evidence that in some circumstances telecare does not simplify intra-organizational collaboration (Bjørkquist et al. 2018).

There seems to be a common opinion among the researchers that more research on telecare needs to be conducted, e.g. in order to better understand the factors that support the use of telecare as a health care service.

5.3 Professionals' and clients' attitudes

There are some conflicting study results about employees' versus healthcare clients' telecare acceptance. In some cases clients have demonstrated more positive views of the telecare visits than their healthcare providers (Ignatowicz et al. 2019; Mair et al. 2005), but most of the results seem to show positivity also from employees' side (Seppänen & Ramstedt-Sten 2014: 8; Stenberg et al. 2014; Kollveit et al. 2017; Vuononvirta 2011). Research results indicate that utilizing e.g. videoconferencing in a health care service is seen useful by professionals of the field. The utilization of new kind of technology and rising cost effectiveness are viewed as less important developmental objects than the development of the services, or staff's competences and knowledge. Limited knowledge and resources are regarded as the most important factors hindering wider use of videoconferencing (Seppänen – Ranstedt-Sten 2014: 8.) A common perception has been that the nurses usually reject the idea of telecare just because it excludes physical presence. Pols (2010) conducted a study in the Netherlands to find out whether the nurses still feel that implementation of telecare will impoverish patient care by taking out 'the heart' of the clinical work. The results showed very positive attitudes towards teleservices among nurses, since telecare has led to more frequent and more specialised communication between the clients and health care professionals. The increase in contact frequency has been noticed in other studies too; telehealth provides daily monitoring of

patient health, which leads to more frequent communication and interaction with the patients, families and caregivers (Bashir – Bastola 2018).

According to Vuononvirta (2011: 37), health care employees' attitudes toward teleservices have been mostly positive, yet their negative preconceptions are not necessarily an obstacle to adopting telehealth services. Vuononvirta states that important factors in successful adoption of telecare services among health care professionals are, e.g., the applicability of the service from the perspectives of the processes, employees and patients and the organization. This means that the service has to respond to a need and be a part of health care staffs' working routines. Vuononvirta (2011: 11) points out that there exists a great number of studies concerning telecare acceptance and adoption; nonetheless, due to incoherent use of theoretical models, concepts and perspectives, perceiving drawing conclusions from the research results as a whole is complicated. She claims, however, that several research projects, conducted mostly between years 2001-2008, have showed that there are a lot of factors, such as perceived usefulness, perceived ease of use, applicability and attitudes towards the service that influence the telehealth usage.

Ritola, Saarni, Oksanen and Stenberg (2019) investigated patients' and therapists' opinions on remote mental health care. The outcomes regarding patients' functional abilities were so promising that they suggest using telehealth interventions, despite some technical problems.

Clients' attitudes and perceptions towards telecare services have also been studied. Degree to which Home Care clients' think that the service is more advantageous than other services can effect their willingness to adapt telecare. Chance of accepting telecare services is effected also by telecare's compatibility with other services, its complexity and observability (Peeters – de Veer – van der Hoek – Francke 2012) The more the clients believe in the usefulness of the telecare service (perceived usefulness) and the less insecurity the service creates, the more likely the clients are going to be to adopt the service (Cimperman – Makovec – Trkman 2016). For better acceptance, telecare service should be easy to use and manage. Sufficient amount of detailed information about the service, with time for discussions, should be provided to the client, especially while introducing the service (Sanders et al. 2012). Cimperman et al. (2016) and Peeters et al. (2012) suggest that when promoting home telecare services, Home Care organisations should focus on clients already in care and people living alone. The reception

might also be better, if there were fixed daily contacts via the telecare system. They also suggest using health professionals as social agents to frame the services as useful and beneficial.

Karisalmi, Kaipio and Kujala (2018: 214–216) investigated Health Care clients' experiences with eHealth services, such as a digital booking system, OmaKanta and Terveystyöskyla in Finland, and what kind of support they had received from personnel in using them. A relevant finding of this study was that only less than half of the patients had received information about eHealth services from the Health Care personnel and even fewer clients had been encouraged or advised by the personnel on how to use eHealth services. Many client respondents wished for a "more activeness" from the personnel in informing about the eHealth services.

6 Research purpose and aims

The purpose of this Master's thesis is to increase knowledge about the ordering process of Telecare service and the Home Care employees' attitudes towards the service. The results of the research will help Service Centre Helsinki to identify development needs in the ordering process. Aim is to describe how employees are experiencing the ordering process and telecare service by finding out what positive and negative experiences they have had ordering the service. Objective is to find out answers to following research questions:

1. Which are the factors associated with employee's decision to order the Telecare service?
2. How could the ordering process be developed in a way that would benefit the Home Care and Client Guidance Department employees?
3. Are employee attitudes associated with their willingness to promote Telecare services?

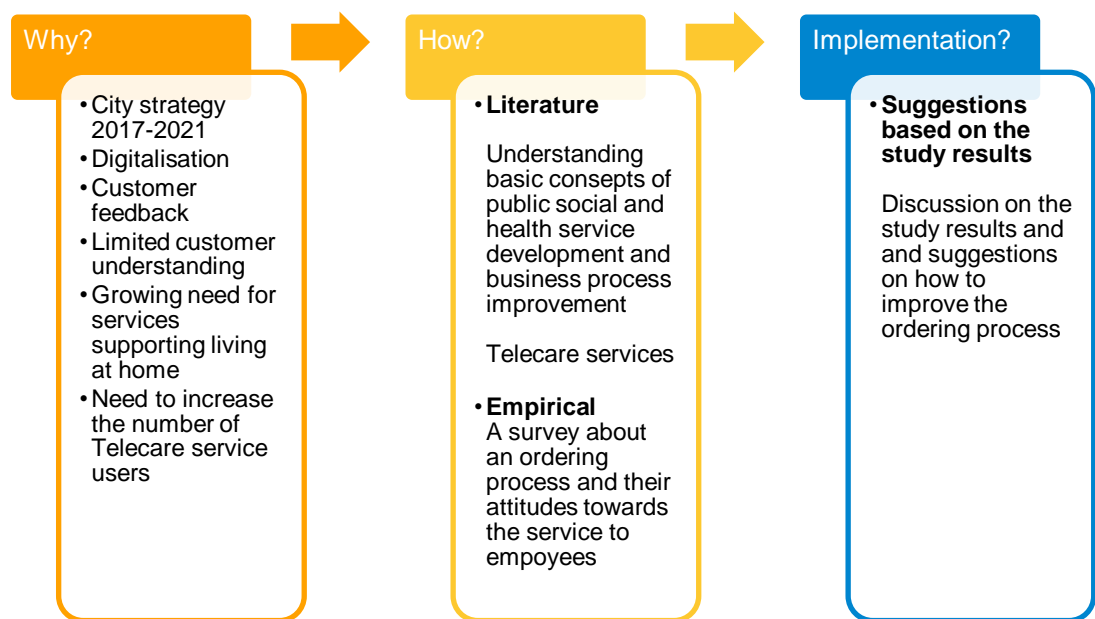


Figure 7. Thesis process

The process of this work starting from the driving forces for the development, is visualised in the Figure 7.

7 Research methods

This Master's thesis study's approach is quantitative. Quantitative research proceeds systematically in accordance with statistical rules. In order to solve research problems, the phenomenon under research is converted into research questions, which are used to collect material. (Kananen 2011: 72.) Data for solving the three research questions was collected through a web-questionnaire in this study. Using a web-questionnaire is a commonly used data collection method in quantitative studies (Ibid.) and can be useful in collecting data about the opinions and behaviour of large numbers of people (Easterby-Smith – Thorpe – Jackson 2015: 613).

A quantitative study proceeds "from theory to practice", which means that before conducting the research, the existing theories relevant to the study have to be familiar to the researcher. This direction, "deduction", refers to applying existing theories into practise (Kananen 2011: 74), in this case, e.g., into finding out whether certain points of the ordering process are associated with employees' decisions to order Telecare.

7.1 Data collection process

The project was conducted in 2018-2019 as a part of Master's degree studies. Process of collecting data began with applying and receiving a research consent from the Social and Health Care division of the City of Helsinki and signing a collaboration contract between Metropolia University of Applied Sciences, the Service Centre Helsinki and the researcher. The data collection was performed using a web-based survey software Questback Essentials, which allowed the survey hyperlink to be included in a regular e-mail. The survey link with an information letter was sent using Helsinki e-mail. The information letter (Appendix 1) was sent in the same e-mail.

Before sending the survey link to the recipients, the survey was pre-tested by a few colleagues. The survey link was sent with an enclosure letter via e-mail. Total sample of 1954 Home Care and 158 Client Guidance Department employees was used, which means that all Home Care and Client Guidance Department employees were chosen for participation. The number of employees not working due to e.g. sick leave or holiday at the time of the data collection, and therefore not receiving the survey, remained unknown. The survey was open for a period of three weeks, during which three reminders were sent.

7.2 Instrument

Data for solving research questions was collected through a web-questionnaire. To ensure that the questions and statement type questions are measuring what they are ment to measure, certain principles were used in formulating the questionnaire questions.

