

Sole Molander

## **PRODUCTIVITY AND SERVICES – SAFETY TELEPHONE SERVICES FOR THE ELDERLY**

Dissertation for the degree of Doctor of Philosophy (Industrial Engineering and Management) to be presented with due permission for public examination and criticism in the Auditorium of Lahti Ski Museum, Lahti, Finland on the 15<sup>th</sup> of November, 2013, at 12 noon.

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## ABSTRACT

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Previous research on productivity is often associated with manufacturing or uses manufacturing definitions of productivity. Marketing research on services has not been satisfied with the manufacturing definitions. No universal definition for service productivity exists. The lack of a universal definition highlights the complexity entailed in the concept of productivity. The objective of this study was to investigate service productivity in situations, where traditional ways are in some cases even not possible or are not enough.

In one definition of the productivity of service organisations there is the efficiency of the organisation on the input side and on the output side the customers' perceived quality or value-in-use. To learn about value-in-use, many methods have been developed. A common practice is to make customer opinion surveys in the form of customer questionnaires and interviews. However, customers cannot always be asked directly, for example, because of impaired cognitive abilities. Such cases include the elderly and children. Furthermore, customer opinion surveys are time consuming. In addition, customers do not always know what kind of services they would benefit from.

For the empirical part of the study, a business area was identified where traditional ways of measuring value-in-use are difficult or in some cases even not possible. This business area is

safety telephone services. These services are most often used by the elderly. The way to define value-in-use here was to assess how well the services offered met customer expectations. Comparing the services customers asked for and the services provided to them indicated whether customer expectations were met. This study showed that customers had their ideas concerning the contents of the services but many times the services provided did not meet these expectations.

Organisational efficiency aspirations can decrease customers' value-in-use. This study found a solution, in which increasing organisational efficiency would go hand-in-hand with increasing customers' value-in-use; the result being that the organisations' needs and the service users' expectations were in line. Value creation for customers produced organisational efficiency and thus increased productivity.

In this study, customer expectations were observed by means of wellness technology. With the help of modern technology, customer expectations can be followed quickly and easily and customers can co-create with the organisation. This type of an approach could be useful even in the development of other services for other ages and in different contexts.

If a service organisation decreases the number of personnel and, at the same time, tries to offer services to the same or a larger clientele, customers easily notice the change, which is often negative. To avoid harmful decrease in value-in-use, limitations to the aspiration of efficiency should be implemented – one of such is that the organisation is required to meet certain quality standards defined by experts. The aim is to secure that, as a result of efficiency aspirations in the organisation, the quality of the service offerings does not diminish below mutually agreed standards.

Traditionally, when productivity in services has been estimated, organisational efficiency has not been combined with both customer expectations and an expert assessment of quality. This study contributes with novel thinking entitled 'Relationship Management of the Elderly'. This study handles productivity, expert defined quality and value-in-use in an organisational context, which is practically untouched in previous research studies.

Keywords: Call centre, effectiveness, efficiency, expert defined quality, productivity, safety  
telephone services, value-in-use

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Sole Molander

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## THE MAIN CONCEPTS

This chapter lists the main concepts and defines them in the way they are used in this study.

**Call centre** is a service unit that receives telephone calls. A call centre can be inbound, for instance, receiving orders and reservations and giving advice or sending help when asked. It can be outbound, for instance, selling and marketing. It can also be both inbound and outbound.

**Customer** refers to the end user of goods and services. Some researchers make a difference between a customer and a client in that a protective, ongoing business relationship is formed with a client, but not necessarily with a customer.<sup>1</sup> Here we do not make such difference.

A **contact centre** is a call centre service unit, which receives contacts through various parallel channels, such as telephone, mobile phone, email, internet and digital TV. A contact centre can be inbound, outbound or both.

A **crisis line** receives and handles people's calls, which mainly deal with psychosomatic and social problems. A crisis line operator tries to solve acute problems in cooperation with the person calling.

**Effectiveness** of services is the ability to produce the kind of effect that the customers desire; doing the right things.<sup>2</sup> Effectiveness deals with setting the right aims to achieve an overall goal (the effect) and then ensuring it is accomplished. Effectiveness is on the output side of production.<sup>3</sup>

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<sup>1</sup> www.wisegeek.com, 2010.

<sup>2</sup> Drucker, P. (2004). 'The Daily Drucker: 366 Days of Insight and Motivation for Getting the Right Things Done.' New York, New York, USA: HarperCollins.

<sup>3</sup> Ojasalo, K.. (1999). 'Conceptualizing Productivity in Services'. Helsinki, Finland: Swedish School of Economics and Business Administration.

**Efficiency** in an organisation means doing things right, doing things in the most economical way, getting the most from the resources. Efficiency is on the input side of production.<sup>4</sup>

An **emergency response centre** receives emergency calls through a particular emergency telephone number. The EU wide number is 112. In the USA the number is 911.

**Expert defined quality** means here expert based evaluation of quality.

**Gerontechnology** is concerned with research, development, and implementation of technologies for the purposes of the elderly population<sup>5</sup>

A **helper** is, in the safety telephone context, an employee or other person, who will provide the requested physical help for the safety telephone user, after a call centre operator has received and processed the help request. Helpers can also be the same people who act as operators in a small safety telephone network.

An **operator** is a person working at a call centre. A safety telephone call centre operator receives safety telephone alarm calls, handles them, and forwards the requests to helpers and others in the safety telephone service network.

The **productivity** of a service organisation in this study integrates an organisation's input concept of efficiency and the organisation's output concepts of value and quality.

**Quality** in services can be defined as the production of the kind of services that customers need.<sup>6</sup> Quality in this study is defined by experts.

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<sup>4</sup> Ojasalo, K.. (1999). 'Conceptualizing Productivity in Services'. Helsinki, Finland: Swedish School of Economics and Business Administration.

<sup>5</sup> Bouma, H. (1998). 'Gerontechnology: Emerging Technologies and Their Impact on Ageing in Society.' In Graafmans, J., Taipale, V. and Charness, N. (eds.). 'Gerontechnology: A Sustainable Investment in the Future.' Amsterdam, The Netherlands: IOS Press.

<sup>6</sup> Deming, W. (1986). 'Out of the Crisis.' Cambridge, Massachusetts, USA: Massachusetts Institute of Technology, Center for Advanced Engineering Study.

A **quality criterion** is a measure, which tells what kind of quality is aimed at. Quality criteria for safety telephone services define those actions and knowhow, which guarantee that the users of safety telephone services can always contact the operators of the safety telephone call centre and get physical help.

A **safety telephone** is a telephone-connected device, which can be used to make an alarm call, by pressing a button. An integral part of a safety telephone is a wristband for the user or a pendant around the neck. An alarm call is made by pressing a button either on the safety telephone device itself or on the wristband or the pendant. Safety telephones can provide a loudspeaker voice connection to the call centre. There are some accessories for safety telephones, which function automatically, such as door alarms, epilepsy alarms, fire alarms, medication delivery boxes, and sensitive floors. There are safety telephones, which automatically make an alarm call when triggered by changes in body functions. Another new technology is a mobile safety telephone. These are being tested and also commercially available. Different expressions are used when talking about safety telephones. Some call it a safety alarm,<sup>7</sup> some a social alarm.<sup>8</sup>

A **safety telephone call centre** receives safety telephone alarm calls by customers. It also receives technical alarm calls triggered by the safety telephone system. Operators forward help requests to helpers or other parties in the network. Call centres also document the alarm calls.

**Safety telephone services** are the whole set of services, when a safety telephone customer contacts a safety telephone call centre and an operator starts actions so that the safety telephone user receives physical help. There are different public and private sector services including call centres, helpers, technical support, and apparatus vendors. In safety telephone

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<sup>7</sup> van Berlo, A. (1998). 'How to Enhance Acceptance of Safety Alarm Systems by Elderly?' In Graafmans, J., Taipale, V. and Charness, N. (eds.). 'Gerontechnology: A Sustainable Investment in the Future.' Amsterdam, The Netherlands: IOS Press.

<sup>8</sup> European Standards (2003). 'EN 50134-7, Alarm Systems – Social Alarm Systems, applications.' Brussels, Belgium: European Committee for Electro-technical Standardisation.

services Lehto and Vuoksenranta<sup>9</sup> include customers, a call centre and safety helpers, who provide help to the customers after an alarm call has been made. Komminaho<sup>10</sup> includes in safety telephone services, in addition, its appliances, reception of alarms and help to the customers after the alarm calls. Melkas<sup>11</sup> includes, in addition, telephone installers and medical institutions, such as health centres and hospitals as essential parts of safety telephone services. This present study includes in safety telephone services everything that a customer needs to receive help and answers through safety telephones. Even marketing safety telephones can be considered part of safety telephone services.

**Safety telephone technical personnel** are responsible for installing safety telephone devices and keeping them operational. Technical personnel can be employees of safety telephone service providers or they can be employed by an outside organisation with which the safety telephone service provider has made a deal.

A **safety telephone user** is a person, who has a safety telephone device at home as a personal safety device. In this study the user is the customer.

**Service** is a process where service users are offered something that is produced and consumed at the same time and that brings them added value, time savings, ease, comfort, joy, health etc.<sup>12</sup> The production of services can include material products, but services themselves are immaterial and do not always bring about ownership of the material parts of the process.<sup>13</sup>

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<sup>9</sup> Lehto, M-L. and Vuoksenranta, A. (1999). 'Valtakunnallinen selvitys kuntien turvapuuhelinpalveluista (National Study of Communal Safety Telephone Services).' Thesis. Kuopion yliopisto, kansanterveystieteen ja yleislääketieteen laitos (University of Kuopio, School of Public Health and Family Medicine), Kuopio, Finland.

<sup>10</sup> Komminaho, A. (1999). 'Turva- ja asiointipalvelut: uusi toimintamalli (Safety and Running Errands Services: a New Standard of Activity).' Pori, Finland: Satakunnan Makropilotti ry.

<sup>11</sup> Melkas, H. (2004). 'Towards Holistic Management of Information within Service Networks: Safety Telephone Services for Ageing People.' Dissertation. Helsinki University of Technology Lahti Center, Espoo, Finland.

<sup>12</sup> Zeithaml, V. and Bitner, M. (2000). 'Services Marketing.' Boston, Massachusetts, USA: McGraw-Hill.

<sup>13</sup> Lovelock, C., Wandermerwe, S. and Lewis, B. (1999). 'Services Marketing. A European Perspective.' London, England: Prentice Hall.

Service organisations have adopted **service logic** when they understand that in a service process value-in-use is created for customers.<sup>14</sup> Value is determined in the use of services by the users.

A **service organisation** is an organisation, where providing a mix of services to customers is the main purpose.<sup>15</sup>

A **technical alarm** is an alarm caused by some technical fault in the safety telephone system.

**Value** is created for customers. Value creation is the customers' creation of **value-in-use**.<sup>16</sup>

**Wellness technology** means technological solutions to support social care services and health care services.

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<sup>14</sup> Grönroos, C. (2011). 'Value Co-creation in Service Logic: A Critical Analysis.' *Marketing Theory*, 11(3), 279-301.

<sup>15</sup> Ylikoski, T. (2000). 'Unohtuiko asiakas? (Was the Customer Forgotten?)'. Keuruu, Finland: Otavan Kirjapaino Oy.

<sup>16</sup> Grönroos, C. (2011). 'Value Co-creation in Service Logic: A Critical Analysis.' *Marketing Theory*, 11(3), 279-301.

*'What is it?' said Moomintroll.*

*Discoveries were his very favourite thing*

*(after mysterious paths, swimming and secrets, that is).*

Finnish author Tove Jansson, *Comet in Moominland* (1955)

## 1 INTRODUCTION

This study addresses productivity in services. The introductory chapter first outlines the background and the objective of the study. Secondly, it gives a brief overview of the definitions. Thirdly, it presents research methods and finally the structure of the study. This chapter shows the motives for the study, and why the selected subject is a relevant field of study.

### 1.1 Background

To increase productivity is often the objective of organisational studies. It has long been understood that the sustainability of any organisation depends on well managed productivity. Productivity and quality management theories have been developed particularly for the needs of manufacturing industries. Productivity in manufacturing is mostly defined by output divided by input.

Economists also use the manufacturing measurement of productivity and tend to measure productivity so that quality is changed into quantity. According to OECD proceedings these give productivity growth numbers that are too slow in services.<sup>17</sup> In the international economy, comparing national economies according to their productivity is important, but can be misleading because of the inadequacies of measuring service productivity. Grönroos has shown that there are measurement problems for productivity in services, if only the productivity concepts of manufacturing are used.<sup>18</sup>

Within national economies the productivity of different sectors is compared. Sectors with high productivity numbers tend to have higher wages than those sectors, which are measured as having low productivity numbers. If productivity is not understood and measured appropriately in services, the wage increases for the service sectors are in danger of being left behind those of the wages in the highly technological manufacturing sectors. We can already

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<sup>17</sup> OECD Proceedings (2001). 'Innovation and Productivity in Services.' OECD, Paris, France.

<sup>18</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

see this in that the wages in the female dominated service sectors lag behind the wages in the male dominated manufacturing sectors.<sup>19</sup>

The role of the service sector in the global economy is growing. In addition, in manufacturing, production is interlinking with services. Technical Research Centre of Finland research studies show that increases in services are driven by changes in the economy, such as globalisation, technology, ageing of the population, and growing demands as regards the value of services.<sup>20</sup> In services, output divided by input gives the efficiency part of productivity. Moreover, the effectiveness part, which includes subjective evaluations of quality, has to be taken in consideration. This service outcome forms an essential part of the service productivity estimation. Gummesson has emphasised that, when customers receive services and value emerges from the goods and services, it is the outcome and not the input that counts.<sup>21</sup> Käpylä et al. defined services as processes, and that the productivity of a service process is related to how efficiently and effectively input resources are transformed into customer use.<sup>22</sup> In services the efficiency of an organisation matters but so does effectiveness.

There are two ways of measuring productivity, measuring the level or the change.<sup>23</sup> When estimating productivity we cannot always use quantity and monetary measures for service output. For instance, the public sector does not have market prices. Effectiveness is hard to represent as numbers. Measuring service productivity is important, but it is not straight forward to measure. Grönroos<sup>24</sup> has extensively discussed the productivity of services. Ojasalo<sup>25</sup> has presented a conceptualisation of service productivity, which takes into account the characteristics of services and service production. To shed light onto different kinds of

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<sup>19</sup> Tilastokeskus (2012). 'Palkat ja työvoimakustannukset 2012, Wages, salaries and labour costs 2012'. Tilastokeskus: Helsinki Finland.

<sup>20</sup> Vähä, P., Kettunen, J., Ryyänen, T., Halonen, M., Myllyoja, J., Antikainen, M. and Kaikkonen, J. (2009). 'Palvelut muokkaavat kaikkia toimialoja (Services are shaping all industries)'. VTT tiedotteita 2508 (VTT Technical Research Centre of Finland Research Notes 2508). Helsinki, Finland: Edita Oy.

<sup>21</sup> Gummesson, E. (2008). 'Customer Centricity: a Reality or a Wild Goose Chase?' *European Business Review* 20(4), 315-330.

<sup>22</sup> Käpylä, J., Jääskeläinen, A. and Lönnqvist, A. (2010). 'Productivity Improvement in Finland: Challenges and Research Needs for the Future.' *International Journal of Productivity and Performance Management*, 59(7), 607-623.

<sup>23</sup> Uusi-Rauva, E. (ed.) (1997). 'Tuottavuus – mittaa ja menesty (Productivity – Measure and Succeed)'. Helsinki, Finland: Kauppakaari Oy.

<sup>24</sup> Grönroos, C. (2007). *Service Management and Marketing*. Chichester, England: John Wiley & Sons Ltd.

<sup>25</sup> Ojasalo, K. (1999). 'Conceptualizing Productivity in Services.' Helsinki, Finland: Swedish School of Economics and Business Administration.

service organisations' productivity, more research is needed into public, private, and third sector services. The third sector means the sphere of social activity undertaken by organisations, which are non-profit and non-governmental.

When organisations provide services they form relationships with their customers. In these relationships a key issue is whether organisations want to aim at adopting service logic. According to Grönroos, this means that the whole relationship between an organisation and its customers, with all the various contacts, co-creative processes, and communication elements are managed appropriately.<sup>26</sup> According to customer relationship management (CRM) theories, which were first introduced by Reichheld,<sup>27</sup> customer satisfaction is conducive to enhancing customer relations and it is profitable for an organisation to have good customer relationships.

## 1.2 The objective of the study

Research studies such as the one by Jääskeläinen<sup>28</sup> have shown that measuring the productivity of different service sectors has brought tedious methods and inaccurate results. The objective of this present study is to investigate service productivity in situations, where traditional ways are in some cases even not possible or are not enough. This study looks at effectiveness and even efficiency without measuring them numerically. The service environment is highly demanding and productivity is difficult to assess in numbers.

Top management decisions and decisions concerning all business functions should be made taking into account the consequences to customers. The Nordic School<sup>29 30</sup> of management is based on customer understanding. It has encouraged qualitative research and conceptual development about service management. According to the Nordic School conceptual work can provide fresh perspectives to new and changing situations. This study develops further

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<sup>26</sup> Grönroos, C. (2007). *Service Management and Marketing.* Chichester, England: John Wiley & Sons Ltd.

<sup>27</sup> Reichheld, F. (1996). 'The Loyalty Effect. The Hidden Force Behind Growth, Profits, and Lasting Value.' Boston, Massachusetts, USA: Harvard Business School Press.

<sup>28</sup> Jääskeläinen, A. (2009). 'Identifying a Suitable Approach for Measuring and Managing Public Service Productivity.' *Electronic Journal of Knowledge Management*, 7(4), 447-458.

<sup>29</sup> Grönroos, C. (2007). *Service Management and Marketing.* Chichester, England: John Wiley & Sons Ltd.

<sup>30</sup> Berry, L. and Parasuraman, A. (1993). 'Building a New Academic Field – The Case of Services Marketing.' *Journal of Retailing*, 69(1), 13-60.

those practices that are already in use and gives recommendations to avoid possible weaknesses in the process of understanding productivity.

As Grönroos<sup>31</sup> pointed out, a service process is a series of encounters, where employees and customers, supported by systems and technology, meet and co-create. These service encounters create relationships and value is created for customers. Value creation is the customers' creation of value-in-use. Lovelock's<sup>32</sup> research studies showed that if service encounters are well taken care of, relationships have a possibility to develop satisfactorily. Kotler<sup>33</sup> showed that, if customers are not well taken care of, value is reduced, and the service provider may lose customers. Grönroos<sup>34</sup> concluded that the main focus in obtaining results is the continuous management of services and customer relationship management. Adequate support from managers and supporting functions is needed, as well as investments in technology. If customers are dissatisfied with what they experience, then the efforts in providing services can be in vain. Quality becomes more important as markets become more competitive.<sup>35</sup>

Grönroos<sup>36</sup> reminded us that the customers' engagement is considered a prerequisite for successful service provision. Insights from customer engagement literature can be beneficial in the context of social services. Customer engagement can be promoted through technology. In accordance with these ideas this present study addresses the research gap in the conceptual understanding of productivity in services and what could be done to improve services both from the organisation's and the customers' point of view.

It is vital to determine what the organisation's needs are and what the service users' expectations are. An organisation's efficiency and productivity are often thought in services

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<sup>31</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>32</sup> Lovelock, C. (1992). 'Managing Services. Marketing, Operations, and Human Resources.' Englewood Cliffs, New Jersey, USA: Prentice Hall.

<sup>33</sup> Kotler, P. (1997). 'Marketing Management. Analysis, Planning, Implementation, and Control.' Upper Saddle River, New Jersey, USA: Prentice Hall.

<sup>34</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>35</sup> Sivabrovornvatana, N., Siengthai, S., Krairit, D. and Paul, H. (2005). 'Technology Usage, Quality Management System and Service Quality in Thailand.' *International Journal of Health Care Quality Assurance*, 18(6), 413-423.

<sup>36</sup> Grönroos, C. (2011). 'Value Co-creation in Service Logic: A Critical Analysis.' *Marketing Theory*, 11(3), 279-301.

as conflicting demands on the quality and value of the services produced. Better value can be acquired by, for instance, increasing the number of staff, which at the same time increases costs and thus may decrease organisational efficiency and productivity. It is crucial to study whether we can find those cases in which increasing organisational efficiency goes hand-in-hand with increasing customers' value-in-use so that organisations' needs and service users' expectations are in line and productivity is improved.

To understand productivity in services, this study refers to the theoretical discussion of technical quality (what is received) and customer perceived quality (how it is received).<sup>37 38 39</sup> <sup>40</sup> Several scholars like Deshpande,<sup>41</sup> Peter<sup>42</sup> and Zaltman<sup>43</sup> have recommended consumer and personnel interview procedures for marketing theory development. This study suggests that technical quality is defined by experts and customer perceived quality defined by customers' value-in-use. They both need to be studied, and theories and conceptual understanding should be increased. Productivity can focus on real goals and effects, which productivity improvement tries to achieve. Then it would be possible to move from quantity to combined expert defined quality and customers' value-in-use. Social and health services especially could consider this and also other more long term impacts.

Expert defined quality and customers' value-in-use are considered in this study as important parts of service outcome and the organisations' productivity. Quality can be defined as the production of the kind of services that customers need.<sup>44</sup> Quality is not a customer opinion

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<sup>37</sup> Liu, L. (2010). 'Operationalizing Service Quality: Providers' Perspective.' Northeast Decision Sciences Institute Proceedings. Simmons College, Boston, Massachusetts, USA.

<sup>38</sup> Grönroos, C. (1988). 'Service Quality: The Six Criteria of Good Perceived Service Quality.' *Review of Business*, 9(3), 10-13.

<sup>39</sup> Aga, M. and Safakli, O. (2007). 'An Empirical Investigation of Service Quality and Customer Satisfaction in Professional Accounting Firms: Evidence from North Cyprus.' *Problems and Perspectives in Management*, 5(3), 84-98.

<sup>40</sup> Hume, M., Mort, G., Liesch, P. and Winzar, H. (2006). 'Understanding Service Experience in Non-profit Performing Arts: Implications for Operations and Service Management.' *Journal of Operations Management*, 24(4), 304-324.

<sup>41</sup> Deshpande, R. (1983). 'Paradigms Lost: On Theory and Method in Research in Marketing.' *Journal of Marketing*, 47(Fall), 101-110.

<sup>42</sup> Peter, P. and Olson, J. (1983). 'Is Science Marketing?'. *Journal of Marketing*, 47(Fall), 111-125.

<sup>43</sup> Zaltman, G., LeMasters, K. and Heffring, M. (1982). 'Theory Construction in Marketing: Some Thoughts on Thinking', New York, New York, USA: Wiley.

<sup>44</sup> Deming, W. (1986). 'Out of the Crisis.' Massachusetts Institute of Technology, Center for Advanced Engineering Study, Cambridge, Massachusetts, USA.

here, as it is assessed by experts. Value on the other hand is from the customer's point of view. Value is created for customers in service processes. According to Grönroos'<sup>45</sup> definition, value creation is the customers' creation of value-in-use. It is crucial to find out how to define quality and value-in-use so that organisations can use the information in identifying bottlenecks in their operations and target for development, when they strive for improvements.

Effectiveness in social and health services is often defined only by experts or only by customer questionnaires. Expert defined quality and customers' value-in-use together could define the effectiveness of services in this study. Drucker<sup>46</sup> defines that the effectiveness of services is an organisation's ability to produce the kind of effect that the customers desire; doing the right things. Effectiveness deals with setting the right aims to achieve an overall goal (the effect) and then ensuring it is accomplished. Effectiveness is on the output side of production.<sup>47</sup> Quality and value-in-use bring effectiveness. To increase the effectiveness of services, the question is proposed in this study is: What has to be introduced to meet customer expectations?