Easterby-Smith, Thorpe and Jackson (2015: 635–636) introduce six principles of good question design in a questionnaire. First principle is "each item should express only one idea", that a question should try to solve only one matter at a time. Second and third principles, "avoid jargon and colloquialisms" and "use simple expressions" refer to using language and phrases that are easy to understand and don't leave room for misconceptions. The fourth principle is to "avoid the use of negatives", which may cause confusion e.g. with Likert-type scales, which may go from negative (disagree), through neutral (doesn't disagree, doesn't agree), to positive (agree). The fifth principle is to "provide appropriate time referents"; that is, asking respondents questions concerning fairly recent times. For example, in this study the respondents are asked about a service that is being presently in use. The last principle is to "avoid leading respondents". In other words, the questions should be formulated in a way that doesn't direct the respondent to answer in a certain way.

The web-questionnaire (Appendix 2) had 10–12 open- and closed-ended questions, to be answered depending on the respondent's answers to some of the previous questions. The response options used in the survey vary depending on the type of question. Three out of ten questions had a simple response choice of yes or no. If the response to these questions was "no", the survey lead to a more defining question, giving the respondent a few response alternatives and the possibility for an open comment.

7.2.1 Likert scale

Five out of ten survey questions were using the Likert scale. Likert scale, developed in 1932 by R. Likert, was originally developed to measure attitudes. The scale can be used to rate the degree of agreement or, respectively, disagreement. Because Likert is an ordinal scale, it is possible to rate and rank the responses, but the distance between responses is not measurable. Hence, the difference between responses is equally distant even if the numbers assigned (table 4) to the responses are. (Sullivan – Artino 2013: 541.)

Table 2. Likert scale answer options

Number	Frequency	Statement answer options
1	Never	I strongly agree
2	Rarely	I agree
3	Sometimes	I don't agree or disagree
4	Often	I disagree
5	Vary often	I strongly disagree
6	Other, what?	Other, what?
7	I don't know	I don't know
8	I have no opinion on this	I have no opinion on this

To enable comparing groups, the respondent was asked in which unit she/he works, what her/his job title is and in what region she/he works.

7.2.2 Net Promoter Score

The Net Promoter Score, developed by Fred Reichheld in 2003, is measured by asking a question: “on a scale of zero to ten, how likely is it that you would recommend [company X or product Y or service Z] to a friend or colleague?” The Net Promoter Score, NPS, is a commonly used metric in market research surveys. The analysis of NPS bases on the idea, that the customers can be divided into three groups: promoters (score 9-10, “loyal customers”), passives (score 7-8, “satisfied, but enthusiastic customers”) and detractors (score 0-6, “unhappy customers”). To calculate the NPS (figure 8), the percentage of Promoter-customers is subtracted from the percentage of Detractor-customers. Dividing people into only three groups is also the reason why NPS has been criticized – it might over-simplify the answers. (Marr 2012: section 19, figure 5)

The City of Helsinki has started to make use of NPS in many occasions as tool to track resident satisfaction and experience. For example, in the budget and financial plan for the year 2019 NPS is mentioned in several occasions, e.g., when the future goals for the municipal enterprises are presented (Helsinki 2018 (5): 131, 223, 229.)

NPS is a useful tool when needing the feedback quickly and at the point of service, because it can be easily measured using respondents own smartphones or tablet devices. In addition, presenting the NPS question takes only a few seconds. One incentive in using NPS is the possibility to compare the indexes between similar services – e.g. from different customer service situations. (Marr 2012: section 19).

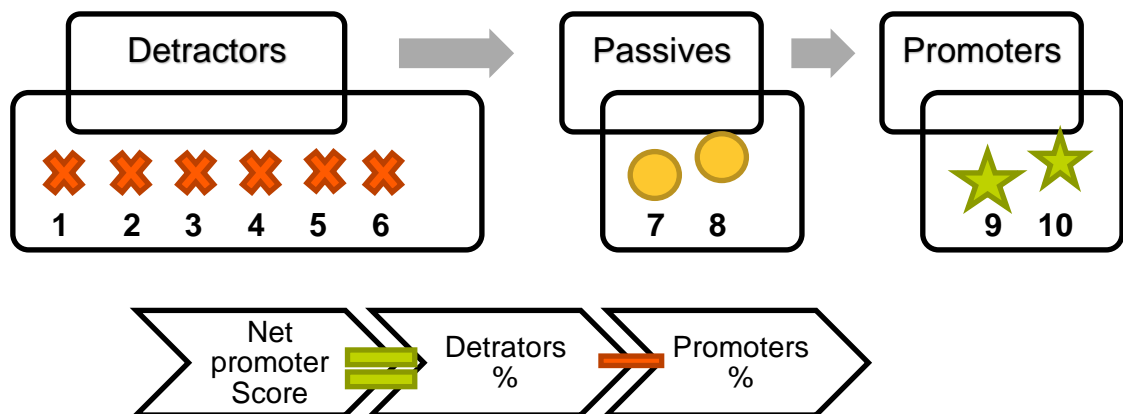


Figure 8. Calculating Net Promoter Score (Marr 2012)

7.3 Analysis

Crosstabulation with Chi Square test, Mann-Whitney U, and Kruskal Wallis tests were chosen as analysis methods. Most of the research data consists of answers from Likert-type questions, which means that the data is not normally distributed, therefore non-parametric tests had to be used.

The results of a Chi Square test indicate if there is a significant difference between the expected and observed frequencies in categories (Heikkilä 2014:12). Mann-Whitney U test is used in analyzing two independent variables and to show whether there is any difference between these variables. (Taanila 2012 (1)). Kruskal Wallis test is also used in detecting differences between variables, but in cases with more than two independent variables. (Taanila 2012 (2)).

Chi Square test requires that no cell has the expected value less than 0 and no more than 20 % have expected values less than 5 (Taanila 2012 (3)). For this reason, a new variable was recoded with SPSS combining the variables “Yes, regularly”, “Yes, but irregularly or just a few times” and “Never” into only two groups (Table 3). In addition, the Likert 5-point scale was recoded into only three variables (Table 4).

Table 3. Recoded grouping variables

Old values		New values
Yes, regularly (1) (n=79)	→	Yes (1) (n=189)
Yes, but irregularly or just a few times (2) (n=110)		
Never (3) (n=109)		No (2) (n=109)

The questions 5 to 11 were “to what extent do you agree or disagree” type, Likert-scaled questions. To reach the requirements for conducting Chi Square test, these variables were recoded (Table 4).

Table 4. Recoded variables, new values

Old values		New values
I strongly agree (1)	→	I agree (1)
I agree (2)		
I don't agree or disagree (3)		I don't agree or disagree (2)
I disagree (4)		I disagree (3)
I strongly disagree (5)		

For finding out answers to the first research question “Which are the factors associated with the employees’ decisions to order the Telecare service?”, Mann Whitney U-test was used. Crosstabulation was conducted to clearly present the results to the statements.

Answers to the second research question “How could the order process be developed in a way that would benefit the employees”, were examined by analyzing the answers for survey questions concerning the order process through crosstabulation and categorizing respondents’ open-ended answers.

Categorizing, or dividing the open-ended answers into “thematic entities” was used also with other open-ended answers. This was done to interpret this more qualitative-type data (Kananen 2011: 58). Crosstabulation, Chi Square test, and Kruskal Wallis test were used to find answers to the third research question “are employee attitudes associated with their willingness to promote Telecare services” by finding out relations between the Net Promoter Score groups and Likert-scale answers about the service.

8 Results

The results of the survey are presented in this chapter beginning from the basic background information about the respondents and followed by answers to each survey question. A replica of the web questionnaire is attached as Appendix 2.

8.1 Background information on the respondents

Altogether 306 responses were collected, from which 261 from Home Care employees, 37 from Client Guidance Department and eight from other departments. Six respondents were filtered out of the results, because they were working outside the Home Care or Client Guidance Department units (Table 5). The Client Guidance department employs altogether 158 people, whereas Home Care 1954 people. This means that the response rate among Home Care employees was 13,4 percent and among Client Guidance Department employees 23,4 percent.

The total response rate was 14,5. Home Care employees represent 87,6 percent of the respondents, whereas Client Guidance Department by 12,1 percent and other units or departments 2,6 percent. Practical nurses (perus- ja lähihoitajat) was the largest respondent group with over half (54 %) of all respondents being from this profession group (Table 5).

Table 5. Respondents

	Frequency			Percentage
	Home Care	Client Guidance Department	Total	
Total	261	37	298	
Registered nurse	39	12	51	17
Public health nurse	22	10	32	11
Practical nurse	161	0	161	54
Home care instructor	29	3	32	11
Social instructor	0	6	6	2
Doesn't want to answer	5	5	10	3
Some other	5	1	6	2

As anticipated, almost 20 percent of all responses were received from the southern Home Care unit, which is the largest of the units in Helsinki area and the least responses, 5 %, from Northern Home Care unit, one of the smallest. All Home Care and all Client Guidance Department (Table 6).

Table 6. Home Care employees' working units

Home Care Unit	Frequency	Percent of all responses
South	59	19,8
Central	38	12,8
East	26	8,7
Southeast	34	11,4
Southwest	36	12,1
West	27	9,1
Northeast	24	8,1
North	15	5,0
Doesn't want to answer	2	0,7
Total	261	87,6

Out of all responses, 12,4 % were received from the Client Guidance Department units, mostly from the southern, western and northern units (Table 7).

Table 7. Client Guidance Department employees' working units

Unit	Frequency	Percent of al responses
South	10	3,4
East	5	1,7
West	9	3,0
North	10	3,4
Swedish	3	1,0
Total	37	12,4

8.2 Responses on recommending and ordering

The first two questions in the survey “Were have you ever recommended Telecare service to a client?” and “Have you placed an order for the Telecare service?”.

Out of all respondents (n=289) 96 percent (n=277) indicated having recommended the service regularly or a few times and 4 percent (n=11) of the employees answered never having recommended the service to a client (Table 8). A percentage of 63 (n=189) of the respondents answered having placed orders or an order for Telecare service and 37 percent (n=109) reported never having placed a Telecare order (Table 8).

Table 8. Frequencies of recommending and ordering, after recoding

Have you recommended Telecare to your clients?			Have you placed an order for the Telecare service?		
	Frequency	Percent		Frequency	Percent
Yes	277	95,8	Yes	189	63,4
No	11	3,9	No	109	36,6
Total	289	100	Total	298	100

If the respondent had never, or just a few times made an order for Telecare service, the survey led these respondents to a specifying question: "What is the reason for either not having any experience in ordering the service or only a few ordering experiences?". This question was a multiple-choice question with one open- and three closed-ended answer options.

Almost half of the respondents (45 %, n=49) chose the option "Some other person is responsible of ordering the service in our team", 30 percent (n=33) didn't know how to order the service and 10 percent (n=11) left an answer to an open-ended question "Some other reason?". Out of all open-ended answers, 28 percent (n=31) answered, that the clients have not accepted the service.

If the respondent had never, or just a few times made an order for Telecare service, the survey led these respondents to a specifying question: "What is the reason for either not having any experience in ordering the service or only a few ordering experiences?" The question was a multiple-choice question with one open- and three closed-ended answer options.

Out of the respondents who had either never or just a few times recommended the service to a client 41 percent indicated that their clients would not have benefited from the service and 27 percent answered that there is another person in the team who is responsible of doing the orders.

The question "What is the reason for either not having any experience in ordering the service or only a few ordering experiences?" received 37 open-ended answers. Out of all open-ended answers 23 percent (n=23) were about developing the service in some way, such as "More marketing material for the nurses", or "More resources to the telecare". Fifth of open comments indicated that the service is not responding to the clients' needs:

"Etähoidon kautta jos saisi ohjattua es.rentoutustuokioita, musiikkia, muuta luovaa toimintaa niin se olisi hienoa. kotona asuu paljon es.masentuneita jotka eivät päivätoimintaan lähde mutta voisivat hyötyä tämän tyypisistä aktivoinnista."

"If it only was possible to provide e.g. moments to relax, music or other creative action, it would be great. There are a lot of people suffering from depression, who won't go to other day activities, but might benefit from this type of activating." (free translation)

Out of all answers to the open-ended question, 17 % was critique towards the technique:

"Laitteet toimimaan!"
"Get the technique working!" (free translation)

"Kuormittaa kotihoidon työntekijöiden työmäärää kun laitteet eivät toimi!"
"It adds to the workload of Home Care employees when the technique is not working" (free translation)

8.3 Factors associated with employees' decisions to order Telecare service

Mann-Whitney U-test was run also to find distribution differences between the opinions (statement questions) of employees with Telecare ordering experience and employees with no experience (Tables 9 and 10; Figures 9 and 10). Statistically significant difference ($p < 0,05$) was found in two out of seven scenarios. Significance level 0,095 was used.

First four statements, "I know the criteria that need to be met in order to start the service", "Clients attitude is usually positive towards the Telecare", "In my opinion, the Telecare eases Home Care employees' workload", and "Telecare service eases the workload of Home Care employees", are presented in Table 9.

Table 9. Statements 1-4, crosstabulation: statements, all respondents (n=298)

		1. I know the criteria that need to be met in order to start the service			2. Clients attitude is usually positive towards Telecare			3. In my opinion, the Telecare eases Home Care employees' workload			4. Telecare service eases the workload of Home Care employees		
		Ordering experience			Ordering experience			Ordering experience			Ordering experience		
		Yes	No	Tot	Yes	No	Tot	Yes	No	tot	Yes	No	tot
I agree	n	176	80	256	63	32	95	148	78	226	147	78	225
	%	93	76	87	33	32	33	78	72	76	79	72	76
I don't agree or disagree	n	5	12	17	38	23	61	15	15	30	13	17	30
	%	3	11	6	20	23	21	8	14	10	7	16	10
I disagree	n	8	13	21	88	46	134	26	15	41	27	13	40
	%	4	12	7	47	46	46	14	14	14	14	12	14
n		189	105	294	189	101	290	189	108	297	187	108	295
Mann-Whitney U-test, p-value		p=0,00			p=0,975			p=0,310			p=0,341		

Statements five to seven, "Telecare is all in all a good service", Telecare improves the clients' ability to live at home and "Telecare should be available with less criteria", are placed in Table 10.

Table 10. Statements 5-7, crosstabulation: statements, all respondents (n=298)

		5. Telecare is all in all a good service			6. Telecare improves the clients' ability to live at home			7. Telecare should be available with less criteria			
		Ordering experience			Ordering experience			Ordering experience			
		Yes	No	Tot	Yes	No	Tot	Yes	No	Tot	
I agree	n	149	82	231	151	81	232	124	54	178	
	%	79	75	78	80	76	78	66	54	62	
I don't agree or disagree	n	23	14	37	23	18	41	50	34	84	
	%	12	13	12	12	17	14	27	34	29	
I disagree	n	17	13	30	15	8	23	13	12	25	
	%	9	12	10	8	8	8	7	12	9	
		n	189	109	298	189	107	296	187	100	287
Mann-Whitney U-test, p-value		p=0,441			p=0,453			p=0,032			

A Mann-Whitney U Test (Table 9 and Figure 9) indicated that self-rated knowledge on the criteria for starting the Telecare service was greater for employees who have ordered Telecare service than for employees who have no previous ordering experience ($p < 0,001$, $U = 11587$).

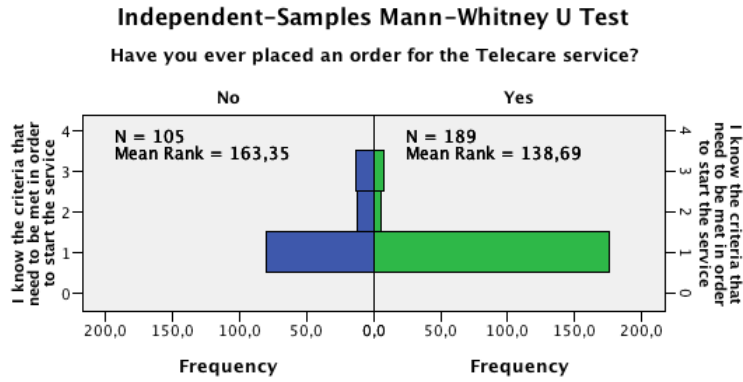


Figure 9. Mann-Whitney U-Test: distribution differences between employees

A Mann-Whitney U Test indicated, that the employees who have placed Telecare orders thought more often that the service should be available with less criteria for their clients or future clients, than employees with no ordering experience ($p=0,032$, $U=10580$) (Table 10. Figure 10).

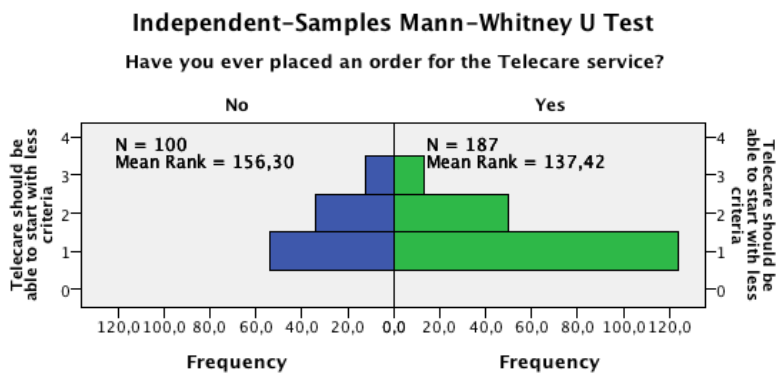


Figure 10. Mann-Whitney U Test: distribution differences between employees with and without ordering experience

Respondents opinions about four points of the ordering process were collected through Likert scale questions. The points were "Finding the ordering form", "Filling the ordering form", "Sending the ordering form", Making changes to already existing contract" (Table 11).

Table 11. Statements 1-4 about the ordering process.