The efficiency of an organisation means doing things correctly, doing things in the most economical way, and getting the most from the resources. Efficiency is on the input side of production.<sup>48</sup> To increase organisations' efficiency, the question proposed in this study is: What does not constitute real value for service users and thus could be eliminated? This question refers to the idea of lean services as a method of increasing an organisation's efficiency. Productivity of a service organisation in this study integrates an organisation's input concept of efficiency and the organisation's output concepts of expert defined quality and the customers' value-in-use.

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<sup>45</sup> Grönroos, C. (2011). 'Value Co-creation in Service Logic: A Critical Analysis.' *Marketing Theory*, 11(3), 279-301.

<sup>46</sup> Drucker, P. (2004). 'The Daily Drucker: 366 Days of Insight and Motivation for Getting the Right Things Done.' New York, New York, USA: HarperCollins.

<sup>47</sup> Ojasalo, K. (1999). 'Conceptualizing Productivity in Services.' A doctoral dissertation. Swedish School of Economics and Business Administration, Helsinki, Finland.

<sup>48</sup> Ojasalo, K. (1999). 'Conceptualizing Productivity in Services.' A doctoral dissertation. Swedish School of Economics and Business Administration, Helsinki, Finland.

This study addresses the research gap by asking two research questions:

- To increase service users' value-in-use, what has to be introduced to meet customer expectations?
- To increase organisations' efficiency, what does not constitute real value for service users and thus could be eliminated?

It is acknowledged that technology development and utilisation may play a major role in improvement of productivity.<sup>49 50 51</sup> Technologically enabled services for the elderly are presented as an example here. Quality and value-in-use are studied through safety telephone services, which are mainly used by elderly persons. The significance of wellness technology increases as the population becomes older with ever more outpatient and non-institutional home care being necessary. The services of the elderly are receiving much attention in state and local decision-making and there is pressure to increase budgets for social care and health care. Safety telephone services are an important part of today's structure of elderly care in Finland and in many other countries.

Theoretical contributions of this study will be to add to the conceptual understanding of productivity and to add to traditional ways of defining productivity. Also a contribution will be to show that organisations' needs and service users' expectations can go hand-in-hand. Furthermore a contribution of this study will be to bring an alternative way to evaluate an organisation's productivity and to improve it. A practical contribution will be to improve the understanding of productivity. Another practical contribution will be to see how safety telephone services are functioning and to make recommendations to the services and to elderly services more generally. Also a contribution will be to give an example of safety telephone service quality standards.

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<sup>49</sup> Melkas, H. (2013). 'Innovative assistive technology in Finnish public elderly-care services: A focus on productivity.' A forthcoming article in *Work*.

<sup>50</sup> Pohjola M. (2006). 'Tuottavuus elintason ja hyvinvoinnin lähteenä (Productivity as a source of quality of life and well-being).' Seminar presentation 23 March, Available from: [www.vm.fi/vm/fi/04\\_julkaisut\\_ja\\_asiakirjat/03\\_muut\\_asiakirjat/20070326Julkis/C\\_Pohjola\\_tuottavuus-23-03-06.pdf](http://www.vm.fi/vm/fi/04_julkaisut_ja_asiakirjat/03_muut_asiakirjat/20070326Julkis/C_Pohjola_tuottavuus-23-03-06.pdf)

<sup>51</sup> Pohjola M. (2007). 'Miten Eurooppa voisi hyödyntää tuottavuuden uuden kasvuaallon? (How could Europe benefit from the new wave of productivity growth?).' *Kansantaloudellinen aikakauskirja*, 103(3), 263–265.

### 1.3 The focus of the study

The target of research in an organisational study is often a programme, an entity, the owners, management, or workers. In this organisational study, service users are the main target of the study. This study builds on the ideas of quality management<sup>52</sup> although most of the existing research studies do not explicitly address the service sector and as such are not directly applicable to this study.

The application of information and communication technology (ICT), earlier confined to back office functions, has moved forward to service content development. There has been dynamic information and communication technology development and use, in which information and communication technology evolves to service orientation. Earlier in manufacturing, information and communication technology innovations typically followed product innovations. In the service sector, the opposite appears to be common. In services, information and communication technology innovations have led to new, information and communication technology intensive service offerings,<sup>53</sup> which are the products for customers. Table 1 illustrates this important matter.

*Table 1 Information and communication technology (ICT) innovations lead to service offerings*

Manufacturing	product innovation → new ICT innovations
Services	ICT innovation → new service offerings (products)

In this study, safety telephone services are investigated and ethical questions arise. When taking care of the elderly, profits cannot be maximised without limitations. The elderly, in particular, are a group of people, who can easily be treated wrongly. This study does not go into these questions. There are also ethical questions concerning the use of personal data. These are omitted from this study. Societies have paid particular attention to securing the privacy of people. For instance, in Finnish medicine patient files are kept in secret and confidentiality is also required from employees after their employment.

<sup>52</sup> Selden, P. (1997). 'Sales Process Engineering: A Personal Workshop.' Milwaukee, Wisconsin, USA: ASQ Quality Press.

<sup>53</sup> Tasc Inc. (1998). 'The Economics of a Technology-based Service Sector.' Report 2. Technology Administration, U.S. Department of Commerce, Washington DC, USA.

This study does not deal with social and health politics in Finland from a wide perspective. Social and health politics for the elderly is discussed in publications, for example, by the National Research and Development Centre for Welfare and Health.<sup>54</sup>

Wellness technology and the technical solutions of safety telephone services are background information only. This study does not look at technical standards, which also have a reflection on services. Naturally, technical standards have to be met and there are many references to that in expert definitions of quality criteria. The pricing of services is also omitted from the study. Employees' expertise, work morale, and interaction in the whole service process are of great importance. However this study does not deal with those. The focus of this safety telephone service study is in call centres. The value or quality of help services, when provided, is not included in this study. This study only looks at whether help services have been provided and received. Help services and their effectiveness is another important research topic.

Safety telephone services as a system have been surveyed in Finland very little. About 15 years ago Lehto and Vuoksenranta<sup>55</sup> mapped the safety telephone services provided by the public sector in Finland. Their study gives an idea of the volume and nature of safety telephone services at that time. About 10 years ago Melkas<sup>56</sup> published a dissertation on the management of information in safety telephone service networks. After this publication the growth of the services offered has been remarkable and new public and private service providers have come onto the market, but the type of services have not fundamentally changed to this day.

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<sup>54</sup> See for instance Kauppinen, S., Forss, A., Säkkinen, S., Voutilainen, P. and Noro, A. (2003). 'Care and Services for Older People.' National Research and Development Centre for Welfare and Health. Saarijärvi, Finland: Gummerus.

<sup>55</sup> Lehto, M-L. and Vuoksenranta, A. (1999). 'Valtakunnallinen selvitys kuntien turvapuhelinpalveluista (National Study of Communal Safety Telephone Services).' Thesis. Kuopion yliopisto, kansanterveystieteen ja yleislääketieteen laitos (University of Kuopio, School of Public Health and Family Medicine), Kuopio, Finland.

<sup>56</sup> Melkas, H. (2004). 'Towards Holistic Management of Information within Service Networks: Safety Telephone Services for Ageing People.' Dissertation. Helsinki University of Technology Lahti Center, Espoo, Finland.

## 1.4 The approach of the study

Research studies in management are concerned with understanding and improving the performance of a business. Basic research studies are concerned with theoretical and philosophical relevance and the long term and general advancement of management disciplines. Applied research studies can be made in order to give recommendations on solutions of specific problems for a specific organisation or industry. However, case research studies may also be used as a means for initiating change and to generate theory. Gummesson<sup>57</sup> points out that an advantage of case studies is the opportunity for a holistic view.

A challenge in social research studies is how to combine qualitative and quantitative thinking in a way that helps provide relevant insights and solve problems. A preferred line, especially in social sciences, is mixed methods, recommended among others by Molina-Azorin,<sup>58</sup> as it combines several different ways to gather knowledge. Mixed methods studies are employed in this study. According to Eskola et al.,<sup>59</sup> many types of data make the study more valid. According to Creswell et al.,<sup>60</sup> an overall purpose of mixed methods studies is that the use of qualitative and quantitative approaches in combination may provide a better understanding of research problems and complex phenomena than either approach alone. Teddlie et al.<sup>61</sup> have found mixed methods useful as they provide better opportunities for answering research questions.

This study can be called qualitative although it uses mixed methods and has some quantitative parts. Mixing refers to how the qualitative data and results are related to the quantitative data

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<sup>57</sup> Gummesson, E. (2000). *Qualitative Methods in Management Research*. Sage Publications: Thousand Oaks, California, USA.

<sup>58</sup> Molina-Azorin, J.F. (2011). 'The use and Added Value of Mixed Methods in Management Research.' *Journal of Mixed Methods Research*, 5(1), 7-24.

<sup>59</sup> Eskola, J. and Suoranta, J. (2008). 'Johdatus laadulliseen tutkimukseen (An Introduction to Qualitative Research).' Tampere, Finland: Vastapaino.

<sup>60</sup> Creswell, J., Plano, C. and Vicki, L. (2007). 'Designing and Conducting Mixed Methods Research.' Thousand Oaks, California, USA: Sage Publications.

<sup>61</sup> Teddlie, C. and Tashakkori, A. (2009). 'Foundations of Mixed Methods Research. Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences.' Thousand Oaks, California, USA: Sage Publications.

and results. Mixed methods, according to O’Cathain et al.,<sup>62</sup> aim to produce understanding that goes beyond what is learned from the separate components of the study. Creswell et al.<sup>63</sup> point out that in designing and conducting mixed methods studies, there are different ways in which the mixing occurs. Firstly, the data sets may be merged by actually bringing them together. Alternatively, the different data types may be connected into a sequence by having one build on the other. Handling of the data sets may take place so that one type of data provides a supportive role for the other data set.

Molina-Azorin<sup>64</sup> found that most mixed methods articles connect the data types into a sequence by having one build on the other. For example, Onwuegbuzie et al.<sup>65</sup> used a qualitative part before the quantitative one, which permitted development and extension of the theory, identified the service specific dependent and independent variables, and developed a quantitative measurement instrument.

Molina-Azorin<sup>66</sup> indicated that the application of mixed methods research is associated with added value in management research. He also showed that mixed methods articles have received more citations than mono method studies, and that mixed methods articles may address generic and specific issues related to theory development and other aspects.

A preferred way to analyse data is to base the analysis on a well-established theoretical foundation,<sup>67</sup> which this study also does. The methods for the analysis of the productivity of services are induced from a theoretical foundation of customer relationship management.<sup>68</sup> The combination in this study will be to look at matters from the organisations’ and from the customers’ points of view simultaneously and to add an outside expert view. A qualitative

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<sup>62</sup> O’Cathain, A., Murphy, E. and Nicholl, J. (2007). ‘Integration and Publications as Indicators of “Yield” from Mixed Methods Studies.’ *Journal of Mixed Methods Research*, 1(2), 147-163.

<sup>63</sup> Creswell, J., Plano, C. and Vicki, L. (2007). ‘Designing and Conducting Mixed Methods Research.’ Thousand Oaks, California, USA: Sage Publications.

<sup>64</sup> Molina-Azorin, J. (2011). ‘The use and Added Value of Mixed Methods in Management Research.’ *Journal of Mixed Methods Research*, 5(1), 7-24.

<sup>65</sup> Onwuegbuzie, A., Bustamante, R. and Nelson, J. (2010). ‘Mixed Research as a Tool for Developing Quantitative Instruments.’ *Journal of Mixed Methods Research*, 4(1), 56-78.

<sup>66</sup> Molina-Azorin, J. (2011). ‘The use and Added Value of Mixed Methods in Management Research.’ *Journal of Mixed Methods Research*, 5(1), 7-24.

<sup>67</sup> Yin, R. (2003). ‘Case Study Research: Design and Methods.’ Newbury Park, California, USA: Sage Publications.

<sup>68</sup> Reinartz, W., Krafft, M. and Hoyer, W. (2004). ‘The Customer Relationship Management Process: Its Measurement and Impact on Performance’. *Journal of Marketing Research*, 41(3), 293-305.

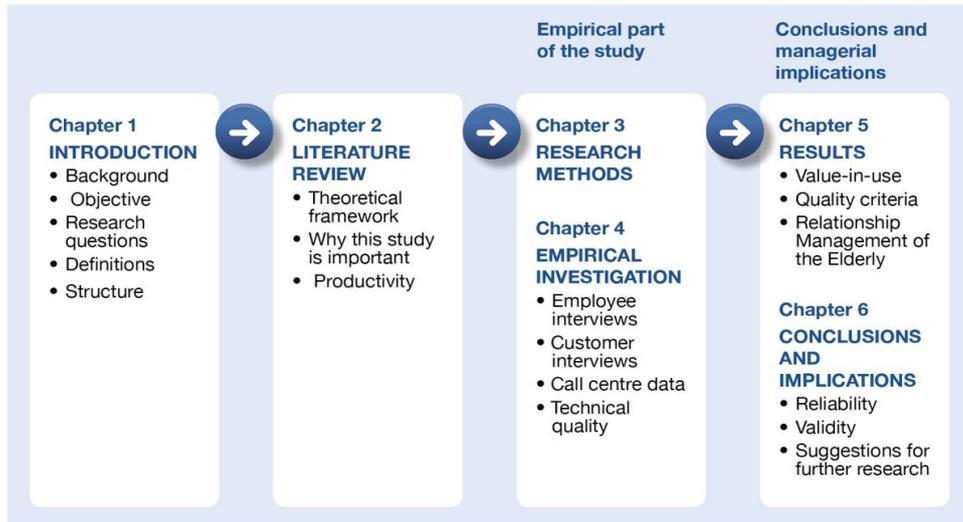
approach is appropriate in areas where research is at an early stage. There is a need to develop from practice new theories and notions.<sup>69</sup>

## **1.5 The structure of the study**

This study is divided into six chapters. The structure of the study is shown in Figure 1. Chapter 1, the introduction, briefly introduces the topic of the study, the objective, research questions, definitions, and the motives why the selected subject is a relevant field of study. The research design outlines the framework for the study. Chapter 2, the literature review, discusses in greater depth what has been written on the productivity of services with relevance to this study. Chapter 3, research methods, presents the scientific approach and the choice of mixed research methods. Chapter 4, the empirical investigation, contains the empirical cases: the interviews, the safety telephone alarm calls, and the expert definitions of quality criteria. The practical implications of the study are discussed here. In Chapter 5, the results of the study are reviewed in the light of prior research and the main conclusions of the study are presented. Chapter 6, conclusions and implications, includes a critical assessment of the study and presents suggestions for further research.

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<sup>69</sup> Benbasat, I., Goldstein, D. and Mead, M. (1987). 'The Case Research Strategy in Studies of Information Systems.' *MIS Quarterly*, 11(3), 369-386.



*Figure 1 The structure of the study*

## 2 LITERATURE REVIEW

This chapter is based on various articles and other literature from the field of services and productivity. An understanding is created of what services are. Service productivity is conceptually complex and the subject is investigated deeply in areas relevant to this study: efficiency, value-in-use and quality.

### 2.1 Theoretical framework

Company efficiency, which is on the input side of production, is widely studied in manufacturing industries. In these studies also the need to understand elements of service from the customers' perspective can be found. For instance Christopher<sup>70</sup> concentrated on logistics in consumer businesses. Fine<sup>71</sup> looked at production from the quality improvement point of view. Lampel and Mintzberg<sup>72</sup> studied demand through customisation of manufactured products referring to the extent to which products are manufactured according to the wishes of individual customers. Others who have studied customisation in manufacturing are Bozarth and Edwards,<sup>73</sup> Safizadeh, Hossein, Ritzman and Mallick<sup>74</sup> and Sievänen.<sup>75</sup> In addition Hoover, Eloranta, Holmström and Huttunen<sup>76</sup> have studied vendor managed inventory improvements as an example of the effect of value offerings on companies selling products. All these researchers tried to develop new models for fulfilling customer demand in the best possible way. They approached this issue by differentiating their offerings. These authors identify points where value of the services is changed by operations.

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<sup>70</sup> Christopher, M. (1998). 'Logistics and Supply Chain Management.' London, England: Prentice Hall.

<sup>71</sup> Fine, C. (2000). 'Clockspeed-Based Strategies for Supply Chain Design. *Production & Operations Management* 9(3), 213-221.

<sup>72</sup> Lampel, J. and Mintzberg, H. (1996). 'Customizing Customization.' *Sloan Management Review*, 38(1), 21-30.

<sup>73</sup> Bozarth, C. and Edwards, S. (1997). 'The Impact of Market Requirements Focus and Manufacturing Characteristics Focus on Plant Performance.' *Journal of Operations Management*, 15(3), 161-180.

<sup>74</sup> Safizadeh, M., Hossein, L., Ritzman, P. and Mallick, D. (2000). 'Revisiting Alternative Theoretical Paradigms in Manufacturing Strategy.' *Production and Operations Management*, 9(2), 111-126.

<sup>75</sup> Sievänen, M. (2004). 'The Effects of Customization on Capital Goods Manufacturing Business.' Department of Industrial Engineering and Management, Tampere University of Technology, Tampere, Finland.

<sup>76</sup> Hoover, Jr., W., Eloranta, E., Holmström, J. and Huttunen, K. (2001). 'Managing the Demand-Supply Chain - Value innovations for customer satisfaction.' New York, New York, USA: John Wiley & Sons.

Ojasalo's<sup>77</sup> research shows that on the input side of a service process, management has to cope with the many challenges of service efficiency. Efficiency takes into account the resources spent in achieving the desired effect in organisational productivity. It is the degree to which the system utilises the right resources. There is the need to efficiently create value for the customers by lower costs. Efficiency means being economical in terms of the benefits produced by the money spent. Ojasalo does not mix customer perspective into efficiency, but brings this important element into productivity with separate sub-elements of effectiveness and quality. This dissertation somewhat follows Ojasalo's thinking.

Heikkilä<sup>78</sup> concentrated on customer relationship characteristics in project business. Appelqvist,<sup>79</sup> when studying the efficiency of industrial companies concluded that greater theoretical insights could be achieved by interpreting the collected data through the eyes of marketing management, including customer relationship management. This Appelqvist's conclusion is essential because industrial companies can be considered to provide services.

Effectiveness, which includes in this dissertation expert defined quality and value-in-use, is the degree to which objectives are achieved and the extent to which targeted problems are solved. According to Drucker, effectiveness is the extent to which the actual performance compares with the targeted performance.<sup>80</sup> Kotler defines effectiveness as being determined without reference to costs.<sup>81</sup> With service logic in mind, effectiveness means the ability to produce a favourable effect for customers so that customers obtain what they want. Achieving effectiveness means that an organisation has adopted service logic. In the discussion of service production customer relationship viewpoint with service logic has been widely agreed

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<sup>77</sup> Ojasalo, K. (1999). 'Conceptualizing Productivity in Services.' A doctoral dissertation. Swedish School of Economics and Business Administration, Helsinki, Finland.

<sup>78</sup> Heikkilä, J. (2002). 'From Supply to Demand Chain Management: Efficiency and Customer Satisfaction.' *Journal of Operations Management*, 20(6), 747-767.

<sup>79</sup> Appelqvist, P. (2005). 'Matching Customer Demand, Offering Portfolio and Operations Systems in Technology-intensive Industries.' Dissertation Series No 2005/5, Laboratory of Industrial Management, Helsinki University of Technology, Finland.

<sup>80</sup> Drucker, P. (2004). 'The Daily Drucker: 366 Days of Insight and Motivation for Getting the Right Things Done.' New York, New York, USA: HarperCollins.

<sup>81</sup> Kotler, P. (1997). 'Marketing Management. Analysis, Planning, Implementation, and Control.' Upper Saddle River, New Jersey, USA: Prentice Hall.

on. Previous research suggests, for instance by Grönroos<sup>82</sup> and Eggert et al.<sup>83</sup> that customer perceived quality, on the one hand, and satisfaction, on the other hand, can be conceptualised and measured as two distinct, yet complementary constructs.

There are efficiency requirements on the input side, and there are effectiveness requirements on the output side; these two managed together form barriers. People have argued about efficiency versus effectiveness for many years. Drucker<sup>84</sup> offers a distinction: managers typically either do things right or do the right things. Doing things right means efficiency - attaining the most from your resources, whether they are people or products. Doing the right things means effectiveness - setting the right goals and then making sure they are accomplished. The social scientist Likert<sup>85</sup> has provided an important perspective, when he pointed out that it takes a combination of organisational efficiency and enlightened leadership to produce effectiveness.

Manufacturers do not usually have as much customer involvement as service organisations. Service customers are directly involved, not receivers at the end of a supply chain. Service customers bring variability to production. Customers bring key inputs to service production and these input providers are not interested in the organisation's well-being. To be able to manage the variability introduced by customers, there is the need to understand the forms it can take. According to Frei,<sup>86</sup> customers introduce variability to service processes in no fewer than five ways, so it is critical to determine, which are causing mischief before designing interventions. The first type of variability that creates challenges for service companies is the 'arrival variability', meaning that customers need services at their time of convenience, not all customers want to have service at the same time or at times necessarily convenient for the organisation.

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<sup>82</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>83</sup> Eggert, A. and Ulaga, W. (2002). 'Customer Perceived value: A Substitute for Satisfaction in Business Markets?' *Journal of Business & Industrial Marketing*, 17(2), 107-118.

<sup>84</sup> Drucker, P. (2004). 'The Daily Drucker: 366 Days of Insight and Motivation for Getting the Right Things Done.' New York, New York, USA: HarperCollins.

<sup>85</sup> Likert, R. (1967). 'The Human Organisation: Its Management and Value.' New York, New York, USA: McGraw-Hill.

<sup>86</sup> Frei, F. (2006). 'Breaking the Trade-Off Between Efficiency and Service Contents.' *Harvard Business Review*, 84(11), 92-101.

The second, the 'request variability' is that customers' desires do not emerge along the organisation's standard lines. Film enthusiasts may recall the diner scene in the film *Five Easy Pieces*, in which actor Jack Nicholson asks for a side order of wheat toast. The waitress tells him that they 'don't have any side orders of toast'. This is one way to limit request variability. The fact that customers' desires do not emerge along standard lines poses challenges for virtually every kind of service.

The third is the 'capability variability', meaning that organisations must work with customers whose own capabilities differ. This may be because of greater knowledge, skill, physical abilities, or resources, but some customers perform tasks easily and others require hand-holding. In a medical setting, a patient may be more or less able to describe his/her symptoms, and this will affect the quality of the health care the patient receives.

The fourth type of variability that creates challenges for service companies is the 'effort variability', meaning that it is up to the customers how much effort they apply to the service task. The fifth, the 'subjective preference variability', means that customers vary in their opinions about what it means to be treated well in a service environment. These are personal preferences, but they introduce as much unpredictability as any other variable and make it somewhat more difficult to serve a broad base of customers.

It is possible to think of these five forms of variability sequentially. They reflect the process by which many service transactions unfold. A customer arrives, makes a request, plays a part in the process requiring some level of capability and effort, and assesses the experience according to personal preferences. At any of these points, life is easier for service providers if they are dealing with a narrow band of variability. Where variability is wide, efficiency is at risk. Efficiency and effectiveness are often 'in battle' with each other. This study looks into what could be done to improve both service efficiency and effectiveness.

As Grönroos<sup>87</sup> has stated, an important characteristic of services is that they are processes. A service is not the end result of a series of actions but it is the actual series of actions. Consumption of services is thus process consumption. Consumption of services and providing

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<sup>87</sup> Grönroos, C. (2001). 'The Perceived Service Quality Concept – a Mistake?' *Managing Service Quality*, 11(3), 150- 151.

services are mostly simultaneous activities. Customers participate in the service production process. This means that a service organisation has co-creative processes. The product concept, if it exists, is only a small part of the process. What customers receive and how they receive the services replace the physical product concept. Customers bring their previous experiences and overall perceptions of the service to each service encounter. This means that customers have some kind of image formed over time of the services they receive.