		1. Finding the ordering form			2. Filling the ordering form			3. Sending the order to Service Centre			4. Making changes to already existing contract		
		Ordering experience		Total	Ordering experience		Tot	Ordering experience		tot	Ordering experience		tot
		Yes	No		Yes	No		Yes	No		Yes	No	
"Really Difficult" or "difficult"	n	44	14	58	45	9	54	38	10	48	53	16	69
	%	24	24	24	24	16	23	20	19	20	31	30	31
"Not difficult or easy"	n	42	22	64	34	20	54	43	22	65	37	17	54
	%	23	37	26	18	36	23	23	41	27	21	32	24
"Really easy" or "Easy"	n	101	23	124	106	26	132	106	22	128	83	20	103
	%	54	39	50	57	47	55	57	41	53	48	38	46
n		187	59	246	185	55	240	187	54	241	173	53	226
P-values from Mann-Whitney U test		p=0.144			p=0,601			p=0,141			p=0,416		

As table 11 visualizes, half of all respondents (n=124) reported finding the ordering form "really easy" or "easy". One fourth of respondents thought that the form was either "really difficult" or "difficult" to find. A little over half of the respondents (55 %, n=132) considered that filling the form is easy. However, 23 percent (n=53) assessed filling the form is either "really difficult" or "difficult". Over half of employees (53 %, n=128) assessed sending it forward as "really easy" or "easy", whereas 20 percent (n=48) reported the same thing as "difficult" or "really difficult". Almost half of the respondents (n=106) thought that making changes to an already existing Telecare contract is "really easy" or "easy", yet 31 percent (n=69) found it "difficult" or "really difficult". Rest of the employees responded rather evenly either "difficult/really difficult" or "not difficult nor easy".

8.4 Developing the order process

Out of the pre-designed development suggestions the most frequently chosen one was to change from paper to digital order form, chosen by 73 percent (n=218) of respondents (Table 12).

Table 12. Employees' suggestions on how to develop the ordering process

	%	(n=298)
Digital order form instead of the paper form	73,2	218
Chat support for employees	43,3	129
Marketing material designed to clients' relatives	56,0	167
Marketing material designed for clients	56,4	168
No need to develop the order process	5,0	15
Somehow else?	8,7	26

Out of 26 open comments to question "How could we develop the order process", thirteen were comments about something else than the ordering process. These thirteen comments were categorized into four groups: 1. Order form (23,1 %), 2. Resources (23 %), 3. Delivery time (30,8 %), 4. Informing the Social and Health Care professionals (23,1 %) (Table 13).

Table 13. Open comments to the question "How could we develop the order process"

Comment in Finnish	Translation (fin-eng)	Comment category
"Palvelukeskuksen lomakkeessa ei mitään kohta virtuaalilaitteen soittokohdalle, päiville saatikka sisällölle!"	"There is no place in the form for the time or date, not to mention the content, of the virtual-service!"	1
"Selkeä kaavake, johon riittää yksi allekirjoitus asiakkaalta sekä selkeät kohdat "viranomaisten" yhteystiedoille ja rasti-ruutuun menetelmä maksuvaihtoehdoista."	"An easy-to-use form, where only one signature from the customer is enough, clear places for "authoritative authorities" contacts, and a check-a-box for the billing options"	1
"Isompi "vapaan sanan" tila tilauslomakkeeseen"	"Larger space for "open comments" in the form"	1
"markkinointilaitteet kotihoidon sairaanhoitajille"	"Devices for marketing for the nurses of the Home Care"	2
"Lisää resursseja etähoitoon"	"More resources for the Telecare"	2
"Faksit on auttamattoman vanhanakaiset, ja ainakin meidän yksikössä, erittäin epäluotettava"	"Fax machines are helplessly old-fashioned, and at least in our unit, very unreliable"	2
"Nopeampi asennus, nyt joutuu usein odottamaan liian pitkään"	"Faster installation, now one must often wait too long"	3
"asentaminen nopeammaksi"	"Faster installation"	3
"Etälaitteen toimitusaika tulisi olla huomattavasti lyhyempi"	"The delivery time of the Telecare service should be considerably shorter"	3
"Etälaitte täytyy saada viikon sisällä tilauksesta eikä niin, että laitetta odotetaan yli kuukausi!!!"	"The device has to be delivered in a week after the order, and not so that one must wait over a month for it"	3
Asiakasohjauksessa hyvin vähän tietoa etähoidosta käytännössä. Millaisia ruokaryhmiä on, milloin ne ovat? Muiden ryhmien aikataulut? Vaikeaa suositella palveluita, kun ei ole tarkkaa tietoa. Etähoidon tilauslomakkeita en ole koskaan nähnyt, onko niitä edes asiakasohjauksessa? Yleensä kai kotihoito hoitaa nämä, mutta olisihan se hyvä tietää itsekin miltä nämä näyttävät/mitä tulee ottaa huomioon.	"The customer guidance has very little practical information about the Telecare. What sorts of dining groups are there, when do they start? Schedules of other groups? It is difficult to recommend services, when there is no exact information. I have never seen a Telecare order form, do we even have those in the customer guidance department? Usually the Home Care takes care of these, I think, but I guess it might be good to know what the form looks like and what to take in consideration."	4
"tietoa muista etähoidon palveluista"	"Knowledge Information about other remote services"	4
" [Etähoidon] esittely kotihoidon hoitajille"	"Presentations [on Telecare] for the Home Care staff"	4

8.5 Associations between NPS groups and employee opinions

The Net Promoter Index calculated from the responses to NPS question was 6 among all respondents, 30 among Client Guidance Department employees and 2 among Home Care employees (Table 14).

Table 14. Net Promoter Scores

	All respondents (n=298)	Client Guidance Department (n=37)	Home Care (n=261)
NPS™	6	30	2
Promoters (answers 9–10)	30.87%	43.24%	29.12%
Passives (answers 7–8)	43.96%	43.24%	44.06%
Detractors (answers 0–6)	25.17%	13.51%	26.82%

Passives formed the largest group among all respondents, Client Guidance department employees (43 %) and Home Care employees (44 %). Most detractors were found among Home Care employees (26,8 %), whereas Client Guidance Department had the least detractors (13,5 %). Highest percentage (43 %) of promoters was found among Client Guidance Department employees.

All Detractors and Passives were asked a specifying question: “Why would you not, or why would you quite likely not recommend the service to your friend or relative”. This question was a multiple-choice question with a possibility to answer “some other reason” and to leave an open comment. Multiple-choice questions are presented in Table 15.

Table 15. Answer options to specifying question (respondents, who graded NPS with 0-6)

Answer option in Finnish	Answer options translated to English	Percentage
Palvelun laatu ei ole tarpeeksi hyvä	The quality of the service is not high enough	40.3
Läheiseni tarvitsisi sen kielistä etähoitopalvelua, jota ei nyt ole tarjolla	The service isn't provided in a language used by my relative or friend	2.6
En usko palvelun kohentavan läheiseni elämänlaatua tai mahdollisuutta asua kotona	I don't think that the service would better my relative's / friend's quality of life or ability to live at home	57.1
Muu syy, mikä?	Other reason, which?	14.3
Number of responses (n)	Vastausten määrä (n)	77

If the respondent chose to answer “other reason, which?”, he/she was able to specify that answer by leaving an open comment. All of these answers are presented in Table 16.

Table 16. Answers to question “Other reason, which?” Asked from respondents, who graded NPS with 0-6

Answer (Finnish)	Translation (English)
Alentunut kuulo ja suuri asunto, ei siis kuule.	[Client's] Hearing loss and a large apartment, i.e. can't hear [the sound of the device]
Yksinäisyys, eikä edes kohon työntekijä käy!	Loneliness, and not even visits from a Home Care employee!
Ei ole riittävästi tietoa	Not enough information
Asia vaatii vielä valistustyötä	The matter requires more informing
Ei tarvetta	There's no need
Etähoito ei korvaa kotihoidon käyntiä silloin jos asiakas ei vastaa ja hoitaja joutuu käymään kotona tarkistamassa tilanteen. Lisäksi etähoidosta tulevat puhelut työllistävät kotihoitoa varsinkin päivystysuoroissa.	Telecare can't substitute for Home Care visits when the client doesn't answer [the telecare call] and a nurse has to make a home visit for a check-up. In addition, the calls from telecare service add the burden of Home Care especially during on-call shifts.
Etähoito ei aina toteudu, yhteys otetaan puhelimitse.	Telecare visits don't always happen as planned, and the visit is made using telephone.
Se tuntuu joskus epäinhimilliseltä ja tekniseltä (ikäihminen usein kaipaa oikeaa kontaktia toiseen ihmiseen, kosketusta ja läsnäoloa. Tuntuu joskus vähän kylmältä edes ehdottaa etähoitoa.	Sometimes it feels unhumane and technical (often an elderly person wants real contact with another person – touch and presence. It feels sometimes a bit cold to even suggest the Telecare service)
Jos asiakas ei opi laitetta käyttämään tai saa harhoja sen vuoksi.	If the client doesn't learn how to use the technology or gets delusional because of it
Asiakkaat saavat vaihtelevasti palvelua, lääkkeitä ottamatta, lounas syömättä esim.jos näitä varten on otettu etäpalvelu!! Olen joutunut lopettamaan jo etäpalveluja!!	The service is provided irregularly. Medication is left untaken, lunch has not been eaten, and the Telecare has been started for these reasons!! I have already had to quit the service!!
Ei tarpeeksi kokemusta etähoidosta	Not enough experience from the Telecare service.

Associations between employees opinions towards the telecare service and their willingness to recommend the service (NPS groups "Promoters", "Passives", and "Detractors") were assessed through Chi Square and Kruskal Wallis tests. Significance level of 95 % was used. Chi Square tests indicate that there is association between the NPS groups and opinions on all three statements. Through Kruskal-Wallis it was possible to identify and visualize, which and how groups differ (Figures 3, 4 and 5).

Firstly, association was found between the variables Telecare eases Home Care employees' workload and NPS groups ($\chi^2(4) = 66,920$; $p < 0,001$) (Table 17).

Table 17. Crosstabulation: NPS groups and statement about the employees' workload

			How likely is it that you would recommend the Telecare service to a friend or colleague?			Total
			Detractors	Passives	Promoters	
In my opinion, the Telecare eases Home Care employees' workload	I agree	n	36	102	88	226
		%	48,00 %	78,50 %	95,70 %	76,10 %
	I don't agree or disagree	n	10	18	2	30
		%	13,30 %	13,80 %	2,20 %	10,10 %
	I disagree	n	29	10	2	41
		%	38,70 %	7,70 %	2,20 %	13,80 %
Total		n	75	130	92	297
		%	100,00 %	100,00 %	100,00 %	100,00 %
$\chi^2(4) = 66,920$; $p < 0,001$						

Kruskal-Wallis chart (Figure 3) shows the differences between the distributions. There is a rather large difference between each NPS groups' mean rank, the largest occurring between the detractors and promoters.

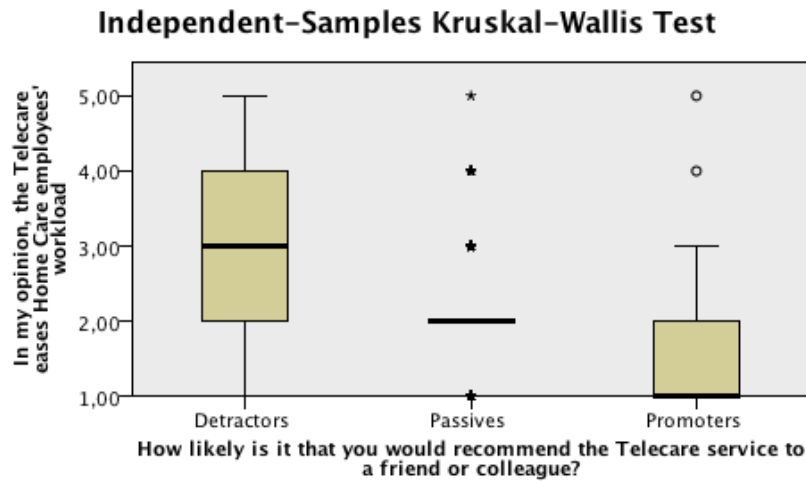


Figure 1. Kruskal-Wallis test: Home Care employees' workload and NPS

Secondly, results indicate significant association between the NPS groups and general attitudes towards the Telecare service ($\chi^2(4) = 89,447$; $p < 0,001$) (Table 18).

Table 18. Crosstabulation: NPS groups and general attitude towards the service

		How likely is it that you would recommend the Telecare service to a friend or colleague?				Total
		Detractors	Passives	Promoters		
Telecare is all in all a good service	I agree	n	31	109	91	231
		%	41,30 %	83,20 %	98,90 %	77,50 %
	I don't agree or disagree	n	20	16	1	37
		%	26,70 %	12,20 %	1,10 %	12,40 %
	I disagree	n	24	6	0	30
		%	32,00 %	4,60 %	0,00 %	10,10 %
Total		n	75	131	92	298
$\chi^2(4) = 89,447$; $p < 0,001$		%	100,00 %	100,00 %	100,00 %	100,00 %

Kruskal-Wallis chart (Figure 4) shows the differences between the distributions. There is a large difference between each NPS groups' mean ranks, the largest occurring between the detractors and promoters. There is a significant difference between the NPS groups on how they assess the Telecare service. Detractors seem to disagree most often with the statement "Telecare is all in all a good service", whereas promoters agree most often.

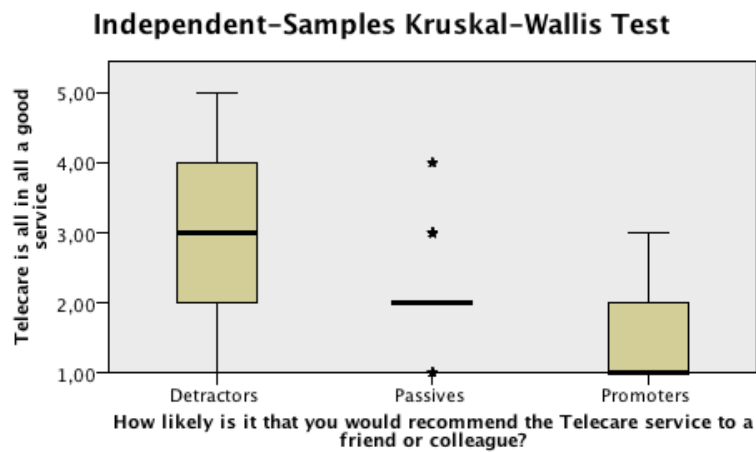


Figure 2. Kruskal-Wallis test: Opinion on the Telecare service and NPS

Thirdly, statistically significant association was found also between the NPS groups and opinions on whether the service improves clients' ability to live at home ($\chi^2(4) = 54,606$; $p < 0,001$) (Table 19).

Table 19. Crosstabulation: NPS groups and clients' ability to live at home

		How likely is it that you would recommend the Telecare service to a friend or colleague?				Total
		Detractors	Passives	Promoters		
Telecare improves the clients' ability to live at home	I agree	n	38	107	87	232
		%	51,40 %	82,30 %	94,60 %	78,40 %
	I don't agree or disagree	n	19	19	3	41
		%	25,70 %	14,60 %	3,30 %	13,90 %
	I disagree	n	17	4	2	23
		%	23,00 %	3,10 %	2,20 %	7,80 %
Total		n	74	130	92	296
		%	100,00 %	100,00 %	100,00 %	100,00 %
$\chi^2 (4) = 54,606; p < 0,001$						

Kruskal-Wallis chart (Figure 5) shows the differences between the distributions. Detractors seem to disagree the most with the statement "Telecare is all in all a good service", whereas promoters agree most often.

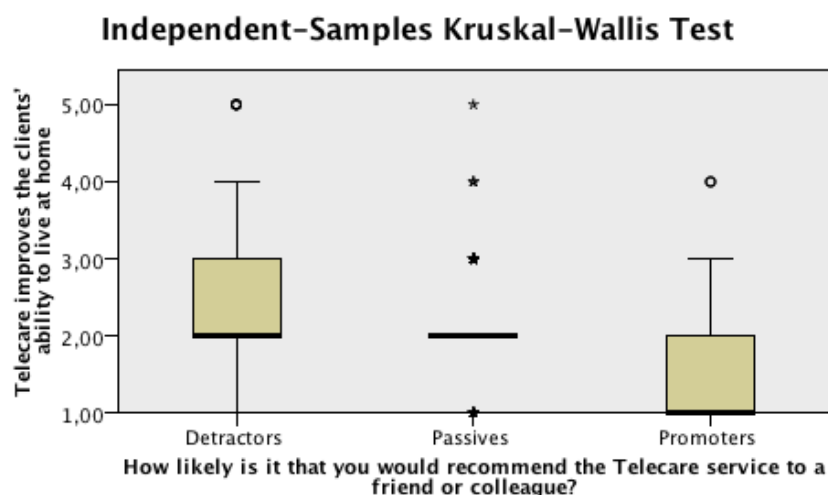


Figure 3. Kruskal-Wallis chart: Telecare improves clients' abilities to live at home and NPS

8.6 Summary of the results

- Out of the respondents who had either never or just a few times recommended the service to a client 41 % indicated that their clients would not have benefited from the service and 27 % answered that there is another person in the team who is responsible for placing the orders.
- The results showed that self-rated knowledge on the criteria for starting the Telecare service was greater for employees who had ordered Telecare service than for employees who had no previous ordering experience ($p=0,001$).
- The results showed that the employees who had placed Telecare orders thought more often that the service should be available with less criteria for their clients or future clients, than employees with no ordering experience ($p=0,032$).
- Most of the respondents ($> 70\%$) reported that digitalising the ordering sub-process was the most preferred development option. Results also showed that employees found the order-to-delivery time too long reported and some problems related to the technology of the service.
- Almost third of the respondents reported that making changes to an already existing Telecare contract is difficult.
- There is association between the NPS groups and employees' opinions regarding the ordering process. Firstly, the more the employee thought that the Telecare eases Home Care employees' workload, improves client's ability to live at home, or that the Telecare is all in all a good service, or that the service eases the workload of Home Care employees', the more likely she'd promote the service to her relatives or friends ($p<0,001$).
- There is association between the NPS groups and employees' opinions regarding the ordering process. The more positive preconceptions or experiences the employee had concerning Telecare, the more likely she would be to promote the service to her relatives or friends ($p<0,001$).

9 Discussion

This research was, to some extent, successful in finding answers to all three research questions, which concerned factors associated with employees' decision to order Telecare, employees' opinions on how to develop the ordering process and whether there is an association between their attitudes and willingness to recommend the service. In this chapter the most important topics regarding this research are discussed. The chapter is divided into three parts; firstly, the importance of this thesis and the results are discussed on a general level. This is followed by a somewhat more detailed discussion on employees' involvement and role in the order-delivery process. The third and fourth part return to the topics of developing the Telecare ordering process and digitalizing processes. Issues concerning research ethics and trustworthiness of the project are brought to the reader's attention in the end of this chapter. Finally, some concrete development suggestions, based on the results of the survey results, are presented.