Organisations can learn to co-create value with customers. The conventional organisation-centric view of value creation can develop towards interactions, and this is a source of value creation. Customers are a competence base for an organisation, which creates human experience environments for its customers. Ramaswamy<sup>88</sup> pointed out that an organisation could create engagement platforms to systematically involve customers and other stakeholders in the execution of new value creation opportunities. Involving customers is not merely collaboration, but it could be co-creation, which is more to value creation than collaboration. Organisations expand their management into interactions and customers become active co-creators of value. A service process is a socio technical system, which allows customers and service providers to co-create, in other words, to maximise value-in-use. Lamb and Kling<sup>89</sup> and Ramaswamy<sup>90</sup> have conducted research on services supporting the change from customer or user to co-creator of services. Gummesson<sup>91</sup> suggested that allowing customers to interact between themselves could also be explored. Organisations trying to improve their productivity could explore these ideas and implement them.

This study looks at the input side of service production, which is efficiency, and, at the same time the output side, the effectiveness; studying ways to improve both in order to improve productivity in cases where quantifying is not possible. Theoretical insights are studied by marketing management research thinking with service logic requirements for the

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<sup>88</sup> Ramaswamy, V. (2009). 'Co-creation of Value – Towards an Expanded Paradigm of Value Creation.' *Marketing Review St. Gallen*, 26(6), 11-17.

<sup>89</sup> Lamb, R. and Kling, R. (2003). 'Reconceptualizing Users as Social Actors in Information Systems Research.' *MIS Quarterly*, 27(2), 197-235.

<sup>90</sup> Ramaswamy, V. (2008). 'Co-creating Value Through Customer Experiences: the Nike Case.' *Strategy & Leadership*, 36(5), 9-14.

<sup>91</sup> Gummesson, E. (2010). 'The Future of Service is Long Overdue.' In Maglio, P., Kieleszewski, C. and Spohrer, J. (eds.) *Handbook of Service Science*. New York, New York, USA: Springer Publisher.

organisations in mind. Customers participate in the service production process. What customers receive and how they receive the services replace the concept of a physical product.

## 2.2 Technology growth

This study concentrates on technologically enabled services. It is vital to analyse what could be expert defined service quality and customers' value-in-use in technologically enabled services, because various kinds of technologically enabled services are being developed with increasing speed. Progressively more people are accepting technology as part of their everyday life. New services are being created as well as new ways to bring them to users. A traditional service industry generally adopts a physical medium in producing service systems, while the emerging service industry, as Tien and Berg<sup>92</sup> have described, is increasingly exerting the electronic medium. Among others, Goncalves<sup>93</sup> showed in his services marketing book that information and communication technology has a deep effect on services offered. Making appointments, ordering goods and services, following one's own health and contacts to expert personnel are among the popular information and communication technology services.

This study focuses on technologically enabled cases from the social and health care sector. Social and health care constitutes an important factor in the national economy of welfare societies. Hyppönen<sup>94</sup> has studied the challenges to the co-development of e-health services and technology. He stated that increases in national spending on health care due to the rising demand for services has led governments, over the last decade, to turn to information and communication technologies in the hope of rationalising their health policies and improving the efficiency and quality of the services produced. At the Finnish national and European Union level the steering has been to push ahead with the implementation of information systems and electronic patient data transfer in health care. Many projects have received considerable financing from European Union research programmes as well as from national

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<sup>92</sup> Tien, J. and Berg, D. (2003). 'Case for Service Systems Engineering.' *Systems Science and Systems Engineering*, 2(1), 13-38.

<sup>93</sup> Goncalves, K. (1998). 'Services Marketing, A strategic Approach.' Upper Saddle River, New Jersey, USA: Prentice Hall.

<sup>94</sup> Hyppönen, H. (2007). 'eHealth Services and Technology: Challenges for co-development.' *Human Technology*, 3(2), 188-213.

sources. In Finland, the municipal autonomy in the development of services has led to an array of various information and communication technology solutions being adopted in different areas.

Hämäläinen and Hyppönen<sup>95</sup> found that many projects in Finland have not produced the anticipated outcomes. According to them, among the difficulties experienced have been the lack of focus on organisational transformation together with poor management of the entity of sociotechnical change, and a lack of usability and utility of the implemented technologies.<sup>96</sup> These are warning examples for the rapidly growing elderly service sector. The case study by Hyppönen, Saalasti-Koskinen, Perälä and Saarikalle,<sup>97</sup> analysing the development of seamless elderly care services in one municipality in Finland, revealed that there had been two major technology and 10 process reengineering projects in six years, with little cooperation among them.

Hyppönen<sup>98</sup> pointed out that the high failure rate of information and communication technology applications in organisations is mostly due to a lack of attention to organisational issues. If the aim is to embed knowledge properties in management information systems then it needs to be captured and managed in a way that will make it accurate, available, accessible, effective, and usable. That such a task is not a matter of simply automating existing records or procedures was also emphasised by Clarke, Hartwood, Procter and Rouncefield.<sup>99</sup>

Grönroos<sup>100</sup> wrote that it is crucial for customers how organisations provide not just the core service, but also extra billable and non-billable services. It is also important for customers

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<sup>95</sup> Hämäläinen, P. and Hyppönen, H. (2006). 'Sosiaali- ja terveydenhuollon tietoteknologian hyödyntämisstrategian pitkän aikavälin toimeenpano, (Implementation of the act on experiments with seamless service chains in social welfare and health care services).' *Sosiaalilääketieteellinen aikakauslehti*, 43, 111–123.

<sup>96</sup> Hyppönen, H. (2007). 'eHealth Services and Technology: Challenges for co-development.' *Human Technology*, 3(2), 188-213.

<sup>97</sup> Hyppönen, H., Saalasti-Koskinen, U., Perälä, M-L. and Saarikalle, K. (2005). 'Knowledge intensive service activities (KISA) in health and social care innovation process: Towards seamless care for older people in Kuopio home care.' Helsinki, Finland: National Research and Development Centre for Welfare and Health.

<sup>98</sup> Hyppönen, H. (2007). 'eHealth Services and Technology: Challenges for co-development.' *Human Technology*, 3(2), 188-213.

<sup>99</sup> Clarke, K., Hartwood, M., Procter, R. and Rouncefield, M. (2001). 'Hospital managers closely observed: Some features of new technology and everyday managerial work.' *New Technology in Human Services*, 14(1), 48–57.

<sup>100</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

how organisations take care of quality problems, service failures, and handle complaints. In technologically enabled services particularly, customers note how organisations offer documentation, directions for the use of services, and customer training on how to use technology. It is important for customers how questions raised by them are answered by service organisations.

Leikas<sup>101</sup> pointed out that people interact with different kinds of technology, which is changing them. The proliferation of technical appliances is making people and societies, in all their complexity, increasingly vulnerable – even though technology is at the same time contributing in many ways to increasing safety and security. New technology can be of use but when designed in a wrong or unethical way it can harm its users. Elderly services need ethical solutions.

There is a connection between information and communication technology investments and productivity but information and communication technology investments have not increased productivity as much as was expected. During the 1970s and 1980s, the productivity paradox drew especial attention. At that time, measured productivity growth rate in the United States economy slowed substantially although information and communication technology was growing dramatically. Brynjolfsson and Hitt<sup>102</sup> have identified various possible explanations for this.

Productivity growth determines living standards and the wealth of a nation. It was measured in the 1970s and 1980s by the amount of output produced per unit of input as it still is measured, more or less, in national economies. According to Brynjolfsson and Hitt,<sup>103</sup> a proper measure of inputs includes not only labour hours, but also the quantity and quality of capital equipment used, materials and other resources consumed, worker training and education, and the amount of ‘organisational capital’ required, such as supplier relationships cultivated and investments in new business processes. In other words, according to

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<sup>101</sup> Leikas, J. (2008). ‘Teknologian nopea kehitys ahdistaa ikääntyneitä (The Fast Development of Technology Bothers the Elderly).’ <http://www.ikateknologia.fi/fi/>

<sup>102</sup> See for example Brynjolfsson, E. (1993). ‘The Productivity Paradox of IT.’ *Communications of the ACM*, 36(12), 66-77, and Brynjolfsson, E. and Hitt, L. (1998). ‘Beyond the Productivity Paradox.’ *Communications of the ACM*, 41(8), 49-55.

<sup>103</sup> Brynjolfsson, E. and Hitt, L. (1998). ‘Beyond the Productivity Paradox.’ *Communications of the ACM*, 41(8), 49-55.

Brynjolfsson and Hitt, computerisation does not automatically increase productivity, but it is an essential component of a broader system of organisational changes which improve productivity.

Studies, such as that by Pohjola,<sup>104</sup> show that information and communication technology has untapped potential to advance economic growth. It was stated many times by expert interviewees in a study by Käpylä, Jääskeläinen and Lönnqvist<sup>105</sup> that the effective usage of technology requires a new kind of work organisation as well as working methods or leadership practices, and these organisational arrangements should be taken under examination. Mäkinen,<sup>106</sup> in his study on organisational innovations and productivity that complement technology investments, concluded that organisational innovations need to be connected to business processes. All these results are useful when we discuss improving the productivity of elderly services, too.

Tung and Yan<sup>107</sup> came to the conclusion that by using technology in organisations it is possible to develop a better understanding of the various expectations of people. In this way technology can be of help in providing better services to customers. Human technology refers to technology products that are suited to people, that add to people's mental, physical and social well-being and that promote human dignity. Hyppönen<sup>108</sup> stated that among other things, human technology produces intelligent information networks and various kinds of smart devices for different types of individuals of different ages.

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<sup>104</sup> Pohjola, M. (2005). 'Talouskasvu talouspolitiikan tavoitteena (Economic Growth as the Goal of Economic Policy).' In Hyytinen, A. and Rouvinen, P. (eds.), *Mistä talouskasvu syntyy? (What Makes Economy Grow?)*. Elinkeinoelämän Tutkimuslaitos ETLA (The Research Institute of the Finnish Economy), Helsinki, Finland.

<sup>105</sup> Käpylä, J., Jääskeläinen, A. and Lönnqvist, A. (2010). 'Productivity Improvement in Finland: Challenges and Research Needs for the Future.' *International Journal of Productivity and Performance Management*, 59(7), 607-623.

<sup>106</sup> Mäkinen, M. (2007). 'Teknologiainvestointeja täydentävät organisaatioinnovaatiot ja tuottavuus (Organisational Innovations and Productivity, that Complement Technology Investments).' In Maliranta, M. and Ylä-Anttila, P. (eds.) *Kilpailu, innovaatio ja tuottavuus (Competition, Innovation and Productivity)*. ETLA, Helsinki, Finland.

<sup>107</sup> Tung, W-F and Yuan, S-T. (2010). 'Intelligent Service Machine.' *Communications of the ACM*, 53(8), 129-134.

<sup>108</sup> Hyppönen, H. (2007). 'eHealth Services and Technology: Challenges for co-development.' *Human Technology*, 3(2), 188-213.

Since technologically enabled services are being developed with increasing speed, it is vital to analyse their productivity. Increases in national spending on social and health care make a focus on these sectors important. Simply automating existing procedures is not enough; organisational issues need to be addressed. Computerisation does not automatically increase productivity although it is, however, an essential component of a broader system of organisational changes. Moreover, it is not enough to look at only the core services, but the whole range of extra services, too. Technology can be of help in providing more effective services.

### **2.3 Social care**

When discussing elderly people, public social care must be discussed, because the elderly in Finland rely very much on social services in their daily life. Public social care is a broad term, which relates to integrated services that are available from social care providers. Social care helps people in their lives. The Finnish social service system<sup>109</sup> is made up of two parts: social insurance and services. A web-page [www.kunnat.net](http://www.kunnat.net) gives detailed information in three languages of the Finnish system. In Finland there is a law of social care.<sup>110</sup>

The benefits and services included in the Finnish social care system are universal entitlements. This means that people can receive benefits and services even if they have not been employed or married to an employed person or do not have special insurance coverage. The users of social care are children and families, young people, unemployed, the elderly and people with any kind of disability. Finnish social care includes many different benefits such as child day-care, allowances for the poor, youth centres, home help services for the elderly, various support services, housing services and institutional care, current information about which can be found in the above mentioned web-pages.

Social care assessment and review processes aim to identify the individual circumstances, needs, and risks to which potential users of social care are exposed. The thrust of policies for older people in Finland over the past two decades has been to enable individualised responses to those needs. Social care is meant to be co-produced by service providers and users

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<sup>109</sup> [www.kunnat.net](http://www.kunnat.net)

<sup>110</sup> [www.finlex.fi](http://www.finlex.fi), Sosiaalihoitolaki (The Law of Social Care), number 1982/710

together. Users and their families contribute to the specification of needs. In Great Britain, for instance, there has also been research to develop new approaches to deliver individualised packages of services through response mechanisms such as care management.<sup>111</sup> These service activities are meant to reflect elements of user choice and preference.

In Finland, social services are mainly provided by municipalities. All municipalities in Finland are in charge of social services. Among others, Moisio's<sup>112</sup> study shows that changes related to the ageing population and the growth of service needs cause pressure to increase the productivity of the services in order to minimise the need for the increase in expenditures. More than half of the employees in the municipal sector in Finland worked in social services and health care in 2010; nearly 50 % of the expenditure of local authorities was incurred from these services according to Finland's official statistics.<sup>113</sup>

The elderly in Finland rely very much on social services, home help services being among the most popular. Municipalities are in charge of these services. Elements of user choice and preference create further pressures for a public sector which is trying to avoid over spending in their budgets.

## 2.4 Aging

The productivity of services concerns, in particular, the social and health services. This is becoming increasingly important because the aging population, due to lower birth rates and longer lifespan, is considered, by some, the most important long term fiscal question in the industrial world.<sup>114</sup> Practically all developed countries will have the ratio of working age population to retired population rapidly decrease during the first half of this current century. There will be almost 80 million elderly with their care needs in Europe by year 2050

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<sup>111</sup> Glendinning, C. (2004). 'Research to Develop New Approaches to Measuring and Understanding Social Services Outputs and Productivity.' Comments from Social Policy Research Unit, University of York, York, UK.

<sup>112</sup> Moisio, A. (2006 May 19). 'Public Sector Productivity Programmes and Performance Indicators: Case Finland.' Paper presented at Efficiency of Sub-central Public Spending Workshop, Paris, France.

<sup>113</sup> [www.kunnat.net](http://www.kunnat.net)

<sup>114</sup> Gruber, J. and Wise, D. (2001). 'Social Security and Retirement Around the World.' In Auerbach, A. and Lee, D. (eds.) Demographic Change and Fiscal Policy. Cambridge, England: Cambridge University Press.

according to forecasts.<sup>115</sup> Preparing for the growing public expenses caused by the ageing population, places very challenging demands on the economy of the public sector.<sup>116</sup>

According to population forecasts, one in four Finns (26.1 %) will be aged 65 years or over in 2030.<sup>117</sup> In Finland, the average life expectancy for a female child born in the 1990s is over 80 years, and for a male child 73 years, as compared to 75 and 65 years, respectively, for those born in the 1970s.

The number of retired people in Finland has grown significantly, especially after 2005, and continues growing. The ratio of working age population to retired population will decrease in every EU country in the coming years. The ratio is developing in Finland in an unfavourable direction more rapidly than in any other EU country. Finland's ratio of working age population to retired population will be the worst of the EU countries from 2020 to the end of the decade, if the population forecasts of Statistics Finland, the Finnish public authority specifically established for statistics, and Eurostat become reality.<sup>118</sup>

In Finland the proportion of persons aged over 65 in the population was estimated in 2009 to rise from the 17 % to 27 % by 2040 and to 29 % by 2060. The proportion of people of working age in the population will diminish from the then 66 % to 58 % by 2040 and to 56 % by 2060. The number of working age people started to fall in 2010 when the large, post-war baby boom generations started to reach retirement age.<sup>119</sup> The Baby boom generation is a term, which is used in Finland for the generations born during 1945 - 1950, when the post-war birth rates were higher than usual.<sup>120</sup> Table 2 shows this population development.

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<sup>115</sup> Leikas, J. (2008). 'Teknologian nopea kehitys ahdistaa ikääntyneitä (The Fast Development of Technology Bothers the Elderly).' <http://www.ikateknologia.fi/fi/>

<sup>116</sup> Luoma, K., Rätty, T., Moisio, A., Parkkinen, P., Vaarama, M. and Mäkinen, E. (2003). 'Seniори-Suomi, Ikääntyvän Väestön Taloudelliset Vaikutukset (Senior-Finland, The Economic Impacts of Ageing Population).' Helsinki, Finland: Sitra (Finnish Innovation Fund).

<sup>117</sup> Tilastokeskus (Statistics Finland) (2009). [http://www.stat.fi/index\\_en.html](http://www.stat.fi/index_en.html)  
 Statistics Finland's population projections are demographic trend calculations based on past development in fertility, mortality and migration. The projections do not seek to assess the effect of economic, socio-political regional policy and other such factors on population development. The calculations mainly indicate the outcome from the present development under the assumption that it continues unchanged.

<sup>118</sup> Tilastokeskus (Statistics Finland) (2009). [http://www.stat.fi/index\\_en.html](http://www.stat.fi/index_en.html)

<sup>119</sup> Tilastokeskus (Statistics Finland) (2009). [http://www.stat.fi/index\\_en.html](http://www.stat.fi/index_en.html)

<sup>120</sup> Karisto, A. (2007). 'Finnish Baby Boomers and the Emergence of the Third Age.' *International Journal of Ageing and Later Life*, 2(2), 91-108.

The demographic dependency ratio, that is, the number of children and pensioners per one hundred persons of working age will rise rapidly in the near future. At the end of 2008, the demographic dependency ratio in Finland was 50.3. According to the projection, the dependency ratio in Finland would be 60.4 in 2016 and would rise to 70.5 by 2026. In 2060, the demographic dependency ratio in Finland would be 79.1<sup>121</sup> as seen in Figure 2.

The future ratio of working age population to retired population in Finland is of great concern. There is a question of who takes care of the Baby boom generation, when they are old. These Baby boomers will soon result in a boom in the rising numbers of elderly people. Many are worried if elderly care and childcare will remain at a satisfactory level in the future in Finland and elsewhere in developed countries.

*Table 2 In Finland, the population by age and gender at the end of 1960 and 2006, the population by age at the end of 2009, and the forecasts for 2040 and 2060*

YEAR		age 0-14 (%)	15-64 (%)	65- (%)	Total (%)
1960	women	28.5	62.5	8.9	100
	men	31.9	62.3	5.7	100
	population	30.1	62.4	7.4	100
2006	women	16.3	64.4	19.3	100
	men	17.8	68.6	13.5	100
	population	17.1	66.5	16.5	100
2009	population	17	66	17	100
2040	population	15	58	27	100
2060	population	15	56	29	100

<sup>121</sup> Tilastokeskus (Statistics Finland), [www.stat.fi](http://www.stat.fi)

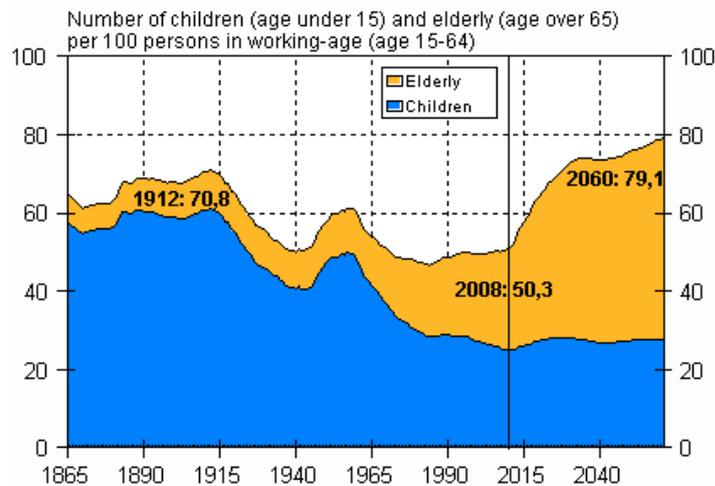


Figure 2 Demographic dependency ratio in Finland between 1865–2060<sup>122</sup>

The ageing population affects the social care expenses and health care expenses. In 2006, social care expenditure in Finland was 26 % of gross national product.<sup>123</sup> According to a Statistics Finland forecast, the social care expenditure will increase to 30 % of the gross national product in Finland by 2030.<sup>124</sup> In 2006, health care expenditure in Finland was 8 % of gross national product.<sup>125</sup>

We may forecast that advances in medicine and health care will increase rather than decrease social and health care expenses. In many areas, development brings savings in expenses, but medical development seems to increase the quality of life and at the same time increase expenses, according to the study by Finnish Innovation Fund.<sup>126</sup> Advancements in medicine may be a much larger factor as regards increasing expenses than the ageing of the population, estimates Mayhew.<sup>127</sup> Health care expenses for an elderly person can be forecasted to

<sup>122</sup> Tilastokeskus (Statistics Finland), [www.stat.fi](http://www.stat.fi)

<sup>123</sup> Official statistics of Finland (2008). 'Statistical Yearbook on Social Welfare and Health Care.' National Research and Development Centre of Welfare and Health, Helsinki, Finland.

<sup>124</sup> Tilastokeskus (Statistics Finland) (2002). 'Year Book.' Tilastokeskus: Helsinki, Finland.

<sup>125</sup> Official statistics of Finland (2008). 'Statistical Yearbook on Social Welfare and Health Care.' National Research and Development Centre of Welfare and Health, Helsinki, Finland.

<sup>126</sup> Luoma, K., Rätty, T., Moisio, A., Parkkinen, P., Vaarama, M. and Mäkinen, E. (2003). 'Seniори-Suomi, Ikääntyvän Väestön Taloudelliset Vaikutukset (Senior-Finland, The Economic Impacts of Ageing Population).' Helsinki, Finland: Sitra (Finnish Innovation Fund).

<sup>127</sup> Mayhew, L. (2000). 'Health and Elderly Care Expenditure in an Aging World.' Research Report RR-00-21, International Institute for Applied Systems Analysis, Laxemburg, Austria.

increase. Luoma et al.<sup>128</sup> point out the good side that it need not be seen as a problem, because it can also be seen as increasing the population's well-being and health in a significant way.

The effects of ageing on the use and expenses of social care services and health care services can be and have been assessed in many different ways. Research studies by Vaarama et al.<sup>129</sup><sup>130</sup> show that the use of services by the elderly is closely linked to physical activity, mental ability, social activity, percentage of the elderly living alone, plus the functioning of social networks, and help provided by friends and family. The age structure and the number of elderly people do not alone offer a very reliable ground on which to base forecasts of how much the elderly will use services in the next 20 or 30 years. Besides age, changes in the activity and the health of the elderly population, design-for-all, the accessibility of housing, living environment, and the changes in organising services affect the use of care services. Higher income and education increase the quality requirements of care services.

This study is important. In general, social services and health services are becoming more expensive. There is an increasing need for these services and the share of social services and health services as a percentage of the gross national product is increasing. However, expenses cannot increase indefinitely. Thus, productivity must be increased.

## 2.5 Service logic

Grönroos<sup>131</sup> defines service organisations as having adopted service logic, when they understand that in a service process value-in-use is created for customers and the organisation is managed accordingly. Lusch, Vargo and Wessels<sup>132</sup> speak of the same issue by saying that

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<sup>128</sup> Luoma, K., Rätty, T., Moisio, A., Parkkinen, P., Vaarama, M. and Mäkinen, E. (2003). 'Seniори-Suomi, Ikääntyvän Väestön Taloudelliset Vaikutukset (Senior-Finland, The Economic Impacts of Ageing Population).' Helsinki, Finland: Sitra (Finnish Innovation Fund).

<sup>129</sup> Vaarama, M. and Kaitsaari, T., Ikääntyneiden toimintakyky ja koettu hyvinvointi (The Ability to Function and Experienced Well-being of the Elderly), in Heikkilä, M. and Kautto, M. (eds.) (2002). '*Suomalaisten hyvinvointi (Well-being of Finns)*.' Helsinki, Finland: Stakes (National Research and Development Centre for Welfare and Health).