Developing services in such a complex environment as social and health care, is anything but straightforward. Developing processes' effectiveness in this field is inevitably connected to ethical and various other aspects, which are particular to health care. This thesis project formed a part of a larger development process project, planned and organized by the Service Centre, which aims to develop intra-organizational processes and thereby provide better functioning services to Home Care clients. Even though the ordering process of Telecare is, as a municipal service, a fairly marginal sub-process, it certainly does have its effects on the service quality of a public, tax-funded service in Helsinki.

Telecare services aim to support Home Care clients' living, feeling safety and well-being at home, but also to solve resource issues in the Home Care. The amount of research evidence that supports the use of telehealth services at home is constantly growing and it could be concluded that these services are here to stay. As Kaveh Safavi, senior managing director for Accenture – an international professional services company dealing, among other things, with technological and digital consultation – stated in an interview for Helsingin Sanomat:

"We're not able to solve the problems due to aging population without developing alternatives to current care. To put simply, we'll run out of workforce." (Emme pysty ratkaisemaan ikääntyvän väestön tuomaa ongelmaa, ellemmme kehitä vaihtoehtoja nykyisille hoitomuodoille. Työvoima tulee yksinkertaisesti loppumaan.) (Hiilamo 2019.)

Perhaps the question really is not anymore so much of whether people will accept the telehealth services, but more importantly, how to ensure that these services reach the people who would benefit from them the most.

9.1 Employees involvement and role in the order-delivery process

The Harrington approach (1991) to Business Process Improvement (BPI) divides the process into five phases. This thesis is concerned particularly with the two first phases of Harrington's method, Organizing for improvement and Understanding the process, and its results bring forth information on relevant issues. Utilizing the experience and knowledge of employees operating in the customer interface is known to have its benefits in terms of service development and employees' wellbeing at work (Klemola et al. 2014: 6-7; Stenvall & Virtanen 2012: 191; Tuominen et al. 2015: 23-26, Manka et al. 2010). Through participation in this thesis project, a group of employees became involved in developing a process which, for most of them, is a part of their daily jobs. Their opinions and knowledge of the Telecare service and its order process are relevant most importantly because these employees act as "gatekeepers" in passing on information about the offered services of public Home Care to present or future clients.

Employees' attitudes and opinions on the Telecare service were investigated by two different questions. First, employees were asked, to what extent they agree with the statement "Telecare is all-in-all a good service". Another statement, "In my opinion, Telecare eases Home Care clients' ability to live at home" was presented in order to gain a slightly different perspective to employee opinions: Third indicator of the employees' attitudes was the Net Promoter Score, which measured answerers' willingness to recommend the service to others. In the light of the results of this study, employees' attitudes towards Telecare service were rather positive; most of the respondents felt that Telecare lightened the workload of Home Care employees, that it was, in general, a good service, and that the service improved clients' ability to live at home. These results match with previous studies' observations on professionals' attitudes towards telehealth services, such as Seppänen & Ramstedt-Sten (2014), Stenberg (2014), Kollveit et al. (2017), and Vuononvirta (2011).

The respondents of this Master's thesis survey worked directly with the customers, hence it is likely that they had either on a personal level, or as a part of the working community, benefited from the service. It could be speculated that they might have felt that the clients

were less lonely having Telecare in their use, or that they themselves actually gained more time for working with clients. In Vuononvirta's dissertation (2011: 50-51) the set-up was different in that the research data was collected through interviews from health centre employees, who had experience in using teleconferencing in practice, whereas in this Master's thesis study the questionnaire was sent to employees who do not use Telecare, but may inform their clients about it. Experiences in Vuononvirta's research included participating in teleconferencing, e.g. psychiatric nurses' and physicians' teleconsultations. Vuononvirta (2011: 50) conducted altogether 55 interviews, whereas 302 responses were collected using a web-survey for this Master's thesis.

Vuononvirta (2011: 43, 66) supposes that one of the reasons Health Care professionals may have been favourable towards Telecare service was that problems related to resources, such as insufficient number of physicians, seemed to be somewhat relieved by Telecare. Good outcomes were reached by using teleconferencing for meetings and education sessions between Health Care professionals. Despite the different research environments, this Master's thesis study's findings correlate to some extent with Vuononvirta's research findings: both studies report Health Care professionals' positive attitudes towards the service and highlight the importance of properly working technology.

Although several study results demonstrate positive atmosphere towards Telecare among nurses, this Master's thesis research indicates, however, partly something else as well: even if employees thought that Telecare had its benefits to both clients and professionals, all of them (25 %) would not, for various reasons, recommend the service to their friends or relatives. Further investigations on these reasons are needed. Kujala, Rajalahti, Heponiemi and Hilama (2018) evaluated the competence of a Finnish public health organization's employees in using eHealth, and their need for additional training in it. The organization in question aimed to increase the number of services provided to patients and professionals. This is a goal similar to that of the City of Helsinki – to increase the number of Telecare clients.

Karisalmi, Kaipio and Kujala (2018: 218) suggest that the Health Care personnel has the key role in motivating clients to use eHealth services, therefore the Health Care personnel should actively inform clients about the availability of the services and give encouragement in using them. This, however, requires interest of the personnels in the services and their knowledge on their benefits to clients. Kujala et al. (2018: 184) state that Health

Care personnels' role in encouraging and advising patients to use eHealth services may not be entirely clear to them. According to them:

(...) as a health professional's endorsement influences a patient's capacity to use eHealth services [4], health professionals need to be active and know how to motivate and guide patients (Karisalmi et al. 2018: 184).

Both Finnish studies (Kujala et al. 2018 and Karisalmi et al. 2018) point out relevant questions that should be asked also in trying to increase the number of Telecare clients in Helsinki: do the Health Care professionals understand the importance of their role in informing and motivating the clients, and are the professionals provided with sufficient amount of information about the availability of the services?

9.2 Developing the order-to-delivery process

Opinions of the Employees were asked on the most important development objectives regarding the ordering process of the Telecare service. As high a number of employees as 70 % suggested developing a digital order form to replace the old paper version. The results concerning digitalization might reflect Helsinki's positive atmosphere towards digitalizing services in general. One of the key goals of Helsinki's digitalization project "*Digitaalinen Helsinki*" is to utilize digital technology ways that benefit citizens and employees. The physical location of the city employees, organizational boundaries, or lack of information are, ideally, not going to act as barriers to development in the future. Employees' working time is freed up for tasks where they truly thrive. (DigiHelsinki 2019.) However, even if digital technologies can be taken quickly into use in an organization, identifying measurable benefits and finding out further opportunities for digitalization is a great, long-term challenge for organization leaders. (Lakaniemi 2014).

Digitalizing processes is only one of many, yet much used method of developing organizations' processes. Ilmarinen & Koskela (2015: 6.1-6.3) support the idea of transforming paper documents, such as the Telecare order placement document, into a digital version. They suggest viewing digitalization as a tool which supports business development and enables simultaneous business growth and increasing profitability. They state that the most certain benefits are found in lowering costs or preventing their growth. Automation, self-service, and decreasing the costs of printing, processing and mailing usually increase organizational efficiency.

As already presented in this thesis document, previous research supports the use of Telecare, because it has potential to promote feeling of safety at home (Karlsen et al. 2015), to work as substantive component of home care services (Graham et al. 2011), and to decrease the number of e.g. emergency room visits and hospital stays (Kamei 2013). In addition, remote rehabilitation interventions can be, according to e.g. a recent publication of the Social Insurance Institution of Finland, shown to at least as efficient as traditional face-to-face rehabilitation (Kela 2019). It might be worthwhile to consider whether allowing citizens to enter the sphere of Telecare services at an earlier stage than now is the case, could be efficient in preventing clients' loss of performance.

9.3 Digitalizing processes

The current Helsinki City Strategy states that city aims to make best possible use of digitalisation. Concrete steps were taken in early 2019, when a new digital program with five focus points – resident services, developing experiment culture, infrastructure, data, artificial intelligence and robotics, and managing digitalisation – was introduced. (Digitaalinen Helsinki 2019).

“Digitalisation promotes equality and cooperation and improves the well-being of Helsinki residents. Steps are taken by experimenting and learning. The journey is done together, in order for everyone to be able to live well, learn, experiment and work in Helsinki.” (Digitaalinen Helsinki 2019, free translation).

The second research question was about developing the order process from the employees' point of view. Employees' answers about the order process could reflect the Helsinki City's positive attitude towards digitalization; employees' most preferred multiple-answer choice on how to develop the ordering process, was to build a digital order platform. The existing order process is undoubtedly outdated and slow; the Home Care employee has to print the form from the intra net, fill it with a pen, get a signature from a Home Care client and either scan and use a secure e-mail service or fax machine to send the form to the Service Centre.

The results also point out that probably doing the ordering is not part of everyone's daily tasks and the responsibility for ordering the service lies only on some of the Home Care and Client Guidance Department employees. Nearly half of the employees with no order experiences indicated that someone else in their working team or unit was responsible for placing orders. This is relevant information especially for future research and service design or development process planners. The number of employees indicating that they

have never placed and order for Telecare service was rather high (37 %) and the most common reason for this was, that someone else was responsible for order placement on behalf of that particular team. This type of division of work tasks in Home Care seems to differ among the units, which raises the question whether this should be standard practise – or would it only add to the workload of a certain group of employees?