<sup>130</sup> Vaarama, M. and Voutilainen, P. (2002). 'Kaksi skenaariota vanhusten hoivapalvelujen kehityksestä ja resurssitarpeista ajalla 1999-2030 (Two Scenarios about the Development of Elderly Care and the Need of Resources during 1999-2030).' *Yhteiskuntapolitiikka*, 67(2), 352-363.

<sup>131</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>132</sup> Lusch, R., Vargo, S. and Wessels, G. (2008). 'Toward a conceptual foundation for service science: Contributions from service-dominant logic.' *IBM systems journal*, 47(1), 5-14.

value is determined in the use of services by the users. Customers purchase benefits provided by service organisations. Levitt<sup>133</sup> agrees that customers look for benefits and perceive the value of the service provider's offerings. Besides service, information, personal attention, goods, and other possible components also need to be provided according to Webster.<sup>134</sup> Normann et al.<sup>135</sup> point out that the value of services to customers is created when customers use them. Studies, such as by Narver and Slater,<sup>136</sup> show that service logic of an organisation is connected to the profitability of its business. Kotler<sup>137</sup> states the inevitable that customer satisfaction is a prerequisite for long term customer relationships.

Kohli and Jarowski<sup>138</sup> specify that the whole organisation must respond to the needs of its customers within the organisation's long term goals. Grönroos<sup>139</sup> agrees that it is not enough to develop only customer service personnel work routines, when organisations aim at adopting service logic. Changing only customer service personnel work routines is too superficial. It may increase costs for the organisations without increasing value-in-use. The whole organisation needs to be changed. Schneider<sup>140</sup> claims that most personnel wish to do their work well and give good services to those they are serving.

Shapiro<sup>141</sup> goes further in stating that service personnel should also be part of the planning process and all employees have to receive enough information concerning the matters that influence the demand for the services offered by the organisation. According to Houston,<sup>142</sup> an organisation can plan the services to be offered after ascertaining the costs of satisfying customer needs and after choosing the best ways to provide services. Knowing competing

<sup>133</sup> Levitt, T. (1980). 'Marketing Success Through Differentiation – Of Anything.' *Harvard Business Review*, 58(1), 83-91.

<sup>134</sup> Webster Jr., F. (1984). 'Industrial Marketing Strategy.' New York, New York, USA: John Wiley & Sons.

<sup>135</sup> Normann, R. and Ramirez, R. (1993). 'From Value Chain to Value Constellation.' *Harvard Business Review*, 71(4), 65-77.

<sup>136</sup> Narver, J. and Slater, S. (1990). 'The Effect of Market Orientation on Business Profitability.' *Journal of Marketing*, 54(4), 20-35.

<sup>137</sup> Kotler, P. (1997). 'Marketing Management. Analysis, Planning, Implementation, and Control.' Upper Saddle River, New Jersey, USA: Prentice Hall.

<sup>138</sup> Kohli, A and Jaworski, B. (1990). 'Market Orientation: The Construct, Research Propositions, and Managerial Implications.' *Journal of Marketing*, 54(2), 1-18.

<sup>139</sup> Grönroos, C. (1987). 'Hyvään palveluun. Palvelun kehittäminen julkishallinnossa (Towards Good Service, Developing Public Sector Services).' Helsinki, Finland: Valtionhallinnon kehittämiskeskus (Finnish Institute of public Management).

<sup>140</sup> Schneider, B. (1980). 'The Service Organization: Climate Is Crucial.' *Organizational Dynamics*, 9(2), 52-65.

<sup>141</sup> Shapiro, B. (1988). 'What the Hell Is "Market Oriented"?' *Harvard Business Review*, 66(6), 119-125.

<sup>142</sup> Houston, F. (1986). 'The Marketing Concept: What it is and what it is not.' *Journal of Marketing*, 50(2), 81-87.

organisations and the market environment is also essential in being able to adopt service logic according to Payne.<sup>143</sup>

Kotler and Andreasen<sup>144</sup> presented several points, which are typical of an organisation, where there is lack of service logic. One is that the organisation takes for granted that customers are interested in their services. Another is that the organisation blames failures on the customers. There is lack of service logic when customer research is non-existent or minimal or the organisation's service competition is seen to be only among other such organisations that offer the same services.

Already in the 1980's there was much discussion and research about service logic. It was agreed that unorganised service production and disinterested personnel give customers bad service. Customers should be made to feel that the organisation is interested in satisfying their expectations. Martin<sup>145</sup> distinguished four different types of organisational cultures:

- In a bureaucracy the message to customers is: we do not care
- In a factory the message is: you are one of many
- In a friendly zoo the message to customers is: we try hard but do not always know what we are doing
- In an organisation with a service perspective the message is: we care and are able to satisfy your needs

Grönroos<sup>146</sup> wrote, about organisational culture, that the whole organisation should be interested in good service and desire to work for the customers' best interests. Shapiro<sup>147</sup> also has emphasised that in service culture customer benefit is a major assumption. Along to the same lines Deshpande and Webster<sup>148</sup> wrote that customer perspective is a part of

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<sup>143</sup> Payne, A. (1993). 'The Essence of Services Marketing.' New York, New York, USA: Prentice-Hall.

<sup>144</sup> Kotler, P. and Andreasen, A. (1996). 'Strategic Marketing for Non-profit Organisations.' London, England: Prentice Hall.

<sup>145</sup> Martin, W. (1986). 'Measuring and Improving your Service Quality.' *The Cornell H.R.A. Quarterly*, 27(1), 80-87.

<sup>146</sup> Grönroos, C. (1987). 'Hyvään palveluun. Palvelun kehittäminen julkishallinnossa (Towards Good Service, Developing Public Sector Services).' Helsinki, Finland: Valtionhallinnon kehittämiskeskus (Finnish Institute of public Management).

<sup>147</sup> Shapiro, B. (1988). 'What the Hell Is "Market Oriented"?' *Harvard Business Review*, 66(6), 119-125.

<sup>148</sup> Deshpande, R. and Webster, F. (1989). 'Organisational Culture and Marketing: Defining the Research Agenda.' *Journal of Marketing*, 53(1), 3-15.

organisational culture. Organisational culture includes such basic assumptions and mutual values being known to all the members of the organisation. Also Parasuraman<sup>149</sup> made contributions in the 1980's. He stated that making customers the priority requires that personnel are flexible and creative and that the management appreciates the personnel. Flexibility is required in unexpected situations. Creativity helps to use information that develops in contact with the customers.

Later Schein<sup>150</sup> said about organisational culture that it can be seen in the behaviour of personnel. Organisational culture includes goals and how they are pursued. Wasmer and Bruner<sup>151</sup> compared organisational culture to people's life styles. Organisational culture functions similar to unwritten instructions. If the culture is missing, the directions are missing, and personnel are insecure in unexpected situations. Ylikoski<sup>152</sup> reminded that attitudes are seen when personnel meets customers. When reactions to customers come from service logic, it means according to Payne<sup>153</sup> that the organisation bases its goals on an understanding of customers. It does not help to spend money on customers, reiterated Webster,<sup>154</sup> if everything in the service chain does not work. Grönroos<sup>155</sup> suggested that management should appreciate personnel and this keeps customer service personnel happy. This, in turn, is reflected in the services which personnel provide to their customers.

Researchers, such as Peppers and Rogers,<sup>156</sup> urged companies to have an in depth dialogue with their customers by which relationships can be built and sustained. An overall goal of relationship programmes is to deliver a high level of value-in-use. Oliver<sup>157</sup> and Zeithaml and

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<sup>149</sup> Parasuraman, A. (1987). 'Customer-oriented Corporate Cultures are Crucial to Services Marketing Success.' *Journal of Services Marketing*, 1(1), 39-46.

<sup>150</sup> Schein, E. (1991). 'Organisatiokulttuuri ja johtaminen (Organisational Culture and Management).' Jyväskylä, Finland: Weilin+Göös.

<sup>151</sup> Wasmer, D. and Bruner, G. (1991). 'Using Organisational Culture to Design Internal Marketing Strategies.' *Journal of Services Marketing*, 5(1), 35-46.

<sup>152</sup> Ylikoski, T. (2000). 'Unohtuiko asiakas? (Was the Customer Forgotten?).' Keuruu, Finland: Otavan Kirjapaino Oy.

<sup>153</sup> Payne, A. (1993). 'The Essence of Services Marketing.' New York, New York, USA: Prentice-Hall.

<sup>154</sup> Webster, C. (1991). 'A Note on Cultural Consistency within the Service Firm: The Effects of Employee Position on Attitudes toward Marketing Culture.' *Journal of the Academy of Marketing Science*, 19(4), 341-346.

<sup>155</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>156</sup> Peppers, D. and Rogers, M. (1993). 'The One to One Future.' New York, New York, USA: Doubleday.

<sup>157</sup> Oliver, R. (1997). 'Satisfaction: A Behavioural Perspective on the Consumer.' Boston, Massachusetts, USA: Irwin McGraw-Hill.

Bitner<sup>158</sup> summed up that there is abundant research in the area of customer relationships. It is critical for organisations to deliver such performance as there is an increase in expectations due to competition, marketing, and communications. In addition, research studies for instance by Anderson, Fornell and Lehman<sup>159</sup> have shown that there is a strong, positive correlation between customer satisfaction and profits. Organisations should constantly measure satisfaction levels and develop programmes, which help to deliver service logic performance.

Everyone has experienced or heard about poor customer service. Service logic in an organisation means that the real purpose of the services is to satisfy customer expectations. However, this is only after the organisation has established its reason for existence and its clear goals. The goals are reached by defining target customers' expectations and satisfying these. A requirement for service logic in an organisation is that everyone in that organisation is sufficiently aware of the customer expectations. Information that develops in contact with the customers can be utilised in creative ways to increase customers' value-in-use.

## 2.6 Public sector services

At least in Finland, public organisations are required to demonstrate in practices and in projects that there are improvements in performance. The requirement seems to be universal. The role of performance measurement is emphasised in Finland as well as in other developed countries. Productivity measures are frequently used performance measures internationally.<sup>160</sup> However, service productivity is difficult to express in numbers. Kaplan and Norton<sup>161</sup> pointed out that for non-profit and public sector organisations, the high level objective is delivering value to all people, not to shareholders. Official statistics, reminded Gummesson,<sup>162</sup> are deprived of customers' value-in-use and as such are obsolete and misleading in many respects.

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<sup>158</sup> Zeithaml, V. and Bitner, M. (2000). 'Services Marketing.' Boston, Massachusetts, USA: McGraw-Hill.

<sup>159</sup> Anderson, E., Fornell C, and Lehmann, D. (1994). 'Customer Satisfaction, Market Share, and Profitability.' *Journal of Marketing*, 58(3), 53-66.

<sup>160</sup> Wisniewski, M. and Stewart, D. (2004). 'Performance Measurement for Stakeholders – The Case of Scottish Local Authorities.' *International Journal of Public Sector Management*, 17(3), 222–233.

<sup>161</sup> Kaplan, R. and Norton, D., (2001). 'The Strategy-Focused Organization.' Boston, Massachusetts, USA: Harvard Business School Press.

<sup>162</sup> Gummesson, E. (2008). 'Customer Centricity: a Reality or a Wild Goose Chase?' *European Business Review* 20(4), 315-330.

The performance measurement system created by Kaplan and Norton,<sup>163</sup> Balanced Scorecard, was developed for strategic management purposes of companies. It includes different perspectives, which all have their own measures. A Balanced Scorecard may be used in identifying means to improve productivity. Boyne<sup>164</sup> followed this path and presented for public service performance the needs when measuring outputs (quantities and qualities), efficiency (costs per unit of output), service outcomes (effectiveness and impact), responsiveness (staff satisfaction, customer satisfaction) and democratic outcomes (probity and participation). Wisniewski and Stewart<sup>165</sup> concluded that there is a risk that looking at too many different perspectives can result in a measurement system that is too complex and time-consuming to use in service productivity management purposes. This present study will not present strategy maps or quantifiable measures which describe the achievement of strategic objectives. They are considered not to be part of this study.

There are studies on public service productivity, such as studies by Boyle<sup>166</sup> and Brax<sup>167</sup>. Boyle emphasised the importance of noting that effectiveness and productivity are mutually complementary and that productivity measurement in the public sector may also take place from a service user perspective. In the context of public services, Boyle referred to micro level measurement of productivity. The measurement of service productivity can focus on disaggregated components of services. In this, input and output for each component are examined separately.

Jääskeläinen<sup>168</sup> tried component by component measurement for the purposes of public service productivity measurement. He created a productivity matrix, in which a set of direct and indirect productivity measures were used to compose a single measurement result. Jääskeläinen identified intangible and tangible productivity factors in the social services of the

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<sup>163</sup> Kaplan, R. and Norton, D. (1992). 'The Balanced scorecard – Measures that Drive Performance.' *Harvard Business Review*, 70(1), 71-79.

<sup>164</sup> Boyne, G. (2002). 'Concepts and Indicators of Local Authority Performance: An Evaluation of the Statutory Frameworks in England and Wales.' *Public Money & Management*, 22(2), 17–24.

<sup>165</sup> Wisniewski, M. and Stewart, D. (2004). 'Performance Measurement for Stakeholders – The Case of Scottish Local Authorities.' *International Journal of Public Sector Management*, 17(3), 222–233.

<sup>166</sup> Boyle, R. (2006). 'Measuring Public Sector Productivity: Lessons from International Experience.' CPRM Discussion paper 35, Institute of Public Administration, Dublin, Ireland.

<sup>167</sup> Brax, S. (2007). 'Palvelut ja tuottavuus (Services and productivity).' Tekes, Teknologia katsaus (Technology report) 204, Helsinki, Finland.

<sup>168</sup> Jääskeläinen, A. (2009). 'Identifying a Suitable Approach for Measuring and Managing Public Service Productivity.' *Electronic Journal of Knowledge Management*, 7(4), 447-458.

City of Helsinki in Finland and explored how these factors could be measured in practice. The intangible factors affecting productivity in public services were: employee competence, employee satisfaction, working atmosphere and subjective output quality. According to the results, there were only few direct measures of intangible factors. Indirect measures with limited validity had to be used. The conclusion was that there was a need to obtain more detailed information on productivity affecting factors.

Simpson's paper<sup>169</sup> also discussed issues arising in the measurement of productivity in public services. She concluded that measuring output for public sector services was problematic in terms of capturing all the various dimensions of output that society valued. She concluded further that present productivity measurements can be uninformative. Empirical studies of productivity for public sector organisations have demonstrated that efficiency measures and rankings can be sensitive to the techniques used to derive them.

The study of Linna et al.<sup>170</sup> analysed the concept of public sector productivity and how it was understood among municipal managers from different spheres of authority in a Finnish region. According to the results, there was a certain mismatch between perceptions concerning productivity, and the potential that lies in this concept as a functional tool in the development efforts made by public sectors.

It is generally recognised in public discussion in Finland that many public services require improvement in effectiveness. However, it can be questioned as to what is generally understood by effectiveness in this context. This is a debated and controversial topic in the literature concerning services and in practice. There is no general consensus as to which approach is most appropriate, and there is little effort to relate different concepts. Sivabrovornvatana et al.<sup>171</sup> also concluded that it is apparent that the perceptions of effectiveness are based on multiple dimensions, but there is no general agreement as to the nature or content of those dimensions.

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<sup>169</sup> Simpson, H. (2009). 'Productivity in Public Services.' *Journal of Economic Surveys*, 23(2), 250–276.

<sup>170</sup> Linna, P., Pekkola, S., Ukko, J. and Melkas, H. (2010). 'Defining and Measuring Productivity in the Public Sector: Managerial Perceptions.' *International Journal of Public Sector Management*, 23(3), 300-320.

<sup>171</sup> Sivabrovornvatana, N., Siengthai, S., Krairit, D. and Paul, H. (2005). 'Technology Usage, Quality Management System and Service Quality in Thailand.' *International Journal of Health Care Quality Assurance*, 18(6), 413-423.

The objective for nonprofit and public sector organisations should be to reach the customer perspective objectives, in other words to create service users' value-in-use. Previous research results highlight the need for the public sector to take into consideration the issue of customers' value-in-use when estimating productivity. Unlike a manufactured product, which can be readily assessed, in services, value-in-use is still an elusive and abstract construction.

## 2.7 Practical interventions

This chapter lists some of the most recent practical interventions concerning elderly populations. Finland alone has several projects running both consecutively and also simultaneously. However, what practical results they have brought, is sometimes difficult to estimate.

The government in Finland started a development programme called KASTE<sup>172</sup> for the national development of social and health care. The programme lasted from 2008 to 2011. The aim of the programme was to improve social and health care quality, effectiveness, and efficiency for instance with the help of technology.<sup>173</sup>

The public Social Insurance Institution of Finland started a project called IKÄ (age)<sup>174</sup> in 2002. It was a research project on the effects of geriatric rehabilitation on the elderly living at home. Following the IKÄ project an Innovative Environment project<sup>175</sup> was started in 2006, where independent initiative actions for the elderly were advanced with the help of technology. Interactive TV was used to give services to the elderly, who used municipal home care services. The connection could also be a group connection to all customers. The service functions now in the City of Helsinki in Finland, where there is an interactive studio, which customers may contact from their home devices.

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<sup>172</sup> Sosiaali- ja terveysministeriö (2008). 'KASTE-ohjelma 2008 – 2011. Sosiaali- ja terveydenhuollon kansallinen kehittämissuunnitelma (KASTE, the National Development Program of Ministry of Social Affairs and Health). ' *Sosiaali- ja terveysministeriön selvityksiä (Ministry of Social Affairs and Health reports)*, 6.

<sup>173</sup> Viitala, M., Pietilä, A-M. and Kankkunen, P. (2010). 'Terveyttä vahvistava vertaistuki (Peer Support in Strengthening Health). ' *Tutkiva Hoitotyö*, 8(3), 12-19.

<sup>174</sup> www.kela.fi

<sup>175</sup> City of Helsinki (2009 September 21). Social Services Department, Innovaatiohanke 2006-2010 (Innovation project 2006-2011), asiakastiedote (customer bulletin).

Interactive TV is being tried and used and it has activated the elderly. It gives group activity for those who cannot attend events outside their home. In addition to the City of Helsinki there have been projects in the Cities of Espoo, Laitila, Lappeenranta, Turku, and Vantaa in Finland using interactive TV.<sup>176</sup> Another example of technology growth is that the City of Helsinki provides automatic food vendors for any elderly person who wishes to have them.

Supporting the elderly to live independently at home has been the aim of Finland's social and health care policy during the 21<sup>st</sup> century. This brings a danger of social exclusion. The importance of tackling social isolation and loneliness as a means of improving older people's well-being and quality of life is increasingly recognised in international policy, and in some national health strategies.<sup>177</sup> For instance in the United Kingdom, the National Health Service's National Service Framework for Mental Health and for Older People have provided local incentives to address loneliness and isolation.<sup>178 179</sup> Health promotion services and activities intended to alleviate social isolation and loneliness among older people have long been considered important in providing support to develop, improve, and maintain social contacts and mental wellbeing.<sup>180 181</sup> The City of Helsinki in Finland started a project called Lupaava (the development of promising practices)<sup>182</sup> where the City supports the elderly with mobility and exercise. The aim is to include mobility and exercise as an integral part of home care for the elderly.

An international study was conducted by Cattan, White, Bond and Learch<sup>183</sup> in 2005 regarding a health promotion intervention among older people. The research included data

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<sup>176</sup> Puranen, J., Kärki, M., Lagerblom, K., Rauste, E., Rysti, M., Seppänen, S., Valvanne, J., Väisänen, J. and Wiklund, A. (2007). 'Ennaltaehkäisevät vanhuspalvelut (Preventive Care for the Elderly).' EEVA project 2005-2007, final report. The City of Espoo, Social and Health Services Publications 1.

<sup>177</sup> World Health Organisation (2002). 'Active Ageing: A Policy Framework.' World Health Organisation.

<sup>178</sup> Department of Health (1999). 'Saving Lives: Our Healthier Nation.' Stationery Office, London, England.

<sup>179</sup> Department of Health (2001). 'National Service Framework for Older People.' Department of Health, London, England.

<sup>180</sup> Walters, R., Cattan, M., Speller, V. and Stuckelberger, A. (1999). 'Proven Strategies to Improve Older People's Health.' London, England: Eurolink Age.

<sup>181</sup> WHO Discussion Paper (25 July, 2012). 'Noncommunicable Disease Prevention and Health Promotion.' Ageing and Life Course, Geneva. Available online at:

<http://www.who.int/hpr/ageing/ActiveAgeingPolicyFrame.pdf>

<sup>182</sup> www.hel.fi

from the developed world. The resulting cases came from the USA, Canada, the Netherlands and Sweden. The study found effective and ineffective interventions. Nine of the 10 effective interventions found were group activities with educational or support input. Six of the eight ineffective interventions found provided one-to-one social support, advice and information, or health need assessment. The study review suggested that educational and social activity group interventions that target specific groups can alleviate social isolation and loneliness among older people.

In the United Kingdom, the Design Council and the Technology Strategy Board launched, in 2010, the government funded Independence Matters initiative,<sup>184 185</sup> which was aimed at developing design and technology to help older people. In one part of this project, schoolchildren across the UK developed briefs, which resulted in designs to help older people become more connected with people of other generations. The other part of this project aimed at developing designs or technologies that would enable older people to remain living in their homes for as long as they wish. The projects aimed at tackling issues surrounding mobility, healthy eating, staying fit, and keeping connected with friends, family and the younger generation. The projects were trying to find new ways to solve complex social challenges and innovative new ways to help elderly people live healthy, fulfilling, and independent lives.

To help the elderly living at home, there are various home help technological systems reported by Sassi and Valvanne.<sup>186</sup> Gerontechnology is in a crucial position in supporting the resources of the elderly. Koskinen<sup>187</sup> pointed out that especially information and communication technology is important in gerontechnology. According to Paavilainen,<sup>188</sup> using gerontechnology does not differ very much from the everyday technology such as

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<sup>183</sup> Cattan, M., White, M., Bond J. and Learmouth, A. (2005). 'Preventing Social Isolation and Loneliness Among Older People: A Systematic Review of Health Promotion Interventions.' *Ageing & Society*, 25, 41–67.

<sup>184</sup> [www.innovateuk.org](http://www.innovateuk.org)

<sup>185</sup> [www.designcouncil.org.uk](http://www.designcouncil.org.uk)

<sup>186</sup> Sassi, P. and Valvanne, J. (2007). 'Teknologia avuksi ikääntyvien hyvinvointiin (Technology to Help the Well-being of the Elderly).' Innovation environment project 2006-2007 final report Helsinki metropolitan area, Finland.

<sup>187</sup> Koskinen, S. (2006). 'Ikäihmisten voimavarojen ja toimintakyvyn tukeminen (Supporting the Resources and Abilities of the Elderly).' Seminar paper, Vanhustyön koulutuksen kehittämisseminaari (Seminar for Developing Elderly Care Training). Tampere, Finland.

<sup>188</sup> Paavilainen, P. (2007). 'Ikääntyneet teknologian käyttäjinä (The Elderly as Technology Users).' A lecture, School of Health Sciences, University of Tampere.

safety telephones and alarm devices already being used. The results of Eloranta's 2009 dissertation<sup>189</sup> showed that home care provided by professionals sometimes conflicted with older customers' expectations and did not always support the customers' own resources. The dissertation revealed the need for development so that personnel serve the needs of elderly customers better.

There are evidence databases on aging care. Evidence-based clearinghouses focus on social work and related intervention outcomes, placing them in the context of how such clearinghouses could contribute to research dissemination in order to foster effective, evidence-based practice. The American-Swedish-Chinese study by Soydan, Mullen, Laine, Rehnman and Li<sup>190</sup> employed an analysis of data provided in clearinghouse web sites and internal documentation. The clearinghouses are web-based portals, where quality controlled scientific evidence of what works, what is promising, or what is possibly harmful in professional practice and policy interventions is made available to professionals, decision makers, and the general public in accessible and transparent language and format. The study concluded that evidence-based clearinghouses in social work are promising vehicles for providing high-quality evidence to professionals, decision makers, and other end users.

The internet is used in other ways, too. There are commercial attempts to develop biosensor wristwatch-connected cell phone services for relatives and care providers to be able to monitor their elderly via the internet. In Finland, there are no mobile or tracking safety telephone services in general use yet. Finland's Ministry of Social Affairs and Health does not allow them. However, research findings by Wikman<sup>191</sup> show that elderly people experience the use of mobile safety alarms as empowering. Mobile safety alarms gave elderly individuals the freedom of movement needed to be physically active and still feel safe. The positioning device was not experienced as a threat to their integrity. Mobility and safety were experienced as more important than privacy. Wikman stated that we need to critically and creatively reflect on what elderly people need, try to respond positively to what we learn and shift the

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<sup>189</sup> Eloranta, S. (2009) 'Supporting Older People's Independent Living at Home through Social and Health Care Collaboration.' A doctoral dissertation, *Annales Universitatis Turkuensis D 869*, Turku, Finland.

<sup>190</sup> Soydan, H., Mullen, E., Laine, A., Rehnman, J. and Li, Y-P. (2010). 'Evidence-based Clearinghouses in Social Work.' *Research on Social Work Practice*, 20(6), 690-700.

<sup>191</sup> Wikman, A. (2008). 'Ageing Well. Mobile ICT as a Tool for Empowerment of Elderly People in Home Health Care and Rehabilitation.' A doctoral dissertation. Health sciences/Physiotherapy, Luleå University of Technology, Luleå, Sweden.

focus towards an explicit action question of what needs to be done to make life as good as it can be.

In Finland, the development of wellness technology has been active. Such research centres are in the Cities of Espoo, Jyväskylä, Tampere and Oulu. The KÄKÄTE-project<sup>192</sup> instigated in Finland 2010-2014 is investigating how technology could improve from the present level to support the elderly living at home and help care work. The needs of the elderly were the starting point for the project.

Based on various research studies and other projects, technology will produce important home care and telecare services, for which there is a growing demand with the continuing ageing of the population. The internet is a good medium for seeking and delivering social care, including information seeking, support groups, and online consultations. Internet accessible sources for the members of care professions, customers, and their relatives include a wide range of tutorials, articles, and data bases of elderly care information. Internet-based social support networks allow communication and connections. The practical interventions seem to look at elderly care from the needs of the elderly. On the other hand, telecare systems also raise new kinds of professional and ethical questions.

There obviously is a need for many professional quality measures to guide this development. Productivity questions are not in the front line of the projects. It seems that there is an assumption that there will be an increase in productivity with the use of technology, but that is not necessarily so. That is why it is important to raise productivity issues in connection to technologically enabled services for the elderly.

## **2.8 From provider perspective to customer perceptions**

This chapter discusses quality management issues and customer relationship management. Quality is understood in many different ways and there are several definitions for good quality services. These views are compared.

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<sup>192</sup> [www.ikateknologia.fi](http://www.ikateknologia.fi)

### 2.8.1 Quality management

According to Liu,<sup>193</sup> quality of services has in many studies been determined only from the provider's perspective so that organisations are generally focused on providing services, which are technologically accurate and fast. This technical quality, but also the so called functional quality influence customers' value-in-use and the interactive experience between a customer and the service provider. Grönroos<sup>194</sup> has studied the technical and functional aspects of service quality and their relation to value-in-use. Customer's value-in-use is influenced by the technical quality of the end result of the service and the functional quality or the method, by which the service was transferred.

There are many approaches to define technical and functional quality and their effect on customers' value-in-use. One mutual agreement is that they all are important. Among others Aga<sup>195</sup> and Hume<sup>196</sup> agree that there is a link between both technical and functional quality and customer satisfaction. According to Lillrank's<sup>197</sup> quality thinking, quality is investigated by how customers experience quality and how quality answers the customers' needs.

Quality management in an organisation means 1) quality control, 2) quality assurance, and 3) continuous quality improvement. They are connected to service effectiveness and to the success of organisations. 1) Quality control is the effort to maintain quality stability and to maintain the reliability of achieving the given outcomes. 2) Quality assurance is the actions for developing service processes, which ensure that customer expectations are met by the final result. 3) Juran's Quality Handbook<sup>198</sup> defined quality improvement as the change of a service process to reduce waste and to improve the reliability of achieving the given outcomes.

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<sup>193</sup> Liu, L. (2010). 'Operationalizing Service Quality: Providers' Perspective.' Northeast Decision Sciences Institute Proceedings. Simmons College, Boston, Massachusetts, USA.

<sup>194</sup> Grönroos, C. (1988). 'Service Quality: The Six Criteria of Good Perceived Service Quality.' *Review of Business*, 9(3), 10-13.

<sup>195</sup> Aga, M. and Safakli, O. (2007). 'An Empirical Investigation of Service Quality and Customer Satisfaction in Professional Accounting Firms: Evidence from North Cyprus.' *Problems and Perspectives in Management*, 5(3), 84-98.

<sup>196</sup> Hume, M., Mort, G., Liesch, P. and Winzar, H. (2006). 'Understanding Service Experience in Non-profit Performing Arts: Implications for Operations and Service Management.' *Journal of Operations Management*, 24(4), 304-324.

<sup>197</sup> Lillrank, P. (1990). 'Laatuajattelu (Quality Thinking).' Keuruu, Finland: Kustannusosakeyhtiö Otava.

<sup>198</sup> Juran, J. and Godfrey, A. (eds.) (2002). 'Juran's Quality Handbook.' New York, New York, USA: McGraw-Hill.

The significance of quality management is to set a quality policy for the organisation and to take into consideration quality in the organisation's strategic planning and operations. The Rahman and Laosirihongthong<sup>199</sup> 2008 study about quality management practices in services showed that for further improvement in their implementation of quality programmes, organisations should focus on integrating quality programmes with corporate strategy.

Quality management sets requirements and outcomes. Quality management's quality control, quality assurance, and quality improvement actions are there to make sure that the given outcomes are accomplished on all the following three levels: a) quality policy level, b) level of strategic outcomes, using the Balanced Scorecard<sup>200</sup> or such, and c) level of operational outcomes, ie. the daily management level.

#### 2.8.1.1 Quality policy

In 1998, the Advisory Commission on Consumer Protection and Quality in the Health Care Industry<sup>201</sup> announced that the American health care system was in need of major restructuring. The Committee on Quality of Health Care in America translated the Commission's general statements into a more specific agenda for improvement and published a list of performance characteristics that, if addressed and improved, would lead to better achievement of that overarching purpose. The committee proposed, in their 2001 book<sup>202</sup>, six specific aims for improvement. According to them, health care should be safe, effective, patient-centred, timely, efficient and equitable. These are still considered as guidelines for health care quality management in the United States. Although these guidelines have their value, they do not seem appropriate in productivity management of services, because they do not define effectiveness from truly the customer point of view.

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<sup>199</sup> Rahman, S. and Laosirihongthong, T. (2008). 'Quality Management Practices in Logistics Services in Thailand.' *International Journal of Integrated Supply Management*, 4(1), 49-59.

<sup>200</sup> Kaplan, R. and Norton, D. (2004). 'Strategy maps.' Boston, Massachusetts, USA: Harvard Business School Press.

<sup>201</sup> Advisory Commission on Consumer Protection and Quality in the Health Care Industry (1998). 'Quality First: Better Health Care for All Americans.' [www.hcqualitycommission.gov/final/](http://www.hcqualitycommission.gov/final/)

<sup>202</sup> Committee on Quality of Health Care in America, Institute of Medicine (2001). 'Crossing the Quality Chasm: A New Health System for the 21<sup>st</sup> Century.' Washington, D.C., USA: National Academy Press.

### 2.8.1.2 Strategic outcomes

The widely used Balanced Scorecard method states that the purpose of quality management is to set goals and monitor that the goals are achieved. The goals are set on four levels:<sup>203</sup>

- 1) learning and innovation: intangible assets – people, systems, and culture
- 2) internal business processes: to satisfy customers and shareholders - operations for effectiveness and efficiency
- 3) customers: how to create value for customers
- 4) financial: shareholder expectations, productivity and growth

Each of these four levels is linked in a chain of cause and effect from level 1 to level 4:

Learning and innovation includes training programmes with the goal to improve employee skills (level 1). This leads to improvements in customer service (level 2), which, in turn, leads to greater customer satisfaction and customer loyalty (level 3) and, eventually to increased revenues and margins (level 4).<sup>204</sup>

The learning and innovation perspective, (level 1), identifies the intangible assets that are most important to the strategy. The objectives in this perspective identify which jobs, skills, talents, and knowhow are most important for the organisation. This perspective identifies, which information systems, networks, and infrastructure, such as customer relationship management systems, are needed. In addition, it identifies what kind of organisational climate and abilities are needed to mobilise and sustain the changes required to support the next level (level 2), the value-creating internal business processes. The key is to focus on specific capabilities and attributes required by these internal processes.<sup>205</sup>

A learning and innovation objective is to identify innovations and best practices wherever they occur inside or outside of an organisation, and to disseminate the best practice for every organisational unit. All units need to together improve cost, quality, time, and service. Support from learning and innovation levels are required to create effective customer

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<sup>203</sup> Kaplan, R. and Norton, D. (1992). 'The Balanced scorecard – Measures that Drive Performance.' *Harvard Business Review*, 70(1), 71-79.

<sup>204</sup> Kaplan, R. and Norton, D. (2006) 'Alignment.' Boston, Massachusetts, USA: Harvard Business School Press.

<sup>205</sup> Kaplan, R. and Norton, D. (2004). 'Strategy maps.' Boston, Massachusetts, USA: Harvard Business School Press.

management processes. Employee competencies, technology, and systems such as customer relationship management play a major role in improving operations. The availability of information for employees about processes, services, and customers is critical for organisations wishing to improve costs, quality, lead time, and customer service.

Cost structure has to be improved and asset utilisation increased to achieve better efficiency. Organisations reduce costs by lowering expenses and choose between the often contradictory levers of growth and efficiency. Improving revenue growth often takes longer to create value than improving efficiency. The tendency is to favour the short term over the long term because there is the pressure to show financial results in the short term. The financial objective in the private sector is to sustain growth in shareholder value. Thus the financial perspective must have both long term growth and short term dimensions.

Financial objectives typically relate to profitability. Organisations make more money by selling more and spending less. An organisation's financial performance becomes improved through revenue growth and productivity. The financial perspective brings the idea of alignment. Kaplan and Norton<sup>206</sup> introduced the benefits gained by diversified organisations. The benefits come from operating an internal capital market that is more effective and efficient than if each autonomous organisation were an independent organisation.

### 2.8.2 Good service

A study by Parasuraman, Zeithaml and Berry<sup>207</sup> was carried out in the USA in 1985 concerning what customers mean by good quality of services. It was a comprehensive qualitative study that defined service quality and illuminated the dimensions along which consumers perceived and evaluated service quality. The study found ten different determinants of good service. (See Table 3.) In the same year, Albrecht and Zemke's<sup>208</sup> book on the elements of good service was published. It introduced four characteristics of good service. (See Table 4.)

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<sup>206</sup> Kaplan, R. and Norton, D. (2006) 'Alignment.' Boston, Massachusetts, USA: Harvard Business School Press.

<sup>207</sup> Parasuraman, A., Zeithaml, V. and Berry, L. (1985). 'A Conceptual Model of Service Quality and its Implications for Future Research.' *Journal of Marketing*, 49(4), 41-50.

<sup>208</sup> Albrecht, K. and Zemke, R.(1985). 'Service America!' Homewood, Illinois, USA: Dow Jones-Irwin.

*Table 3 Determinants of good service according to Parasuraman et al.<sup>209</sup>*

Determinants of good quality service	It means:	It involves:
<b>RELIABILITY</b>	Consistency of performance and dependability	The organisation performs the service right the first time and honours its promises: <ul style="list-style-type: none"> <li>• accuracy in billing</li> <li>• keeping records correctly</li> <li>• performing the service at the designated time</li> </ul>
<b>RESPONSIVENESS</b>	The willingness or readiness of employees to provide service	Timeliness of service: <ul style="list-style-type: none"> <li>• mailing a transaction slip immediately</li> <li>• calling the customer back quickly</li> <li>• giving prompt service</li> </ul>
<b>COMPETENCE</b>	Possession of the required skills and knowledge to perform the service	<ul style="list-style-type: none"> <li>• knowledge and skill of the contact personnel</li> <li>• knowledge and skill of operational support personnel</li> <li>• research capability of the organisation</li> </ul>
<b>ACCESS</b>	Approachability and ease of contact	<ul style="list-style-type: none"> <li>• the service is easily accessible by telephone (lines are not busy and they do not put you on hold)</li> <li>• waiting time to receive service is not extensive</li> <li>• convenient hours of operation</li> <li>• convenient location of service facility</li> </ul>
<b>COURTESY</b>	Politeness, respect, consideration, and friendliness of contact personnel (including receptionists, telephone operators and such)	<ul style="list-style-type: none"> <li>• consideration for the consumer's property</li> <li>• clean and neat appearance of public contact personnel</li> </ul>
<b>COMMUNICATION</b>	Keeping customers informed in language they can understand and listening to them	The organisation has to adjust its language for different consumers, increasing the level of sophistication with a well-educated customer and speaking simply and plainly with a novice: <ul style="list-style-type: none"> <li>• explaining the service itself</li> <li>• explaining how much the service will cost</li> <li>• explaining the trade-offs between service and cost</li> <li>• assuring customers that problems will be handled</li> </ul>
<b>CREDIBILITY</b>	Trustworthiness, believability, honesty, having the customer's best interests at heart	<ul style="list-style-type: none"> <li>• company name</li> <li>• company reputation</li> <li>• personal characteristics of the contact personnel</li> <li>• the degree of hard sell involved in interactions with the customer</li> </ul>
<b>SECURITY</b>	Freedom from danger, risk, or doubt	<ul style="list-style-type: none"> <li>• physical safety</li> <li>• financial security</li> <li>• confidentiality (Are my dealings with the company private?)</li> </ul>
<b>UNDERSTANDING/ KNOWING THE CUSTOMER</b>	Making the effort to understand the customer's needs	<ul style="list-style-type: none"> <li>• learning the customer's specific requirements</li> <li>• providing individualised attention</li> <li>• recognising the regular customer</li> </ul>
<b>TANGIBLES</b>	The physical evidence of the service	<ul style="list-style-type: none"> <li>• physical facilities</li> <li>• appearance of personnel</li> <li>• tools or equipment used to provide the service</li> <li>• physical representation of the service</li> </ul>

<sup>209</sup> Parasuraman, A., Zeithaml, V. and Berry, L. (1985). 'A Conceptual Model of Service Quality and its Implications for Future Research.' *Journal of Marketing*, 49(4), 47.

In 1988, Parasuraman, Zeithaml and Berry<sup>210</sup> published their popular conceptualisation of good service, SERVQUAL. The conceptual foundation for the SERVQUAL good service scale was derived from the works of a handful of researchers, Sasser et al.,<sup>211</sup> Grönroos<sup>212</sup> and Lehtinen and Lehtinen,<sup>213</sup> and from the earlier work by Parasuraman et al.<sup>214</sup> themselves.

*Table 4 Determinants of good service according to Albrecht et al.<sup>215</sup>*

Determinants of good quality service	It means:
INTEREST shown towards the customer	The customer feels that the organisation, its personnel and operations are there to solve the customer's problems
SPONTANEOUS personnel	Things are done at the personnel's own initiative. Personnel are able and willing to make decisions and to handle different occasions flexibly
COMPETENCE	Personnel are competent and willing to solve customers' problems smoothly
READINESS for crisis	Personnel are ready and willing to act quickly, when there are problems or something unexpected happens

An examination of the content of the final items making up each of SERVQUAL's five dimensions for good service (three original and two combined dimensions) suggested the labels and concise definitions for the dimensions seen in Table 5. The last two dimensions in SERVQUAL, assurance and empathy, contain items representing Parasuraman et al.'s<sup>216</sup>

<sup>210</sup> Parasuraman, A., Zeithaml, V. and Berry, L. (1988). 'SERVQUAL: a Multiple-item Scale for Measuring Consumer Perceptions of Service Quality.' *Journal of Retailing*, 64(1), 12-40.

<sup>211</sup> Sasser, W., Olsen, P., and Wyckoff, D. (1978). 'Management of Service Operations: Text, Cases, and Readings.' Boston, Massachusetts, USA: Allyn & Bacon.

<sup>212</sup> Grönroos, C. (1982). 'Strategic Management and Marketing in the Service Sector.' Helsinki, Finland: Swedish School of Economics and Business Administration.

<sup>213</sup> Lehtinen, U. and Lehtinen, J. (1982). 'Service Quality: A Study of Quality Dimensions.' Unpublished working paper, Service Management Institute, Helsinki, Finland.

<sup>214</sup> Parasuraman, A., Zeithaml, V. and Berry, L. (1985). 'A Conceptual Model of Service Quality and its Implications for Future Research.' *Journal of Marketing*, 49(4), 41-50.

<sup>215</sup> Albrecht, K. and Zemke, R. (1985). 'Service America!' Homewood, Illinois, USA: Dow Jones-Irwin.

<sup>216</sup> Parasuraman, A., Zeithaml, V. and Berry, L. (1985). 'A Conceptual Model of Service Quality and its Implications for Future Research.' *Journal of Marketing*, 49(4), 41-50.

seven original dimensions—communication, credibility, security, competence, courtesy, understanding/knowing customers, and access.

**Table 5** SERVQUAL's five dimensions for good service<sup>217</sup>

Determinants of good quality service	It means:	Type of quality
TANGIBLES	Physical facilities, equipment, and appearance of personnel	physical environment quality
RELIABILITY	Ability to perform the promised service dependably and accurately	outcome quality
RESPONSIVENESS	Willingness to help customers and provide prompt service	interaction quality
ASSURANCE	Knowledge and courtesy of employees and their ability to inspire trust and confidence	interaction quality
EMPATHY	Caring and individualised attention, which an organisation provides for its customers	interaction quality

In later studies,<sup>218 219 220 221 222</sup> good service has been given three aspects: outcome quality (what is received), interaction quality (how it is received) and physical service environment quality. Grönroos in his quality model<sup>223</sup> defined technical quality as what is received in services and functional quality as how the services are received, and connected these to the

<sup>217</sup> Parasuraman, A., Zeithaml, V. and Berry, L. (1988). 'SERVQUAL: a Multiple-item Scale for Measuring Consumer Perceptions of Service Quality.' *Journal of Retailing*, 64(1), 12-40.

<sup>218</sup> Grönroos, C. (1988). 'Service Quality: The Six Criteria of Good Perceived Service Quality.' *Review of Business*, 9(3), 10-13.

<sup>219</sup> Bitner, M. (1992). 'Serviscapes: The Impact of Physical Surroundings on Customers and Employees.' *Journal of Marketing*, 56(2), 57-71.

<sup>220</sup> Rust, R. and Oliver, R. (1994). 'Service Quality: Insights and Managerial Implications from the Frontier.' In Rust, R. and Oliver, R. (eds) *Service Quality: New Directions in theory and Practice*. Thousand Oaks, California, USA: Sage Publications.

<sup>221</sup> Brady, M. and Cronin Jr, J. (2001). 'Some New Thoughts on Conceptualizing Perceived Service Quality: A Hierarchical Approach.' *Journal of Marketing*, 65(3), 34-49.

<sup>222</sup> Grönroos, C. (2007). *Service Management and Marketing*. Chichester, England: John Wiley & Sons Ltd.

<sup>223</sup> Grönroos, C. (1988). 'Service Quality: The Six Criteria of Good Perceived Service Quality.' *Review of Business*, 9(3), 10-13.

image of the service organisation. What is received and how it is received are important. Kang and James<sup>224</sup> found, when examining Grönroos's service quality model, that how services were received affected the image of the service more than what services were received. These findings suggested that interactions between customers and personnel have an important influence on evaluation of the services.

In different research studies,<sup>225 226 227</sup> the importance of different aspects for customer satisfaction varied. Grönroos<sup>228</sup> put together seven customer points of view, which were an integration of available studies and conceptual work:

1. Customers believe that the service supplier's business can be trusted and gives adequate value for money, and that it stands for good performance and acceptable values, which can be shared by customers and the service supplier. This first point is image-related.
2. Customers realise that the service supplier organisation as a whole has the knowledge and skills required to solve customers' problems in a professional manner. This second point refers to what is received: There must be knowledge and skills behind the service, and there must be proper operational systems and sufficient physical resources.
3. Customers feel that the physical surroundings and other aspects of the environment of the service encounter support a positive experience of the service process. This third point refers to the impact of the physical service environment.

The four other points put forward by Grönroos referred to how the service is received. They are very much process-related criteria.

4. Customers feel that the service employees they contact are concerned about their customers, and interested in solving their problems in a friendly and spontaneous way.

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<sup>224</sup> Kang, G-D. and James, J. (2004). 'Service Quality Dimensions: an Examination of Grönroos's Service Quality Model.' *Managing Service Quality*, 14(4), 266-277.

<sup>225</sup> Lassar, W., Manolis, C. and Winsor, R. (2000). 'Service Quality Perspectives and Satisfaction in Private Banking.' *International Journal of Bank Marketing*, 18(4), 181-199.

<sup>226</sup> Chowdhary, N. and Prakash, M. (2007). 'Prioritizing Service Quality Dimensions.' *Managing Service Quality*, 17(5), 493-509.

<sup>227</sup> Maddern, H., Maull, R., Smart, A. and Baker, P. (2007). 'Customer Satisfaction and Service Quality in UK Financial Services.' *International Journal of Operations & Production Management*, 27(9), 998-1019.

<sup>228</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

5. Customers feel that the service supplier, its location, operating hours, employees and operational systems are designed and operated in a way that makes it easy to obtain access to the service, and are prepared to respond flexibly to the demands and wishes of customers.
6. Customers know that whatever takes place or has been agreed upon, they can rely on the service supplier, its employees and systems, to keep these promises and perform with the best interest of the customers at heart.
7. Customers realise that whenever something goes wrong or something unpredictable happens, the service supplier will immediately take action to remain in control of the situation and find a new, acceptable solution.

The above seven customer points of view of good service were guidelines based on empirical and conceptual research, as well as on practical experience. These points are still useful as managerial principles. Table 6 shows the different definitions of good service. The definition of the Committee on Quality of Health Care in America includes such evaluation points of good service as effective and efficient, which are somewhat controversial expressions.

Although it is generally believed that better service quality leads to higher customer satisfaction, the research by Yap and Sweeney<sup>229</sup> cast doubt on the positive linear relationship between service quality and customer satisfaction. Maddern, Maull, Smart and Baker<sup>230</sup> agreed that there may be diminishing returns from progressive improvement.

The Zone of Tolerance (ZOT) theory by Parasuraman, Berry and Zeithaml<sup>231</sup> suggested that quality perceptions depend on customers' expectations. Between the desired level and the adequate level is a Zone of Tolerance. Tests of the Zone of Tolerance model have found one threshold, when service quality and customer satisfaction were linked. This threshold is at the acceptable service quality level.<sup>232</sup> The relationship between service quality and customer

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<sup>229</sup> Yap, K. and Sweeney, J. (2007). 'Zone-of-tolerance Moderates the Service Quality-Outcome Relationship.' *Journal of Services Marketing*, 21(2), 137-148.

<sup>230</sup> Maddern, H., Maull, R., Smart, A. and Baker, P. (2007). 'Customer Satisfaction and Service Quality in UK Financial Services.' *International Journal of Operations & Production Management*, 27(9), 998-1019.

<sup>231</sup> Parasuraman A., Berry, L. and Zeithaml, V. (1991). 'Understanding Customer Expectations of Service.' *Sloan Management Review*, 32(3), 39-48.