A little over half of the respondents indicated that there is lack of promotion material of the service which can be directed to both the client or his/her relatives. It is possible that the relatives' opinions or knowledge of the service affect the client's attitude towards the service. According to the statistics of the National Institute of Health and Welfare (2015), 23 % of the Home Care clients receiving regular service are diagnosed with a memory illness. This fact means that is a large group of Home Care clients that needs help with choosing the best suitable services.

Employees also wished for more promotion material, such as brochures or videos, that would be aimed only to the client. Even though the idea of paper brochures conflicts somewhat with the Helsinki City strategy of digitalizing services, there still exists a group of residents who don't have access to the internet and digital services. In the Home Care, almost 80 % of clients are over 75 year old (National Institute of Health and Welfare 2018). In the age group 75-85 only 23 % uses internet and 15 % has a smart phone (The Finnish Union for Senior Services 2018: 3). Hence a rather large group of people still today needs service information printed on paper.

9.4 Reliability and validity

The research process followed the ethical guidelines of Arene, The Rectors' Conference of Finnish Universities of Applied Sciences (2018). The guidelines and recommendations are based on legislation and on the ethics, policies and recommendations of international and national scientific communities (Arene Ry 2018: 2). To ensure the quality of the work, the validity and reability of the work should be assessed (Kananen 2011: 125).

The anonymity of the respondents was respected and no personal data was collected through the primary survey. The respondent was able to leave his/her e-mail address if he/she wanted to win movie tickets as a thank you for answering. In these cases, the

addresses were collected separately from the primary survey answers and deleted immediately after the winners had randomly been drawn. The collected data was stored practising the Safety Guidelines of City of Helsinki in the network of the City of Helsinki.

Researcher's position as an employee in the Service Center Helsinki gives every-day knowledge, experience and a good view into the field of the research, but may at the same time pose a danger of over-involvement. The writer has been aware of this, and the results were interpreted and discussed as objectively as possible. The survey questions were formulated in as neutral a way as possible, trying to avoid leading the responders' answers. Each respondent had the right not to participate in the research. Declining to participate the research, did not cause any additional work for the participant. The survey was pre-tested by some health care professionals and colleagues, who contributed to assessing whether the questions were clear and unambiguous.

All Home Care and Client Guidance Department employees were chosen for participation, which means that total sample of 1954 Home Care and 158 Client Guidance Department employees was used. External validity refers to the generalisability of the research findings to the population. With a sample of two thousand and response rate remaining at 15 %, there is a chance that the results does not represent the whole of the employees in the best possible way. This, on the other hand, is a very typical response rate to a web-survey. (Kananen 2011: 94, 126.) There was unfortunately no access to information about the number of employees not working due to e.g. sick leave or holiday at the time of the data collection, and therefore reasons for not receiving the survey, remained unknown. The survey was open for a period of three weeks, during which three reminders were sent. Noteworthy is that the survey period stretched over the Easter time, which is commonly a holiday season for employees. It is also possible that the respondents with generally more positive attitudes towards developing services and telecare in general, found answering the survey more appealing than employees with more negative opinions or no knowledge about the service at all.

The survey questions were designed following the principles of good questionnaire design from Easterby-Smith et al. (2015: 645–636). Some issues concerning content validity, whether the survey measured what it is meant to measure, need to be addressed. Using the word “recommend” is justified when using trademarked NPS measure. However, the question “Have you ever recommended the Telecare service to a client?” is problematic. In this context, the verb “recommend” (“suositella” in Finnish) contains the

nuance of the employee supposing that the Telecare service could benefit the client and, based on this assumption recommends the service. Perhaps a verb “inform” would have been more appropriate in finding out how many employees had talked about the Telecare service to their clients even though they were not quite sure about the suitability of the service or about client’s attitude towards such services.

Net Promoter Score is a commonly used Key Performance Indicator (KPI), yet it has faced some criticism too: if the respondent has no possibility to choose between two or more services, the index might be distorted. Additionally, respondents can be dissatisfied with the service, but might return to using it e.g. because of its low price. Another critique concerns deciding when to use NPS. It doesn’t suite well for investigating single bad customer experiences, which won’t affect respondent’s intentions to use the service in the future. Also, respondents tend to answer either with the lowest or highest possible evaluation number, “just to make things clear”. (Päivärinta 2019.) Referring to Päivärinta’s (2019) observations about the usability of NPS in different situations, it is fair to say that the NPS might not be the best KPI for the Telecare service since the service, at present, has no competitors. Measuring NPS and defining the Net Promoter Index allows the organization to define one simple score (“index”) for the service under examination (Marr 2012, section 19) - in this case, for the Telecare service. Division between NPS promoters, passives and detractors was quite similar between Home Care and Client Guidance Department. However, the difference between the group sizes was so large that comparing the indexes between the two can be somewhat misleading. Among all respondents, the Net Promoter Index for the Telecare service was 6, which alone doesn’t tell much about the service, but through repeated measurements could act as a benchmark score. Also, if there were competitive services available for the customers, these indexes could be compared. Maximum possible NPS is +100 and anything above zero is considered a good score. However, the score of 6, found in this survey, shows that there is room for improvement.

Easterby-Smith, Thorpe, Jackson 2015: 392 suggest that in order to gain in-depth information about opinions and attitudes and truly understand respondents’ thoughts on the topic, a qualitative research method, such as interview, might be an appropriate research method.

10 Conclusion

Telecare services are rapidly gaining ground in Finland. The more common this type of services get, the more important it will be to provide clear instructions and recommendations on how to implement the service in already existing operating models, in order to provide public services that benefit both the citizen and the health care service provider. As brought up, developing social and health service processes should be done in collaboration between service providers and customers. However, the most suitable development method depends fully on the situation. Developing social and health services sets its own particular challenges, e.g. in terms of ethics.

Regarding the Telecare and its ordering process, employees hoped for digitalised version of the order placement form, shorter delivery times and more Telecare promotion material. In the light of the results, NPS seems to reflect the opinions towards the service: the more the employee agreed Telecare being a good service in general, the more likely she was to promote the service.

The primary goal of developing service processes' efficiency in the public sector is to provide high quality services at the right point of time, even despite scarce resources. This thesis provides some information for developing service processes, highlighting the employee perspective. To reach even deeper understanding of the process activities and the attitudes towards the service, further research is needed.

Finally, some suggestions for future development and research topics. One of the findings, derived from employees' survey answers, was that the time between the order and the delivery of the service is too long. In developing the Telecare service further it would be necessary to know which activities in the service processes are most time-consuming. Which factors influence the lead times? Another issue that was brought up concerned difficulties relating to the technology. Employees pointed out that clients' Telecare devices do not always work. What are the key issues related to technology? Is the technology which is now in use truly not working well, or is there simply lack of knowledge on how to use it – either on the customers' or on the employees' side?

The research results show that the employees with previous ordering experience supported the idea of the Telecare service being available to clients or at least to future

clients with less criteria than what is the case today. Those employees with no order experience were less inclined to think so.

The only criteria for starting Telecare service is that the client has to have a need for a home care visit. In any case, there seems to be a need to review today's criteria for receiving Telecare. For instance a customer, who fills the criteria for remote physiotherapy, but doesn't have a need for any regular Home Care service – let's say for example medicine supervision – isn't necessarily entitled to Telecare service.

Sometimes the timing in bringing up the subject of Telecare service becomes an issue regarding the OTD process. Perhaps the initiative to start the service appears at the wrong time, and the client just does not meet the criteria for starting the service at that point. Sometimes, again, the client may need more time to think about using such service. What happens after a rejected initiative?

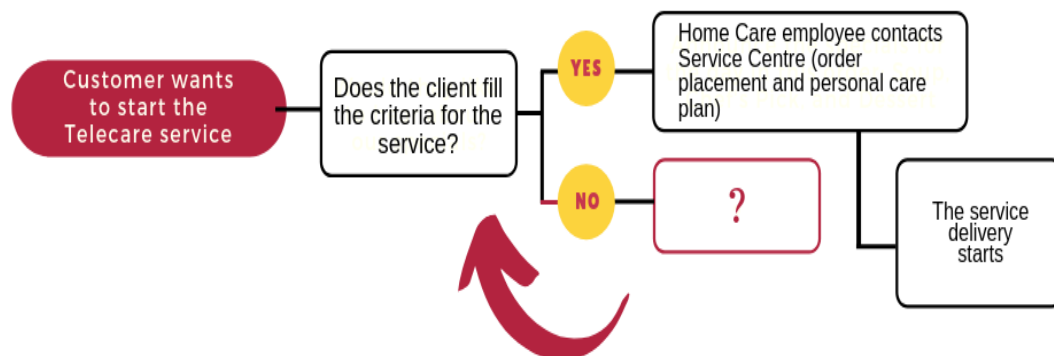


Figure 9. What happens after a rejected client initiative?

Is there someone responsible for contacting the client again and assessing the suitability for the service again at a later point of time (Figure 9)? This matter, among others, should be addressed in the next process modeling.

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Cover letter



Hyvä kotihoidon tai asiakasohjauksen työntekijä,
KERRO MIELIPITEESI ETÄHOITOPALVELUSTA JA VOITA LEFFALIPUT!