<sup>232</sup> Teas, K. and DeCarlo, T. (2004). 'An Examination and Extension of the Zone-of-tolerance Model.' *Journal of Service Research*, 6(3), 272-286.

satisfaction is not quite as strong above the acceptable level of service quality as it is below the level.<sup>233</sup> Increasing service quality does not increase customer satisfaction as much above the acceptable service quality level as below the acceptable service level.

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<sup>233</sup> Yap, K. and Sweeney, J. (2007). 'Zone-of-tolerance Moderates the Service Quality-Outcome Relationship.' *Journal of Services Marketing*, 21(2), 137-148.

**Table 6** Different definitions of good service quality<sup>234 235 236 237 238</sup>

Parasuraman Zeithaml Berry 1985	Albrecht Zemke 1985	Parasuraman Zeithaml Berry SERVQUAL 1988	Grönroos 1988	Committee on Quality of Health Care in America 2001
<b>Outcome qualities, what is received</b>				
Competence	Competence		Knowledge and skills	
Trustworthiness		Reliability	Trustworthiness	
				Equitable
<b>Interaction qualities, how it is received</b>				
Believability		Assurance	Reliability	
Eagerness	Interest towards customers			
Ability to reach			Ability to reach	Timely
Kindness	Spontaneous	Empathy	Friendly and spontaneous	
Ability to communicate		Responsiveness		
Lack of risk				Safe
Understanding customer				Patient centred
	Readiness for crisis		Readiness for crisis	
<b>Physical environment quality</b>				
Material matters		Tangibles		
<b>Contains outcome, interaction and physical environment qualities</b>				
				Effective
<b>“Quality” from service providers’ point of view</b>				
				Efficient

### 2.8.3 The interface of expert defined quality and customers' value-in-use

Klaus and Maklan<sup>239</sup> pointed out that concentrating on customer experience blurs traditional distinctions between products and services because of the focus on customers' value-in-use, which arises from combinations of products and services. Klaus et al.<sup>240</sup> and Chitturi et al.<sup>241</sup> referred to the post-product, even post-service perspective, which concentrates on the extent to which customers have accomplished higher-order goals that represent a mix of utilitarian and emotional factors. Customer experience research seems to be context specific.

Co-creating value collaboratively with customers, according to Klaus et al.,<sup>242</sup> unites an organisation with customers' capabilities, enabling customers to achieve higher-order goals or objectives. Vargo and Lusch,<sup>243</sup> Fang,<sup>244</sup> and Lemke, Clark and Wilson<sup>245</sup> pointed out that as a customer's expectations are only met as a result of a consumption process, customers can be regarded as co-creators of value. Value-in-use was defined by Macdonald et al.<sup>246</sup> as 'a customer's functional outcome, purpose or objective that is directly served through the product/service consumption'. Lemke et al.<sup>247</sup> proposed that value-in-use mediates between

<sup>234</sup> Parasuraman, A., Zeithaml, V. and Berry, L. (1985). 'A Conceptual Model of Service Quality and its Implications for Future Research.' *Journal of Marketing*, 49(4), 41-50.

<sup>235</sup> Albrecht, K. and Zemke, R. (1985). 'Service America!' Homewood, Illinois, USA: Dow Jones-Irwin.

<sup>236</sup> Parasuraman, A., Zeithaml, V. and Berry, L. (1988). 'SERVQUAL: a Multiple-item Scale for Measuring Consumer Perceptions of Service Quality.' *Journal of Retailing*, 64(1), 12-40.

<sup>237</sup> Grönroos, C. (1988). 'Service Quality: The Six Criteria of Good Perceived Service Quality.' *Review of Business*, 9(3), 10-13.

<sup>238</sup> Committee on Quality of Health Care in America, Institute of Medicine (2001). 'Crossing the Quality Chasm: A New Health System for the 21<sup>st</sup> Century.' Washington, D.C., USA: National Academy Press.

<sup>239</sup> Klaus, P. and Maklan, S. (2007). 'The Role of Brands in a Service-Dominated World.' *Journal of Brand Management*, 15(2), 115-122.

<sup>240</sup> Klaus, P. and Maklan, S. (2007). 'The Role of Brands in a Service-Dominated World.' *Journal of Brand Management*, 15(2), 115-122.

<sup>241</sup> Chitturi, R., Raghunathan, R. and V. Mahajan (2008). 'Delight by Design: The Role of Hedonic Versus Utilitarian Benefits.' *Journal of Marketing*, 70(3), 48-63.

<sup>242</sup> Klaus, P. and Maklan, S. (2007). 'The Role of Brands in a Service-Dominated World.' *Journal of Brand Management*, 15(2), 115-122.

<sup>243</sup> Vargo, S. and Lusch, R. (2004). 'Evolving to a New Dominant Logic for Marketing.' *The Journal of Marketing*, 68(1), 1-17.

<sup>244</sup> Fang, E. (2008). 'Customer Participation and the Trade-Off between New Product Innovativeness and Speed to Market.' *Journal of Marketing*, 4, 90-104.

<sup>245</sup> Lemke, F., Clark, M. and Wilson, H. (2011). 'Customer Experience Quality: An Exploration in Business and Consumer Contexts Using Repertory Grid Technique.' *Journal of the Academy of Marketing Science*, 39(6), 846-869.

<sup>246</sup> Macdonald, E., Wilson, H., Martinez, V. and Toossi, A. (2009). 'Assessing Value-in-use: A Conceptual Framework and Exploratory Study.' *Industrial Marketing Management*, 40(5), 671-682.

experienced quality and relationship outcomes. Value-in-use is created by customers in use of services and products, in co-creation with producers. Value-in-use is personal and implies the customer's involvement in the production of the services.

This present study makes a clear distinction between value and quality. Value is customers' value-in-use. Quality is expert based evaluation of quality, which is called here expert defined quality. There is limited conceptualisation of experience in quality measurement. That quality is probably necessary for most organisations, but not sufficient. From a Payne et al.<sup>248</sup> study we can conclude that consumption experience is conceptually distinct from expert defined quality, which forms a judgment about an organisation's processes and not the customer's. Grönroos,<sup>249</sup> Woodruff et al.<sup>250</sup> and Lemke et al.<sup>251</sup> agreed that quality assessed at the factory gate is an embedded-value measure, necessary but not sufficient for value to be obtained in use.

#### 2.8.4 Customer relationship management (CRM)

Since the 1970s the establishment and management of relationships has emerged within two streams of research emanating from Scandinavia and Northern Europe, and eventually spreading to other parts of the Western world. These streams of research were the Nordic School of Service,<sup>252</sup> which looked at management from a service perspective, and the IMP Group,<sup>253</sup> which took the network and interaction approach in order to form an understanding

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<sup>247</sup> Lemke, F., Clark, M. and Wilson, H. (2011). 'Customer Experience Quality: An Exploration in Business and Consumer Contexts Using Repertory Grid Technique.' *Journal of the Academy of Marketing Science*, 39(6), 846-869.

<sup>248</sup> Payne, A., Storbacka, K. and Frow, P. (2008). 'Managing the co-creation of value.' *Journal of the Academy of Marketing Science*, 36(1), 83-96.

<sup>249</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>250</sup> Woodruff, N. and Flint, D. (2006). 'Marketing Service-Dominant Logic and Customer Value.' In Lusch, R. and Vargo, S. (eds.) *The Service Dominant Logic of Marketing: Dialog, Debate, and Directions*. Armonk, New York, USA: M.E. Sharpe Inc.

<sup>251</sup> Lemke, F., Clark, M. and Wilson, H. (2011). 'Customer Experience Quality: An Exploration in Business and Consumer Contexts Using Repertory Grid Technique.' *Journal of the Academy of Marketing Science*, 39(6), 846-869.

<sup>252</sup> Berry, L. and Parasuraman, A. (1993). 'Building a New Academic Field – The Case of Services Marketing.' *Journal of Retailing*, 69(1), 13-60.

<sup>253</sup> Håkansson, H. (ed.) (1982), 'International Marketing and Purchasing of Industrial Goods.' New York, New York, USA: Wiley

of industrial businesses. Building and managing relationships became a philosophical cornerstone of the Nordic School of Service.<sup>254</sup>

Numerous organisations have applied customer relationship management methods, which track customer behaviour on the web, predict customers' future moves and send e-mail communications. There is a worldwide market for various CRM products and services. CRM may mean direct emails for some. For others, it may be developing products, which fit individual customers' needs. Landry et al.<sup>255</sup> defined that CRM seeks to integrate customer management activities across an organisation. Many definitions of CRM, like the one by Stone et al.,<sup>256</sup> stated that it is an organisation wide strategy involving service logic with automated processes. According to them, CRM is a term for methodologies, technologies and e-commerce capabilities used by organisations to manage customer relationships. In Anderson et al.'s<sup>257</sup> book CRM was about using information and communication technology systems to capture and track customers' expectations.

Rajola's<sup>258</sup> perspective was that CRM may be regarded as a set of technological and organisational mechanisms intended to buffer market instability through better knowledge of market variables, in order to anticipate customer expectations, rendering production activities more stable. For Gummesson<sup>259</sup> CRM was interaction in networks of relationships. Despite the frequent lack of conceptual distinction between CRM as a strategy versus CRM as a set of technologies, according to Leigh et al.,<sup>260</sup> it was clear that CRM could allow one-to-one marketing so much so that information and communication technologies have become a vital organisational strategy.

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<sup>254</sup> Grönroos, C. (1996). 'Relationship Marketing Logic.' *Asia-Australia Marketing Journal* 4(1), 7-18.

<sup>255</sup> Landry, T., Arnold, T. and Arndt, A. (2005). A Compendium of Sales-related Literature in Customer Relationship Management: Processes and Technologies with Managerial Implications.' *Journal of Personal Selling & Sales Management*, 25(3), 231-251.

<sup>256</sup> Stone, M. and Woodcock, N. (2001). Defining CRM and Assessing Its Quality.' In Foss, B. and Stone, M. (eds.) *Successful Customer Relationship Marketing*. Bath, UK: Bath Press.

<sup>257</sup> Anderson, K. and Kerr, C. (2002). 'Customer Relationship Management.' New York, New York, USA: McGraw-Hill.

<sup>258</sup> Rajola, F. (2003). 'Customer Relationship Management: Organizational and Technological Perspective.' New York, New York, USA: Springer.

<sup>259</sup> Gummesson, E. (2008). 'Customer Centricity: a Reality or a Wild Goose Chase?' *European Business Review* 20(4), 315-330.

<sup>260</sup> Leigh, T. and Marshall, G. (2001), 'Research Priorities in Sales Strategy and Performance.' *Journal of Personal Selling & Sales Management*, 21(2), 83-93.

Customer relationship management brings the need to appreciate customers' expectations to all levels of an organisation, Grönroos<sup>261</sup> pointed out. Customers' creation of value-in-use is dependent on co-creation with producers in on-going customer relationships with them. Nothing can guarantee that customers will be satisfied and will be interested in continuing the relationship. Managing customers is a process, where all an organisation's functions should be involved. Management with service logic is needed in organisations, which try to create customers' value-in-use. This includes a variety of customer contacts consisting of services, which are core solutions, as well as a host of other services.

Customers' requirements are useful, stressed Gummesson.<sup>262</sup> Customer demands are not a negative thing. In a CRM world, knowledgeable and demanding customers are considered a valuable asset. Customers, when their requests are noticed, can bring new ideas. Customer demands can be used to develop service concepts. Suppliers should not only manage customer relationships but co-create with customers in relationships.

Long term relationships with customers cannot be established in a sustainable way if management only focuses on decisions creating short term benefits said Reichheld.<sup>263</sup> Long term customer relationships create value for customers. When customers are provided with the services they are looking for, profits for the organisation should accumulate. It may take time before customer relationships are developed in an organisation.

In customer relationship management, wrote Winer,<sup>264</sup> the attention 'has changed from customer acquisition to customer retention', although it is sometimes difficult to distinguish between these two activities. An essential benefit of the information and communication technology revolution is the opportunity to build better relationships with customers than was previously possible in then existing systems, which were offline not online. By combining the ability to respond directly to customer requests and to provide customers with a co-creative experiences, organisations have a greater ability to sustain long term customer relationships

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<sup>261</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>262</sup> Gummesson, E. (2008). 'Customer Centricity: a Reality or a Wild Goose Chase?' *European Business Review* 20(4), 315-330.

<sup>263</sup> Reichheld, F. (1996). 'The Loyalty Effect. The Hidden Force Behind Growth, Profits, and Lasting Value.' Boston, Massachusetts, USA: Harvard Business School Press.

<sup>264</sup> Winer, R. (2001). 'Customer Relationship Management: A Framework, Research Directions, and the Future.' Haas School of Business, University of California at Berkeley, Berkeley, California, USA.

today than ever before. An over-arching goal is to transform these relationships into greater profitability by increasing repeat purchase rates and by reducing customer acquisition costs.

Reichheld<sup>265</sup> showed a dramatic increase in profits from small increases in customer retention rates. For example, his studies showed that as little as a 5 % increase in customer retention had an impact as high as 95 % on the net present value delivered by customers of advertising agencies. In other businesses as well, Reichheld showed considerable increases in profits from a 5 % increase in customer retention, the lowest increase in profits being 35 % in the computer software business. The improvements in technology and innovation in CRM related products have made it easier to reach greater profitability from reduced customer turnover.

Grönroos<sup>266</sup> defined three strategic issues in relationship management. First it is necessary to define the organisation as a service organisation. Organisations need to know the long term needs of customers and they need to define a complete service offering, not just the core services. Second is the process management perspective, where organisations need to manage the process of creating value for customers. Third are partnerships and networks. Organisations need to establish partnerships and a network to handle the whole service process. Furthermore three tactical elements of the relationship strategy were identified by Grönroos. These were, creating direct contacts with customers, building a database covering customer information, and creating a customer-oriented service system, in other words taking a service perspective.

If an organisation is to truly implement a relationship management strategy, it has to understand the philosophical nature of such strategy, how to approach customers and other stakeholders. It was a new paradigm, not just a new model. In the beginning, organisations that wish to implement a relationship management approach are normally still focused on their products. A true transition towards a relationship management strategy requires a focus on competencies and resources in the relationship. The relationship itself becomes the focus. It is understood that the products themselves are transparent from the customer's point of

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<sup>265</sup> Reichheld, F. (1996). 'The Loyalty Effect. The Hidden Force Behind Growth, Profits, and Lasting Value.' Boston, Massachusetts, USA: Harvard Business School Press.

<sup>266</sup> Grönroos, C.(1996). 'Relationship Marketing Logic.', *Asia-Australia Marketing Journal* 4(1), 7-18.

view. Every organisation, regardless of its business, can benefit from a relationship management approach.<sup>267</sup>

Winer<sup>268</sup> gave a detailed list of different components of CRM methods, research directions and the future of services as follows:

- the database of customer activity
- the analyses of the database
- given the analyses, decisions about which customers to target
- tools for targeting the customers
- how to build relationships with the targeted customers
- privacy issues
- metrics for measuring the success of the program

Ang et al.<sup>269</sup> found that companies that build customer development plans around increases in revenues, rather than reductions in costs to serve, achieve better development outcomes. Outstanding performance in customer development seems to be strongly associated with managing the revenue side of the profit equation.

Today's world is global and technological. Technology can provide support for different age groups, including older people. Service systems can be overhauled by the means of information and communication technologies. New kinds of information and communication technologies are paving the way to improved customer management. Employees can easily access relevant customer information, which can be in real time, multilingual and location aware. With these ideas as the basis this study applies customer relationship management.

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<sup>267</sup> Grönroos, C. (1996). 'Relationship Marketing Logic.' *Asia-Australia Marketing Journal* 4(1), 7-18.

<sup>268</sup> Winer, R. (2001). 'Customer Relationship Management: A Framework, Research Directions, and the Future.' Haas School of Business, University of California at Berkeley, Berkeley, California, USA.

<sup>269</sup> Ang, L. and Buttle, F. (2009). 'Customer Development Strategies for Exceeding Expectations – An Exploratory Study.' *Journal of Database Marketing & Customer Strategy Management*, 16(4), 267-275.

## 2.9 The productivity of service organisations

There are many studies on productivity and research is wide-ranging.<sup>270 271 272 273</sup> In the industrial world, productivity has generally been a measure of output from a production process, per unit of input.<sup>274 275</sup> This ratio measures how well an organisation converts input resources into goods. The successful management of productivity is considered to be the key to survival of any organisation or nation. Output divided by input is the engineer and economist approach to productivity and it is actually an efficiency measure. If we applied this approach to services we should be able to measure immaterial output quantitatively and take its changing value into consideration. This is neither easy nor straightforward, it can even be considered impossible.

Increase in productivity is the part of growth in output that is not explained by increase in the use of input. For instance, productivity improvements mean achieving more output for the same input or achieving the same output from less input. An important point is that productivity improvement has also been seen as an elimination of waste.<sup>276</sup> This study looks into elimination of waste as an important productivity improvement function. Statistics Finland<sup>277</sup> describes growth in productivity as including, besides technological development and increased efficiency, also the effects from improved quality of input, management, logistics and organisation.

One company<sup>278</sup> has described productivity as a tree. The roots denote input: materials, tools, equipment, skills, people, knowledge, systems, management, processes and attitudes. These inputs convert in the tree trunk into output, the leaves and the fruit. Increase in productivity is

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<sup>270</sup> Deming, W. (1982). 'Quality control; Industrial Productivity.' Cambridge, Massachusetts, USA: MIT Press.

<sup>271</sup> Tilman, D., Wedin, D. and Knops, J. (1996). 'Productivity and sustainability influenced by biodiversity in grassland ecosystems.' *Nature*, 379, 718-720.

<sup>272</sup> Meliz, M. (2003). 'The Impact of Trade on Intra-Industry Reallocation and Aggregate Industry Productivity.' *Econometrica*, 71(6), 1695-1725.

<sup>273</sup> Nordgren, L. (2009). 'Value creation in health care services – developing service productivity: Experiences from Sweden.' *International Journal of Public Sector Management*, 22( 2), 114-127.

<sup>274</sup> Chew, W. (1988). 'No-nonsense to Measuring Productivity.' *Harvard Business Review*, 66(1), 110-118.

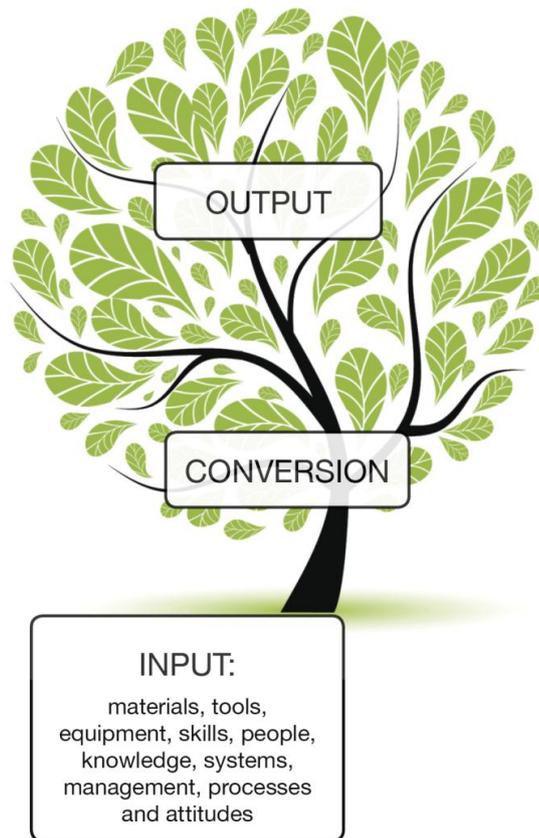
<sup>275</sup> Sumanth, D. (1997). 'Total Productivity Management.' Boca Raton, Florida, USA: St. Lucie Press.

<sup>276</sup> Samaddar, S. and Heiko, L. (1991). 'Waste Elimination: The Common Denominator for Improving Operations.' *Industrial Management & Data Systems*, 93(8), 13-19.

<sup>277</sup> [www.stat.fi/meta/til/ttut\\_en.html](http://www.stat.fi/meta/til/ttut_en.html) , Statistics Finland, 2013

<sup>278</sup> ACCEL (2013). [http://www.accel-team.com/productivity/productivity\\_01\\_what.html](http://www.accel-team.com/productivity/productivity_01_what.html)

increased output volume, improved services and/or reduced costs. Figure 3 shows this description in the form of a picture.



**Figure 3** Productivity tree (adapted on the basis of Accel)<sup>279</sup>

There are both verbal and mathematical approaches to defining service productivity.<sup>280 281 282</sup> Compromises are often made when mathematical definitions are formulated, which in turn means that they usually only show a part of the true meaning of service productivity.<sup>283</sup>

<sup>279</sup> ACCEL (2013). [http://www.accel-team.com/productivity/productivity\\_01\\_what.html](http://www.accel-team.com/productivity/productivity_01_what.html)

<sup>280</sup> Jackson, M. and Petersson, P. (1999). 'Productivity – an overall measure of competitiveness.' *Proceedings of the 2nd Workshop on Intelligent Manufacturing Systems*, Leuven, 22-24 September, pages 573-81.

<sup>281</sup> Al-Darrab, I. (2000). 'Relationships between productivity, efficiency, utilisation, and quality.' *Work Study*, 49(3), 97-103.

<sup>282</sup> Moseng, B. and Rolstadås, A. (2001). 'Success factors in the productivity process.' 10th World Productivity Congress, available at: [www.catriona.napier.ac.uk/resource/wpc10th/moseng.htm](http://www.catriona.napier.ac.uk/resource/wpc10th/moseng.htm)

<sup>283</sup> Tangen, S. (2005). 'Demystifying Productivity and Performance.' *International Journal of Productivity and Performance Management*, 54(1), 34-46.

Mathematical definitions do not reflect all the characteristics that represent the concept of service productivity. The verbal definitions aim to explain what the concept of service productivity means. They are useful, since they can create a shared view of what a service organisation is striving to achieve. It can be difficult to translate the verbal definition into a mathematical one.

Many service areas have long been under pressure to increase productivity. Although increasing productivity is a central goal in many organisations, it is often not clearly understood what the term productivity in the context of services really means and how productivity should be investigated and managed in this context. The writings of Gummesson<sup>284</sup>, Vuorinen et al.<sup>285</sup>, Ojasalo<sup>286</sup> and Grönroos<sup>287</sup> illustrated the concept of productivity in the context of services. Grönroos and Ojasalo<sup>288</sup> and Tangen<sup>289</sup> represent the literature, which relates service productivity to the efficiency and the effectiveness of an organisation's processes. This present study follows these ideas of service productivity. The value of services and the role of customers was emphasised by Gummesson, Grönroos and Ojasalo.

Productivity is important for the private sector as well as for the public sector and third sector services. When measuring the productivity of the public sector and the third sector there are more questions than when measuring private sector productivity. In the private sector market prices are fixed and when measuring productivity, quality is often changed into quantity. The public sector and the third sector do not have market prices.

Productivity measurement for the private sector service organisations also presents a number of difficulties according to Simpson.<sup>290</sup> The results of research studies have been

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<sup>284</sup> Gummesson, E. (1998). 'Productivity, Quality and Relationship Marketing in Service Operations.' *International Journal of Contemporary Hospitality Management*, 10(1), 4-15.

<sup>285</sup> Vuorinen, I., Järvinen, R. and Lehtinen, U. (1998). 'Content and Measurement of Productivity in the Service Sector.' *International Journal of Service Industry Management*, 9(4), 377-396.

<sup>286</sup> Ojasalo, K. (1999). 'Conceptualizing Productivity in Services.' A doctoral dissertation. Swedish School of Economics and Business Administration, Helsinki, Finland.

<sup>287</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>288</sup> Grönroos, C. and Ojasalo, K. (2004). 'Service Productivity: Toward a Conceptualization of the Transformation of Inputs into Economic Results in Service.' *Journal of Business Research*, 57(4), 414-423.

<sup>289</sup> Tangen, S. (2005). 'Demystifying Productivity and Performance.' *International Journal of Productivity and Performance Management*, 54(1), 34-46.

<sup>290</sup> Simpson, H. (2009). 'Productivity in Public Services.' *Journal of Economic Surveys*, 23(2), 250-276.

demonstrated to be robust to different assumptions and to the use of different productivity measurement techniques. However, Simpson continued that partial measures of productivity, for example for specific health conditions, can be accurate in terms of capturing output quality, and highly informative when assessing the impact of specific changes in technology such as the introduction of new medical treatments.

Customers experience the quality of services subjectively in many different ways.<sup>291</sup> When a service organisation tries to increase productivity by increasing efficiency, it affects the services produced and the customers' experiences. If a service organisation decreases the number of personnel and, at the same time, tries to offer services to the same or a larger clientele, customers easily notice the change, which is often negative. If productivity is understood, as it traditionally is in manufacturing, as the relationship of output to input, any increase in productivity by this means would usually decrease customer satisfaction in service organisations.<sup>292</sup> This does not create a sustainable increase in productivity. Minimising input is not always the right goal.

Several studies, for instance by Dobni,<sup>293</sup> Kontoghiorges<sup>294</sup> and Parasuraman<sup>295</sup> have shown that the point of view of both the organisation and its customers should be considered when aiming for productivity. This present study follows that point of view. Ojasalo<sup>296</sup> pointed out that trying to increase productivity can have dangerous results in service organisations if it is unclear what productivity really means in the service production context, and how it should be investigated and managed.

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<sup>291</sup> Blois, K. (1985). 'Productivity and Effectiveness in Service Firms.' In: Foxall, G. (ed.) *Marketing in the Service Industries*. London, England: Frank Cass and Company Limited.

<sup>292</sup> Anderson, E., Fornell, C. and Rust, R. (1997). 'Customer Satisfaction, Productivity, and Profitability: Differences between Goods and Services.' *Marketing Science*, 16(2), 129-149.

<sup>293</sup> Dobni, D. (2004). 'A Marketing-Relevant Framework for Understanding Service Worker Productivity.' *Journal of Services Marketing*, 18(4), 303-312.

<sup>294</sup> Kontoghiorges, C. (2003). 'Examining the Associations between Quality and Productivity Performance in a Service Organisation.' *The Quality Management Journal*, 10(1), 32-43.

<sup>295</sup> Parasuraman, A. (2002). 'Service Quality and Productivity: A Synergistic Perspective.' *Managing Service Quality*, 12(1), 6-9.

<sup>296</sup> Ojasalo, K. (2001). 'Palveluyrityksen tuottavuuden tehostaminen – resurssien minimoinnista asiakasajatteluun (Increasing the Productivity of a Service Company – from Minimizing Resources to a Customer-oriented Approach).' In Grönroos, C. and Järvinen, R. (eds.) *Palvelut ja asiakassuhteet markkinoinnin polttopisteessä (Services and Customer Relations in the Focus of Marketing)*. Helsinki, Finland: Talentum Media Oy.

In services in general, it is not possible to completely define input and output: they are not homogeneous and measurable. In service organisations the benefits of output can be questioned. This is because of the many characteristics of services, one of which is that services are heterogeneous even among the same services in the same organisation. Even the same service employee delivers heterogeneous services at different times.<sup>297</sup> The quality of the services changes easily even though the service, as a product, is standardised. It is not justified to define service organisations' productivity as solely the relationship of output to input.

Services are also often tailor-made and as such they differ considerably between different customers and at different times. This leads to the conclusion that it does not serve any purpose if the outputs of service organisations are only counted in terms of numbers. An important measurement of a service organisation's output is the subjective experience of its customers. Along with this point of view this study looks into customer value-in-use.

Outputs of service organisations are often difficult to count as individual services and the value-in-use is difficult to measure. For instance, outputs of services cannot be measured just by counting the number of the customers served, without taking into consideration the quality of services and how the services meet the expectations of the customers. This study applies also this point of view. It may be said that it is not a service at all if a person is not helped by that service. In other words, it is often very difficult to define a particular service appropriately.<sup>298</sup>

Customers not only receive outputs produced by an organisation, but customers affect the production process and the organisation's outputs in a major way. Customers bring a central uncertainty factor to service productivity.<sup>299</sup> An organisation and its customers produce most of the services in co-operation with each other. Some customers produce part of the services themselves such as filling in an initial customer form or following given advice. A service

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<sup>297</sup> Ojasalo, K. (1999). 'Conceptualizing Productivity in Services.' A doctoral dissertation. Swedish School of Economics and Business Administration, Helsinki, Finland.

<sup>298</sup> Ojasalo, K. (1997). 'Measuring Service Productivity.' Working Paper 345. Swedish School of Economics and Business Administration, Helsinki, Finland.

<sup>299</sup> Legnick-Hall, C. (1996). 'Customer Contributions to Quality: A Different View of the Customer-Oriented Firm.' *Academy of Management Review*, 21(3), 791-824.

organisation produces part of the services by itself without its customers, for example, inputting and handling customer information in their database according to the forms filled in by the customers. However, customer information cannot be handled properly without obtaining the right information from the customers. Moreover, all technical solutions, which could be thought of as the organisation's tasks, must take into consideration customer expectations and customer data.

Customers' input in a service organisations' production is central. The way in which a customer brings uncertainty to service productivity comes primarily from the fact that customers have their own expectations regarding the services and also their own abilities to function in the service processes.<sup>300</sup> However, productivity may be favourably influenced in many ways by the organisation. First, customers can be supported to take an active role in producing the services. Second, customers can also, to some extent, be trained to bring the right kind of inputs into the service process. In this way, resources can be used more efficiently. Third, it is important to have an in-depth knowledge of customer expectations in order to create good value-in-use for customers.

It is typically argued that services cannot be stored and that the supply and the consumption of services are simultaneous activities. They cannot be produced before they are consumed. That is why demand for services directly affects the productivity of the services.<sup>301</sup> If there is unused capacity among personnel, an increase in service demand immediately increases the productivity of the organisation. This is especially the case when an organisation has invested a great deal in fixed costs and there is considerable variation in demand.

The capacity utilisation rate affects productivity. The capacity utilisation rate needs to be at an optimal level, which means that services are produced as much as possible with the selected capacity, but do not exceed this capacity otherwise the customers or the personnel will suffer because of deficient quality. The capacity utilisation rate means the number of outputs actually produced compared to the number of the same quality outputs which could be produced by the existing capacity.

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<sup>300</sup> Armistead, C. and Clark, G. (1994). 'The 'Coping' Capacity Management Strategy in Services and the Influence on Quality Performance.' *International Journal of Service Industry Management*, 5(2), 5-23.

<sup>301</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

Grönroos and Ojasalo<sup>302</sup> sum up the service productivity concept with a definition:  
 Service productivity = f(I internal efficiency, external efficiency, capacity efficiency).  
 This model is illustrated in Figure 4.

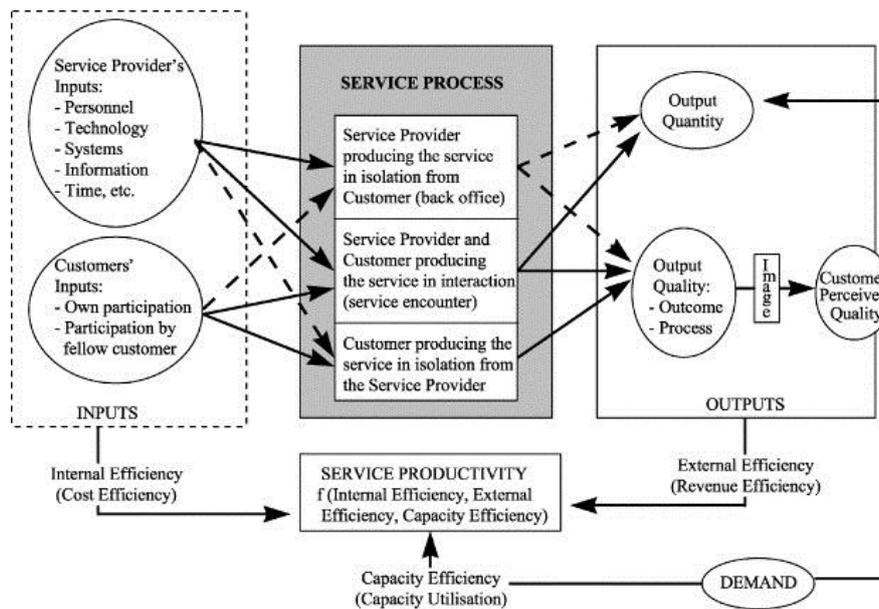


Figure 4 A service productivity model.<sup>303</sup>

## 2.10 Innovation

When developing a new way for organisations to investigate productivity, innovation can also be discussed. Although innovation theories are not the core of this study, the author argues that it is worthwhile to look at the topic of innovations in services. This chapter deals with this topic keeping service productivity in mind.

<sup>302</sup> Grönroos, C. and Ojasalo, K. (2004). 'Service Productivity: Toward a Conceptualization of the Transformation of Inputs into Economic Results in Service.' *Journal of Business Research*, 57(4), 414-423.

<sup>303</sup> Grönroos, C. and Ojasalo, K. (2004). 'Service Productivity: Toward a Conceptualization of the Transformation of Inputs into Economic Results in Service.' *Journal of Business Research*, 57(4), 414-423.

### 2.10.1 Innovations in services

Innovation theories can be used to develop insights into how the future will unfold in a given service area and to make wiser choices based on those insights.<sup>304</sup> The National Science Foundation of the USA<sup>305</sup> defined innovation as technology new to an organisation. Technologies do not necessarily have to be new to be innovative, but have to be new to where they are applied and also be successful. Another view by Tidd et al.<sup>306</sup> defined innovation as a process of turning opportunity into new ideas and of putting these into widely used practice.

According to the 'Oslo Manual'<sup>307</sup> there are product innovations, process innovations, market innovations, and organisational innovations. Product innovation could be an introduction of a service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in the incorporated software, i.e. user friendliness or other functional characteristics. Product innovation can utilise new knowledge or technologies, or can be based on new uses or combinations of existing knowledge or technologies.

Leifer et al.<sup>308</sup> distinguished innovations as being either radical or incremental innovations. Incremental innovation could emphasise cost or feature improvements in existing services and would be dependent on exploitation competencies. Incremental innovations are continuous improvement known in quality management. These innovations can be created based on quality assessment. Radical innovations develop new services based on new ideas of technologies or substantial cost reductions, which can transform the economics of an organisation and therefore require exploration competencies.

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<sup>304</sup> Christensen, C., Roth, E. and Anthony, S. (2004). 'Seeing What's Next: Using Theories of Innovation to Predict Industry Change.' Boston, Massachusetts, USA: Harvard Business School Press.

<sup>305</sup> [www.nsf.gov](http://www.nsf.gov)

<sup>306</sup> Tidd, J., Bessant, J. and Pavitt, K. (2001). 'Managing Innovation: Integrating Technological Market and Organizational Change.' Chichester, England: John Wiley & Sons Ltd.

<sup>307</sup> Organisation for Economic Co-operation and Development (OECD) (2005). 'Measurement of Scientific and Technological Activities, Proposed Guidelines for Collecting and Interpreting Technological Innovation Data.' Oslo Manual, European Commission, Eurostat.

<sup>308</sup> Leifer, R., McDermott, C., O'Connor, G., Peters, L., Rice, M. and Veryzer, R. (2000). 'Radical Innovation: How Mature Companies Can Outsmart Upstarts.' Boston, Massachusetts, USA: Harvard Business School Press.

Innovation requires the marshalling of different resources to deliver the final services. An innovation can be a new thing or a new way of doing things or both. Innovation is not just a matter of different technological applications. It also concerns an understanding of market needs. According to Lettl and Gemuenden<sup>309</sup> innovations by customers can be adopted by organisations, even radical innovations. Organisations have to recognise the opportunities of the innovations and afterwards markets have to accept them. Personnel in customer services play a key role in adopting customer innovations. Top management needs to become convinced by innovations in order to invest in them, and this will ultimately lead to the development of these innovations. Customer innovations can become major commercial successes.

This leads us to open innovation, which is research and development outside an organisation and its customers. In open innovation, ideas are created both internally in the organisation and also externally.<sup>310</sup> Service production could be tied to the so called “sixth generation research and development”, which relies heavily on wide cooperation with parties outside the boundaries of the organisation itself. The “sixth generation of research and development” is an emerging mode of operation, which has gained much momentum in the 21<sup>st</sup> century.

Principles can be defined as laws, which govern our lives. Papageorge<sup>311</sup> considered three critical principles in regard to innovation. The first principle is that everything in an organisation is connected to each other. This is a reflection of the fact that all parts of the universe are linked together and interchange their influences. Most physicists agreed with Bell’s theorem, which David Bohm, a contemporary of Einstein and Bell’s teacher, expressed in the following words: “Everything is connected to everything else. We are not sure how this connectedness works, but there is a certainty that there is separation without separateness.”<sup>312</sup> Thus everything in the universe affects everything else, because all are parts of the same unbroken whole. Rather than separating things, we need to learn to see the world in terms of related parts of a whole. In a more pragmatic sense, everything in an organisation is

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<sup>309</sup> Lettl, C. and Gemuenden, G. (2006). ‘Adopting Radical Innovation from Outside: Promoters as the Linking Pin.’ IFSAM-Conference Paper, Track 6: Technology and Innovations in the Global Economic Geography.

<sup>310</sup> Kauranen, I. (2012 March). Research and Development lecture, Department of Industrial Engineering and Management, Aalto University, Espoo, Finland.

<sup>311</sup> Papageorge, A., The Power of Principles in Innovation, [www.goinnovate.com](http://www.goinnovate.com)

<sup>312</sup> Jaworski, J. (2011). ‘Synchronicity: The inner path of leadership.’ Berrett-Koehler Publishers Inc: San Francisco, California, USA.

connected. When looking at the organisation as a system in which everything is interrelated, we see how all the processes, people, structures, communications, and changes affect one another. Innovations need to meet customer expectations. It must be understood that everything in an organisation is connected to everything else and satisfying customer expectations is a matter for everyone in an organisation.

Papageorge's second principle is that thought is generative. Papageorge points out that the greatest discovery of all time might well be that thought is causal. Thought is the originator of everything that is brought into existence, the starting point of every new innovation. Thinking causes things to happen. Action, the movement of energy, flows from thoughts. Organisations are in large part shaped by the way people think and interact. To make organisations more innovative, we must change how people think and interact. To understand that 'thought is generative' is vital to innovating swiftly, continually, and effectively. The primary obstacles to innovation lie in our most basic ways of thinking. If these do not change, any new input will ultimately only produce fundamentally similar results. Therefore, we must examine our thinking and thought processes from a personal, team, and organisational perspective.

We often only think about what we think and very little about how we think. Many of our old thoughts and perceptions continue to affect our actions even though we are no longer consciously aware of them. By changing our thoughts, we release ourselves from the past. The primary obstacles to innovation lie in most basic ways of thinking. If these do not change, any new input will ultimately only produce fundamentally similar results.

Papageorge's third principle is that everyone is creative and innovative, which many of us find difficult to embrace. It has also been thought that creativity and innovation existed only in the research and development or technology departments, or at the top level of organisations. When initiating or participating in an innovative process, everyone's innate creative ability must be recognised. Anyone can produce a good idea, a great idea, or an idea that is valuable to the end result being sought. Everyone can be creative and innovative. This means that not only management, but also customers, in particular, and those who are in daily contact with customers, are in key positions to create innovations. This is an important point emphasised in this present study.

### 2.10.2 Continuous improvement by innovation

Continuous improvement is seen as an important complement to more radical, stepwise forms of innovation. Continuous improvement is a continuing stream of focused incremental innovations in an organisation. It has been applied in particular to the area of quality management. A widely used tool for continuous improvement is a four step model, the plan-do-check-act cycle, also known as the Deming cycle:<sup>313</sup>

- Plan: Identify an opportunity and plan for change.
- Do: Implement the change on a small scale.
- Check: Use data to analyse the results of the change and determine, whether it made a difference.
- Act: If the change was successful, implement it on a wider scale and continuously assess the results. If the change did not work, begin the cycle again.

Deming saw this tool as part of a system where feedback from the process and customers was evaluated against organisational goals.

Some organisations use a continuous improvement approach known as Kaizen.<sup>314</sup> The core principle of Kaizen continuous improvement is feedback. The purpose is efficiency by the identification, reduction, and elimination of suboptimal processes. These elements were tactical elements of Kaizen continuous improvement<sup>315</sup> and useful in this present study, too. The more strategic elements included deciding how to increase value-in-use and how much flexibility is valuable in the process of meeting changing expectations.

Production companies around the world have used the Kaizen continuous improvement method to obtain results and to become recognised as industry leaders. Both respect for people and continuous improvement can be used in service production. Continuous improvement can be an ongoing effort to improve services and processes. These efforts can

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<sup>313</sup> Deming, W. (1986). 'Out of the Crisis.' Massachusetts Institute of Technology, Center for Advanced Engineering Study, Cambridge, Massachusetts, USA.

<sup>314</sup> This method became famous by the book: Imai, M. (1986). 'Kaizen: The Key to Japan's Competitive Success.' New York, New York, USA: Random House.

<sup>315</sup> Imai, M. (1997). 'Genba Kaizen: A Commonsense, Low-Cost Approach to Management.' New York, New York, USA: McGraw Hill.

cause incremental improvements over time. Service logic processes can be constantly evaluated and improved in the light of their efficiency, effectiveness, and flexibility. Lean Information Technology (LIT)<sup>316</sup> is an extension of continuous improvement principles into the development and management of information and communication technology services. The central concern of LIT is the elimination of waste, where waste is seen as work that adds no value to a service. LIT ideas are used in this study.

Although lean principles are generally well established and have broad applicability, their extension from manufacturing into services has only emerged in the 21<sup>st</sup> century. Whereas LIT initiatives can be limited in scope and deliver results quickly, implementing LIT is a continuing and long-term process that may take years before lean principles become intrinsic to an organisation's culture. Lean Information Technology promises to identify waste that contributes to poor customer service, lost business, higher than necessary operation costs, and lost employee productivity. Those elements within operations are eradicated that add no value to the finished service or to the organisation.<sup>317</sup>

Some studies, such as Hauschildt et al.<sup>318</sup> and Gemunden et al.,<sup>319</sup> differentiate between key functions and key individuals in the innovation process. According to Gemunden et al. innovations can be particularly seen as driven by three different types of individuals:

- Expert promoters, who have a specific technical knowledge for the innovation process.
- Process promoters, who derive their influence from organisational knowhow. They make connections and have diplomatic skills to bring together the necessary people for the innovation process.
- Relationship promoters, who have strong personal ties not only inside, but also outside the organisation in particular, in other words to customers, suppliers, and research partners. Relationship promoters can be seen as ambassadors of the organisation.

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<sup>316</sup> Kindler, N., Krishnakanthan, V. and Tinaika, R. (2007). 'Applying Lean to Application Development.' *The McKinsey Quarterly*, 3, 99-101.

<sup>317</sup> Waterhouse, P. (2008). 'Improving IT Economics: Thinking Lean.' CA White Paper, November. <http://www.ca.com/us/default.aspx>

<sup>318</sup> Hauschildt, J. and Schewe, G. (2000). 'Gatekeeper and Process Promoter: Key Persons in Agile and Innovative Organisations.' *International Journal of Agile Management Systems*, 2(2), 96-103.

<sup>319</sup> Gemunden, H., Salomo, S. and Holzle, K. (2007). 'Role Models for Radical Innovations in Times of Open Innovation.' *Creativity and Innovation Management*, 16(4), 408-421.

The promoters themselves can strongly influence innovation success. They are considered most successful, when combining their abilities and contributions with those of the two others.

## **2.11 The summary of the theoretical discussion**

There is a need to improve performance in social services and health services because their share, as a percentage of public expenditure, is increasing. The role of performance measurement has been emphasised. Productivity measures are frequently used performance measures.

When studying the productivity of services, the input and the output sides of service production have to be considered as they both affect productivity. It is crucial also to look at both the organisation and its customers when talking about service production. A service organisation co-creates value with customers. There is interaction, which is a source of value creation. Technology, when used with new kinds of working methods and leadership practices, may allow customers and service producers to co-create and maximise value-in-use.

There is abundant research in the area of customer relationship management both in industry and in services. An overall goal of relationship programmes is to deliver a high level of customers' value-in-use. Research studies have shown that there is a positive correlation between customer satisfaction and profits. This present study defines customer relationship management as encompassing a myriad of activities across an organisation, and aimed at ensuring productivity.

Appelqvist, when studying the demand of products and the efficiency of industrial companies, concluded that greater theoretical insights could be achieved by interpreting the collected data through the eyes of marketing management, including customer relationship management.<sup>320</sup> This present study follows that path and draws on the theoretical framework of marketing management and CRM.

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<sup>320</sup> Appelqvist, P. (2005). 'Matching Customer Demand, Offering Portfolio and Operations Systems in Technology-intensive Industries.' Dissertation Series No 2005/5, Laboratory of Industrial Management, Helsinki University of Technology, Finland.

Effectiveness is difficult to measure and there is no consensus as to which approach is most appropriate. This study interprets effectiveness as the quality of services from the customers' point of view and also from the experts' point of view. Grönroos<sup>321</sup> definitions of two types of quality are used here. The first is functional quality i.e. how the service is received. It is interpreted in this study as value-in-use and the second is technical quality. The definition of technical quality as what is received in services is interpreted in this study as expert defined quality. Customers do not always know what they need and have no skills in technology.

Effectiveness is mainly measured by employee or customer surveys in the form of questionnaires or interviews. SERVQUAL is widely used as an effectiveness measure. It uses customer opinion surveys. Counting customer complaints is also used as a service effectiveness measure. Another way used has been to measure the time it takes to resolve customer problems. Social media has brought some new features to help track the effectiveness of social media in customer service efforts. In this present study expert defined quality and customers' value-in-use together define the effectiveness of services. Investigating quality and value-in-use in a new way hopefully advances discussion of the difficult topic of service productivity.

Furthermore, quality management can improve the reliability of achieving the given outcomes but also to reduce waste. Lean Information Technology can be used in the development of information and communication services. Its central concern is the elimination of waste, when waste is work that adds no value to a service. This affects efficiency, which is the input side of productivity. These guidelines are useful as managerial principles in this study.

In order to implement the ideas of past research and to create something further, innovation is needed. Innovation by customers can be adopted by organisations. Ideas of collaboration have been increasingly emphasised in the 21<sup>st</sup> century.<sup>322</sup> Personnel in customer service play a key role in adopting customer innovations. The personnel in customer service are here called relationship promoters, because they have ties that are both internal and external to the

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<sup>321</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>322</sup> Kauranen, I. (2012 March). Research and Development lecture, Department of Industrial Engineering and Management, Aalto University, Espoo, Finland.

organisation. In the context of this study, continuous improvement by innovation means those actions that are taken to improve productivity after expert defined quality and customers' value-in-use assessments.

Measuring output and productivity for public sector services as for all other services is problematic in terms of capturing all the various dimensions of output that society expects.<sup>323</sup> Quantitative output measurements can be uninformative. Empirical studies of service organisations have demonstrated that efficiency measures, productivity measures and rankings can be sensitive to the techniques used to derive them. In this study we look at productivity using qualitative methods. This is done in order to create a more informative picture of an organisation's productivity.

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<sup>323</sup> Simpson, H. (2009). 'Productivity in Public Services.' *Journal of Economic Surveys*, 23(2), 250–276.

### 3 RESEARCH METHODS

This chapter presents the methodological issues connected to this study. The approach and the philosophical assumptions of the discipline are presented as well as the strategy, case study selection, data collection methods, data analysis and interpretation methods.