Linkki kyselyyn: [\[REDACTED\]](#)

Kehitämme etähoitopalvelua kartoittamalla kotihoidon ja asiakasohjauksen työntekijöiden mielipiteitä etähoitopalvelusta ja keskitymme tässä kyselyssä itse etähoitopalvelun lisäksi erityisesti etähoidon tilaamiseen. Palvelun tilaaminen on pääasiallisesti kotihoidon ja asiakasohjauksen työntekijöiden vastuulla, jonka vuoksi mielipiteesi palvelun toimivuudesta on palvelun kehittämisen näkökulmasta äärimmäisen tärkeä. **Vastaamiseen kuluu aikaa n. 2-5 minuuttia.**

Kysely on anonymi, eli emme kykene tunnistamaan vastaajaa vastauksista. Vastattuasi kyselyyn, voit osallistua leffalippujen arvontaan jättämällä vastauskenttään sähköpostiosoitteesi. Sähköpostiosoitteet kertyvät eri vastausrekisteriin, eivätkä vaikuta itse kyselyn anonymiteettiin.

Kyselyn anonymiä vastauksia hyödynnetään Palvelukeskus Helsingin etähoitopalvelun kehitysprosessissa ja tausta-aineistona asiakasvastaava Meri Koskelan YAMK-opinnäytetyössä.

Kerron mielelläni kyselytutkimuksesta ja etähoitopalvelusta lisää.

Aurinkoisin talviterveisin,

Meri Koskela

Eija Metsälä

Opiskelija, asiakasvastaava
[REDACTED]
[REDACTED]
[REDACTED]

Dosentti, FT, RH, Yliopettaja

Questionnaire



Etähoito ja tilauskäytännöt -kysely kotihoidon ja asiakasohjauksen henkilöstölle VASTAA JA VOITA LEFFALIPUT!

Kehitämme etähoitopalvelua kartoittamalla kotihoidon ja asiakasohjauksen työntekijöiden mielipiteitä etähoitopalvelusta ja keskitymme tässä kyselyssä itse etähoitopalvelun lisäksi erityisesti etähoidon tilaamiseen.

Palvelun tilaaminen on pääasiallisesti kotihoidon ja asiakasohjauksen työntekijöiden vastuulla, joten mielipiteesi palvelun toimivuudesta on palvelun kehittämisen näkökulmasta äärimmäisen tärkeä. Vastaaminen on kuitenkin vapaaehtoista.

Vastaamiseen kuluu aikaa noin 2-5 minuuttia.

Vastaat tähän kyselyyn nimettömänä

Kun piilotettua identiteettiä käytetään kyselyissä, vastauksen yhteyteen ei tallenneta tunnistetietoja, kuten selain- ja käyttöjärjestelmätietoja, vastaajan IP-osoitetta tai sähköpostiosoitetta. Piilotettu identiteetti suojaa vastaajan henkilöllisyyttä.

1) * Oletko joskus...

	Kyllä, säännöllisesti	Kyllä, mutta epäsäännöllisesti tai vain joitakin kertoja	En ikinä
suositellut etähoitopalvelua asiakkaallesi Palvelukeskus Helsingiltä?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tilannut etähoitopalvelun asiakkaallesi Palvelukeskus Helsingiltä?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2) * Missä määrin olet samaa tai eri mieltä seuraavista väitteistä

	Täysin samaa mieltä	Jokseenkin samaa mieltä	En samaa enkä eri mieltä	Jokseenkin eri mieltä	Täysin eri mieltä	En osaa sanoa
Tiedän, millä kriteereillä etähoitopalvelu on mahdollista käynnistää	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Asiakas suhtautuu usein myönteisesti ajatukseen etähoidosta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Koen, että etähoitopalvelu helpottaa kotihoidon työntekijöiden työmäärää	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Etähoito on kaiken kaikkiaan hyvä palvelu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Asiakkaan etähoitopalvelu helpottaa kotihoitajien työmäärää	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Etähoito helpottaa asiakkaan kotona asumista	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Etähoito pitäisi voida käynnistää kevyemmin perusteiden asiakkaalle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Seuraava >>](#)

Tämä ruutu näkyy ainoastaan esikatselutilassa.

Seuraavien ehtojen on täyttyvä, jotta tämä kysymys olisi näkyvissä:

- Jos kysymys "suositellut etähoitopalvelua asiakkaallesi Palvelukeskus Helsingiltä?" sisältää minkä tahansa seuraavista
- "En ikinä"
 - "Kyllä, mutta epäsäännöllisesti tai vain joitakin kertoja"

3) * En ole koskaan suositellut, tai olen suositellut palvelua vain harvoin, koska

- En tiedä tarpeeksi hyvin, mitä etähoitopalvelu on
- Työssä on liian kiire, enkä ehdi ottaa asiaa puheeksi
- En koe suosittelevan olevan osa työtäni
- Etähoidosta ei olisi ollut asiakkailleni hyötyä
- Asiakkaani eivät ole täyttäneet kriteerejä etähoidon käynnistämiseksi

— — — — —

Tämä ruutu näkyy ainoastaan esikatselutilassa.

Seuraavien ehtojen on täyttyvä, jotta tämä kysymys olisi näkyvissä:

- Jos kysymys "tilannut etähoitopalvelun asiakkaallesi Palvelukeskus Helsingiltä?" sisältää minkä tahansa seuraavista
- "En ikinä"
 - "Kyllä, mutta epäsäännöllisesti tai vain joitakin kertoja"

4) * En ole koskaan tilannut, tai en ole säännöllisesti tehnyt tilauksia, koska

- Asiakas/asiakkaat eivät ole suostuneet palvelun käynnistämiseksi
- Tiimissämme palvelun tilaamisesta huolehtii toinen henkilö
- En tiedä, miten etähoitopalvelu tilataan
- Muu syy, mikä?

Seuraava >>

5) * Arvioi seuraavia etähoidon tilaamiseen liittyviä vaiheita

	Ei vaikeaa, eikä helppoa					En osaa sanoa
	Todella vaikeaa	Jokseenkin vaikeaa	Jokseenkin helppoa	Kiitettävän helppoa		
Tilauslomakkeen löydettävyys	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Etähoidon tilauslomakkeen täyttäminen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Etähoidon tilauslomakkeen lähettäminen Palvelukeskukselle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Muutosten tekeminen jo käynnissä olevaan etähoitosopimukseen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Seuraava >>

6) * Kuinka todennäköisesti suosittelet etähoitopalvelua omalle ystävällesi, kollegallesi tai omaisellesi? 0 = en missään tapauksessa, 10 = ehdottomasti suosittelet

0 1 2 3 4 5 6 7 8 9 10

Seuraava >>

Tämä ruutu näkyy ainoastaan esikatselutilassa.

Seuraavien ehtojen on täyttyvä, jotta tämä kysymys olisi näkyvässä:

Jos kysymys "Kuinka todennäköisesti suosittelet etähoitopalvelua omalle ystävällesi, kollegallesi tai omaisellesi? 0 = en missään tapauksessa, 10 = ehdottomasti suosittelet" sisältää minkä tahansa seuraavista

- "6"
- "5"
- "4"
- "3"
- "2"
- "1"
- "0"

7) * En suosittele, tai en kovin todennäköisesti suosittele palvelua läheiselleni, sillä

- Palvelun laatu ei ole riittävän hyvä
- Läheiseni tarvitsisi sen kielistä etähoitopalvelua, jota ei nyt ole tarjolla
- En usko palvelun kohentavan läheiseni elämänlaatua tai mahdollisuutta asua kotona
- Muu syy, mikä?

Seuraava >>

8) * Miten voisimme kehittää etähoitopalvelun suosittelemiseen ja tilaamiseen liittyviä asioita?

- Digitaalinen tilauslomake paperilomakkeen tilalle
- Palvelukeskuksen chat-asiakaspalvelu kotihoidon ja asiakasohjauksen henkilökunnalle
- Lisää omaisille suunnattua "markkinointimateriaalia" (esim. videot, esitteet)
- Lisää asiakkaille suunnattua "markkinointimateriaalia" (esim. videot, esitteet)
- Tilausprosessia ei tarvitse kehittää
- Jotenkin muuten, miten?

Seuraava >>

9) * Olen

- Kotihoidon työntekijä
- Asiakasohjauksen työntekijä
- Töissä jossain muussa yksikössä, missä?

[Seuraava >>](#)**10) * Työskentelen**

- Eteläisessä kotihoitoyksikössä
- Keskisessä kotihoitoyksikössä
- Itäisessä kotihoitoyksikössä
- Kaakkoisessa kotihoitoyksikössä
- Lounaisessa kotihoitoyksikössä
- Läntisessä kotihoitoyksikössä
- Koillisessa kotihoitoyksikössä
- Pohjoisessa kotihoitoyksikössä
- Työskentely-yksikköni on jokin muu, mikä?
- En halua vastata tähän kysymykseen

Jos kysymys "Olen" sisältää minkä tahansa seuraavista

- "Asiakasohjauksen työntekijä"

11) * Työskentelen

- Eteläisessä asiakasohjauksessa
- Itäisessä asiakasohjauksessa
- Läntisessä asiakasohjauksessa
- Pohjoisessa asiakasohjauksessa
- Ruotsinkielisessä asiakasohjauksessa
- Seniori-infossa
- Muualla, missä?

12) Ammattinimikkeeni on

- sairaanhoitaja
- terveydenhoitaja
- perus-/lähihoitaja
- kotihoidon ohjaaja
- kotihoidon päällikkö
- Sosiaaliohjaaja