#### 3.1 The scientific approach

There are choices among scientific approaches. The choices represent the basic understanding about the world being studied and choices made to describe the world. Development of theory is central in research studies on business. Both quantitative and qualitative methods are important, when developing theories.<sup>324</sup> According to Burrell and Morgan<sup>325</sup> there are two main scientific approaches, which are subjectivism and objectivism. These paradigms have many different names. For instance Gummesson calls objectivism the positivistic paradigm and he calls subjectivism the hermeneutic paradigm.<sup>326</sup> Whatever the paradigm names are, Table 7 illustrates the two different approaches.

Ontology means the view of the researcher about the nature of the world. The objectivist view is that there is a certain order in the world and it can be ascertained by scientific research. This is called realism. The subjectivist view is that people create their own realities based on their own experience. This is called nominalism.

A researcher's view of people according to objectivism is deterministic. In other words, people cannot influence their environment, but the circumstances determine what a person is. According to subjectivism, human beings have free will and can create their own environments. This is called the voluntaristic view.

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<sup>324</sup> Onwuegbuzie, A. and Leech, N. (2005). 'Taking the 'Q' Out of Research: Teaching Research Methodology Courses without the Divide between Quantitative and Qualitative Paradigms'. *Quality and Quantity*, 39.3, 267-296.

<sup>325</sup> Burrell, G. and Morgan, G. (1979). *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life*. Heinemann: London, England.

<sup>326</sup> Gummesson, E. (2000). *Qualitative Methods in Management Research*. Sage Publications: Thousand Oaks, California, USA.

Epistemology<sup>327</sup> describes the nature of knowledge and the relationship of a researcher to knowledge. The objectivist nature of knowledge is that we can forecast events and explain them with mathematical models. This is called positivism. A researcher acts in the role of an observer. According to the subjectivist nature of knowledge, a researcher needs experience and understanding to gather knowledge. This is called antipositivism.<sup>328</sup> The researchers' own experiences influence their way of reacting to knowledge.

*Table 7 Scientific approaches according to Burrell and Morgan.*<sup>329</sup>

	<b>Objectivism (Positivistic)</b>	<b>Subjectivism (Hermeneutic)</b>
<b>View of the researcher</b>	Certain order in the world	People create their own reality
<b>Ontology</b>	Realism	Nominalism
<b>Researcher's view of people</b>	People cannot influence their environment  Deterministic	People create their own environment  Voluntaristic
<b>Nature of knowledge</b>	Forecast, models	Researcher experience to gather knowledge
<b>Epistemology</b>	Positivism	Antipositivism
<b>How knowledge is gathered</b>	Quantitative, hypotheses are tested	Qualitative, studies are done by participation
<b>Methodology</b>	Nomothetic	Ideographic

Methodology means the general principles, which are the basis for and give guidance to a study, in other words, how knowledge is gathered. According to objectivism, research is nomothetic, in other words, it is based on systematic models and techniques. Hypotheses set by a researcher are tested with scientific tests. Nomothetic research is quantitative. According to subjectivism, research is done by participation. This is called ideographic. A researcher

<sup>327</sup> Mantere, S. (2004). Strategic Practices as Enablers and Disablers of Championing Activity. Research paper, Helsinki University of Technology, Department of Industrial Engineering and Management, Espoo, Finland.

<sup>328</sup> Gerber, J. and Macionis, L. (1999). Sociology. Pearson Education Canada: Toronto, Canada.

<sup>329</sup> Burrell, G. and Morgan, G. (1979). Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life. Heinemann: London, England.

needs personal experience about a topic. An ideographic study is qualitative by nature. It is characteristic that the nature and the features of the topic researched are exposed as the process advances.<sup>330</sup>

This present study takes the subjectivist scientific approach. People are considered to create their own realities according to their own experiences and by their own actions. They are considered to have free will and to create together with others their own environment.<sup>331 332</sup> After the subjectivist scientific approach was selected, it was natural that a qualitative study should be carried out.<sup>333</sup> The context of the study and the availability of time, money, and human resources determine which research methods are chosen.<sup>334</sup>

### 3.2 Qualitative research

Qualitative research has been used successfully when describing organisations.<sup>335</sup> Qualitative research tries to provide an understanding of social phenomena.<sup>336</sup> It tries to understand research problems from the perspective of the population it involves. Qualitative research is effective in obtaining information about values, opinions, behaviours, and social contexts of particular populations.<sup>337</sup> This chapter describes three qualitative approaches: case study, grounded theory and subjectivist paradigm.

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<sup>330</sup> Ryan, B. , Scarpens, R. and Theobald, M. (2002). *Research Method and Methodology in Finance and Accounting*. Thomson: Cornwall, England.

<sup>331</sup> Neilimo, K. and Näsi, J. (1980). 'Nomoteettinen tutkimusote ja suomalaisen yrityksen taloustiede: Tutkimus positivismiin soveltamisesta (Nomothetic Research Approach and Finnish Business Economics: Research about Applying Positivism).' Tampereen Yliopiston julkaisuja (University of Tampere publications), Sarja A:1 Tutkimuksia 17 (Series A:1 Research 17), Tampere, Finland.

<sup>332</sup> Kasanen, E., Lukka, K. and Siitonen, A. (1993). 'The Constructive Approach in Management Accounting Research.' *Journal of Management Accounting Research*, 5, 243-264.

<sup>333</sup> Gummesson, E. (2000). *Qualitative Methods in Management Research*. Sage Publications: Thousand Oaks, California, USA.

<sup>334</sup> Eisenhardt, K. (1989). 'Building Theories from Case Study Research.' *Academy of Management Review* 14(4), 532-550.

<sup>335</sup> Wellman, J. and Kruger, S. (1999). 'Research methodology for the business and administrative sciences.' Thomson, GA, USA: Halfway House.

<sup>336</sup> Silverman, D. (2001). 'Interpreting Qualitative Data: Method for Analysing Talk, Text and Interaction.' London, England: Sage

<sup>337</sup> Rautiainen, M. (2012). *Dynamic Ownership in Family Business Systems – A Portfolio Business Approach*. Dissertation, Lappeenranta University of Technology, Acta Universitatis Lappeenrantaensis 485, Lappeenranta, Finland.

There are differences within qualitative methods. A qualitative study can begin with the intention to explore a particular area, data is collected and ideas generated from the data largely through what is known as inductive reasoning, i.e. developing theory from data. A deductive method on the other hand emphasises the necessity of defining the relevant theories, which may be advanced regarding the researched area before the collection of data begins.<sup>338</sup> The method chosen is a determining factor as to what the research will lead to.<sup>339</sup> The strength of qualitative research lies in its proximity to true situations. Different approaches may be used to generate theory.

### 3.2.1 The case study method

The case study method is not a homogeneous approach. Under the heading, there are different versions. The version of the case study method considered here, is inspired by the work of Yin entitled, *Case Study Research*.<sup>340</sup> Yin defines case study research as an empirical inquiry into a contemporary real life situation, in which multiple sources of evidence are used. A case study approach is much used in social sciences and management. It has the ability to take in the rich qualities of real life circumstances.<sup>341</sup> Yin emphasises that case studies are a preferred strategy when ‘how’ or ‘why’ questions are posed, when the researcher has little control over events, and when the focus is on a contemporary phenomenon in real-life contexts.<sup>342</sup> The purpose of a case study may be descriptive or explanatory. A descriptive case study may be narrative in form.<sup>343</sup> A descriptive theory is needed to support the story. The descriptive case study describes the phenomena, which occur within the data of the study. An explanatory case study examines the data in order to explain the phenomena.<sup>344</sup>

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<sup>338</sup> Yin, R. (2003). ‘Case Study Research: Design and Methods.’ Newbury Park, California, USA: Sage Publications.

<sup>339</sup> Damgaard, T., Freytag, P. and Darman, P. (2000). ‘Qualitative methods in business studies.’ *Advances in Business Marketing and Purchasing*, 9, 143-186.

<sup>340</sup> Yin, R. (2003). ‘Case Study Research: Design and Methods.’ Newbury Park, California, USA: Sage Publications.

<sup>341</sup> Johansson, R. (2003). *Case Study Methodology*. Speech, Royal Institute of Technology, Stockholm, Sweden.

<sup>342</sup> Yin, R. (2003). ‘Case Study Research: Design and Methods.’ Newbury Park, California, USA: Sage Publications.

<sup>343</sup> Rautiainen, M. (2012). *Dynamic Ownership in Family Business Systems – A Portfolio Business Approach*. Dissertation, Lappeenranta University of Technology, Acta Universitatis Lappeenrantaensis 485, Lappeenranta, Finland.

<sup>344</sup> Benbasat, I., Goldstein, D. and Mead, M. (1987). ‘The Case Research Strategy in Studies of Information Systems.’ *MIS Quarterly*, 11(3), 369-386.

The fact that experiments cannot be carried out quantitatively argues for choosing the case study method in management as the subject is often an organisation or many organisations. Analysing everyday activities helps in understanding the complex subject matters of organisations. Everyday activities cannot always be quantified. A researcher has to use interviews or other qualitative data collecting techniques and obtains a number of heterogeneous data.

Case study method as a deductive method emphasises the necessity of defining the relevant theories, which may be advanced regarding the researched area before the collection of data begins.<sup>345</sup> The theories are framed as propositions and the propositions are advanced in order for the researcher to control the research process. The purpose is to formulate theories that can describe or explain behaviour, situations, and decisions. Explanation-building is a dominant mode of analysis. To explain a phenomenon is to identify the independent variables which lead to a certain outcome.<sup>346</sup>

Using the case study method, it is necessary that the various phases of a research are separated and succeed each other. Yin seeks to meet in a qualitative study ideals on validity and reliability. The following demands need to be met:<sup>347</sup>

Construct validity: The applied concepts must be operationalised properly.

Internal validity: If the studies are explanatory or causal the causal relations must be established.

External validity: The area to which the studies are to be generalised must be identified.

The collection of data must ensure reliability: That the case can be reproduced by using the same data collecting procedure.

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<sup>345</sup> Yin, R. (2003). 'Case Study Research: Design and Methods.' Newbury Park, California, USA: Sage Publications.

<sup>346</sup> Damgaard, T., Freytag, P. and Darnen, P. (2000). 'Qualitative methods in business studies.' *Advances in Business Marketing and Purchasing*, 9, 143-186.

<sup>347</sup> Yin, R. (2003). 'Case Study Research: Design and Methods.' Newbury Park, California, USA: Sage Publications.

Yin perceives existing theories as provisional truths. The theories reflect a 'state of the art'-or 'what is known'-before the study is carried out. Researchers review previous studies to develop clear and perceptive questions about the topic.<sup>348</sup>

### 3.2.2 Grounded theory

The aim of business studies can be normative. Different theories are used in order to make organisations act according to the theories, as this will make organisations act 'rationally and efficiently'.<sup>349 350 351 352</sup> Grounded Theory is an exception to the rule on the normative aim of business studies. Strauss and Corbin<sup>353</sup> established a method, which helps to create theory on the basis of empirical data. Grounded Theory uses empirical data to elaborate theories about organisations and their behaviour in contrast to the normative approach, in which theory sets the guidelines by which an organisation should adjust its behavior. The purpose of Grounded Theory is to develop theory on a given phenomenon. The fact that it is grounded means that it must be based on data. Grounded Theory is also called 'the constantly comparative method'.<sup>354</sup> Grounded Theory develops theory on a given phenomenon. A condition is that each study only treats one phenomenon. This is due to the fact that theory must be compared to and be supported by data, and that it requires the whole study to be directed towards the phenomenon in question.

A Grounded Theory study begins with a research question and as in most other connections this research question controls the data collection. Data collection provides the researcher with the empirical data for 'grounding' the theory that the method develops in order to explain the studied phenomenon. The data analysis consists of a coding process to ensure that the theory is empirically grounded. There are two other conditions, which are included in

<sup>348</sup> Yin, R. (2003). 'Case Study Research: Design and Methods.' Newbury Park, California, USA: Sage Publications.

<sup>349</sup> Robinson, P., Faris, C. and Wind, Y. (1967). 'Industrial Buying and Creative Marketing.' Boston, Massachusetts, USA: Allyn & Bacon.

<sup>350</sup> Webster Jr., F. and Wind, Y. (1972). 'A General Model for Understanding Organizational Buying Behavior.' *Journal of Marketing*, 36(2), 12-19.

<sup>351</sup> Porter, M. (1985). 'Competitive Advantage.' New York, New York, USA: Free Press.

<sup>352</sup> Choffray, J-M. and Lilien, G. (1980). 'Market Planning for New Industrial Products.' New York, New York, USA: John Wiley & Sons.

<sup>353</sup> Strauss, A. and Corbin, J. (1998). 'Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory.' Thousand Oaks, California, USA: Sage

<sup>354</sup> Damgaard, T., Freytag, P. and Darnen, P. (2000). 'Qualitative methods in business studies.' *Advances in Business Marketing and Purchasing*, 9, 143-186.

Grounded Theory studies: creativity and theoretical sensitivity. These two concepts emphasise exploration of the data in order to find new meanings in the data. This is necessary because the method often leads to a new theory or the development of an existing theory.

The question, whether the coding process has been completed properly, is estimated on the basis of the evaluation criteria, which Strauss and Corbin advance for Grounded Theory:

1. Validity, reliability and credibility.
2. Estimation of the process, which generates, elaborates, and tests theory.
3. Estimation of the empirical data of the result, that is, is the theory grounded.

The evaluation criteria are similar to the criteria that are applied to quantitative studies. Grounded Theory is somewhat based on an objectivistic approach.

The evaluation criteria are used to evaluate the conclusions, which decide whether the study is a 'real' Grounded Theory study or not. In the centre of the research process are phenomenon and data. Knowledge about the phenomenon is the objective and the phenomenon is used to guide the data collection. The construct of a theory on the phenomenon can only take place in close relation to data, as the theory must be grounded. Consequently, data verify the theory on the phenomenon. Grounded Theory studies are guided by both phenomenon and data, as the phenomenon controls the collection of data, and data verify the theory on the phenomenon; otherwise the theory cannot be seen as grounded.

### 3.2.3 The subjectivist paradigm

The central part of subjectivism is that a researcher has to acquire an understanding of other individuals' real perception of a phenomenon by looking at the reality through their perceptions.<sup>355</sup> <sup>356</sup> This demands closeness and authenticity from the researcher in the approach to the study. The researcher cannot study the phenomenon by maintaining a distance and never becoming involved in some way or other. It is important to study the phenomenon as it is perceived by individuals close to the phenomenon. An emphasis is placed on the

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<sup>355</sup> Guba, E. and Lincoln, Y. (1994). 'Competing Paradigms in Qualitative Research' in Denzin, N. and Lincoln, Y. (Eds.) *Handbook of Qualitative Research*. Thousand Oaks, California, USA: Sage.

<sup>356</sup> Hirschman, E. (1986). 'Humanistic inquiry in marketing research: philosophy, method, and criteria.' *Journal of Marketing Research*, 23(3), 237-249.

researcher's ability to take the role of another and to grasp basic underlying assumptions of behavior by seeing the situation through the eyes of the participant.<sup>357</sup>

Focal to subjectivism is the understanding of the way in which others experience a given situation. In a subjectivist inquiry, understanding is both the immediate and the ultimate goal. Inquiries are directed toward the development of knowledge gathered by participation.<sup>358</sup> An intelligible structure of discrete events is imposed upon a continuous stream of occurrence. The researcher does this in the way that it is most useful for the purpose of the study.<sup>359</sup>

Insight into the problems is a part of the central goal - understanding. The insight must be an insight into the conceptual worlds of the actors. The aim is to build up an understanding, which enables the establishment of a frame of reference for understanding. The individuals are both a research unit and central data source. What is experienced and how it is experienced are the main elements in creating understanding. At the same time, the individuals themselves are the source of information, from where the information, including the problems about them, is to be found.

The collection of information is made in a close dialogue between a researcher and individuals. It is an open dialogue, the purpose of which is to describe the individuals' experience of the situation preferably in their own words, as the researcher's words will often be loaded with certain conceptualisations and associations. The problem is not necessarily solved by using the interviewed persons' own words, but it will provide a thorough dialogue on how to understand the formulations and phrases that they use. The individuals' experience is essential.<sup>360</sup> Based on the subjectivist research ideal, reality, to a large extent, is subjectively experienced rather than objectively demonstrated.<sup>361</sup>

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<sup>357</sup> Desphande, R. and Webster, F. (1989). 'Organisational Culture and Marketing: Defining the Research Agenda.' *Journal of Marketing*, 53(1), 3-15.

<sup>358</sup> Hirschman, E. (1986). 'Humanistic inquiry in marketing research: philosophy, method, and criteria.' *Journal of Marketing Research*, 23(3), 237-249.

<sup>359</sup> Guba, E. and Lincoln, Y. (1994). 'Competing Paradigms in Qualitative Research' in Denzin, N. and Lincoln, Y. (Eds.) *Handbook of Qualitative Research*. Thousand Oaks, California, USA: Sage.

<sup>360</sup> Damgaard, T., Freytag, P. and Darnen, P. (2000). 'Qualitative methods in business studies.' *Advances in Business Marketing and Purchasing*, 9, 143-186.

<sup>361</sup> Gadamer, H-G (2004). 'Truth and Method.' London, England: Continuum International Publishing Group.

Another characteristic of subjectivism is the fundamental understanding of reality, which is attached to the individuals' experience of this reality. The aim is an action reached by the individuals themselves as a consequence of changed understanding. The actions will be based on the individuals' own changed perception of reality. The researchers' role is to guide a learning process as opposed to offering managerial solutions.<sup>362</sup>

### 3.2.4 Paradigmatic characteristics of qualitative approach

The paradigmatic characteristics of qualitative approaches, i.e., case study, grounded theory, and the subjectivist approach, are shown in Table 8.<sup>363</sup> Although Burrell and Morgan<sup>364</sup> identified objectivism as being part of quantitative research, there is also objectivism in qualitative case and grounded theory studies in comparison to the more subjectivist paradigm studies.<sup>365</sup> According to Table 8, the approaches - dimensions of which characterise this study - are partly contradictory to Burrell and Morgan. Nevertheless, in practical research efforts this is not necessarily so; thus the point here is to illustrate this complicated whole.

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<sup>362</sup> Damgaard, T., Freytag, P. and Darnen, P. (2000). 'Qualitative methods in business studies.' *Advances in Business Marketing and Purchasing*, 9, 143-186.

<sup>363</sup> Applied from Damgaard, T., Freytag, P. and Darnen, P. (2000). 'Qualitative methods in business studies.' *Advances in Business Marketing and Purchasing*, 9, 143-186.

<sup>364</sup> Burrell, G. and Morgan, G. (1979). *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life*. London, England: Heinemann.

<sup>365</sup> Damgaard, T., Freytag, P. and Darnen, P. (2000). 'Qualitative methods in business studies.' *Advances in Business Marketing and Purchasing*, 9, 143-186.

**Table 8** Paradigmatic characteristics of the qualitative approach <sup>366</sup>

	<b>Case Study</b>	<b>Grounded Theory</b>	<b>Subjectivist paradigm</b>
<b>Paradigm</b>	Objectivism	Neo-objectivism	Subjectivism
<b>Researcher's Role</b>	Reproduce	Categorise	Empathy
<b>Methodology</b>	Analytic	Coding	Interpretive
<b>Method</b>	Hypothetical deductive	Inductive	Inductive, Descriptive
<b>How Knowledge is Gathered</b>	Interviews, Documents, Observations, Artifacts	Interviews, Dialogue	Dialogue
<b>Purpose</b>	Explanatory, Exploratory, Descriptive	Explanation	Understanding
<b>Guidelines for the Research Process</b>	Normative Propositions	Phenomenon and Data	Interaction between the researcher and the subject
<b>Sample</b>	Single and Organisations	Phenomenon	Person(s)
<b>Character of the Theory</b>	Causal (How, Why)	Relations and Patterns	Insight
<b>Criteria for Judging the Quality</b>	Objectivity	Relevance, Acceptance	Credibility, Trustworthy

<sup>366</sup> Applied from Damgaard, T., Freytag, P. and Darnen, P. (2000). 'Qualitative methods in business studies.' *Advances in Business Marketing and Purchasing*, 9, 143-186.

### 3.2.5 Scientific reasoning

In using qualitative methods in management research the researcher can build on empirical data from practice and contribute to theory. There can be opportunities for intensified inquiry into the behaviour of organisations, so the researcher may also use theory and contribute to practice and advance theory. The borderline between these two ways is blurred.<sup>367</sup> There are different kinds of scientific reasoning: deduction, induction, and also abduction.<sup>368</sup> Deduction develops propositions from theory and advances theory. Induction generates theory from data.<sup>369</sup> Induction starts from empirical findings and builds new knowledge to contribute to new theories. This qualitative research approach is useful when aiming at conceptualising social processes. Some definitions also include the so called abduction, which creates a new idea and a new hypothesis as to how things might be. Abduction combines theory, data, and case analysis simultaneously and develops new theories.<sup>370</sup>

In qualitative studies, it is possible to obtain valuable in depth knowledge. In certain areas it is a good research strategy not to generate hypothesis for testing. It is not necessarily true that statistical studies based on large numbers of observations lead to meaningful generalisations using correlation.<sup>371</sup> Even a limited number of observations can be used as a basis for generalisation. The processes of change lead the organisation toward certain objectives, the most basic and primitive ones being survival.<sup>372</sup> Productivity is considered to be the key to the survival of an organisation. As Gummesson<sup>373</sup> states, if you want to understand in depth the mechanisms of change you need not study a large number of cases.

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<sup>367</sup> Gummesson, E. (2000). *Qualitative Methods in Management Research*. Sage Publications: Thousand Oaks, California, USA.

<sup>368</sup> Ghauri, P. and Grønhaug, K. (2005). 'Research Methods in Business studies: A Practical Guide.' Prentice Hall: London, England.

<sup>369</sup> Glaser, B. and Strauss, A. (1967). 'The Discovery of Grounded Theory: Strategies of Qualitative Research.' London, England: Weidenfeld & Nicolson.

<sup>370</sup> Dubois, A. and Gadde, L-E. (2002). 'Systematic combining: an abductive approach to case research.' *Journal of Business Research*, 55(7), 553-560.

<sup>371</sup> Gummesson, E. (2000). *Qualitative Methods in Management Research*. Sage Publications: Thousand Oaks, California, USA.

<sup>372</sup> Gummesson, E. (2000). *Qualitative Methods in Management Research*. Sage Publications: Thousand Oaks, California, USA.

<sup>373</sup> Gummesson, E. (2000). *Qualitative Methods in Management Research*. Sage Publications: Thousand Oaks, California, USA.

### 3.3 The choice of mixed methods

A challenge in social research studies is how to combine qualitative and quantitative thinking in a way that helps provide relevant insights and solve problems. A preferred line, especially in social sciences, mixed methods,<sup>374</sup> combines several different ways to gather knowledge. Mixed methods studies are employed in this study. Many types of data make the study more valid.<sup>375</sup> The use of qualitative and quantitative approaches in combination provides a better understanding of research problems than either approach alone.<sup>376</sup> Mixed methods are useful as they provide better opportunities for answering research questions.<sup>377</sup> This study can be called qualitative although it uses mixed methods and has some quantitative parts. Mixed methods aim to produce understanding that goes beyond what is learned from the separate components of the study.<sup>378</sup> Different data types are connected here into a sequence whereby one builds on the other.<sup>379</sup> A qualitative part is used before the quantitative one. This permits developing and extending the theory and identifying the service specific variables.<sup>380</sup>

The application of mixed methods research is associated with added value in management research.<sup>381</sup> Research studies in management are concerned with understanding and improving the performance of a business. This study complies with the tradition of case study research. It involves an investigation of a particular phenomenon and interprets the results with mixed methods of analysis. The aim of this study is to achieve an understanding of human action, which is a basis for evaluating organisational productivity. Management

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<sup>374</sup> Molina-Azorin, J.F. (2011). 'The use and Added Value of Mixed Methods in Management Research.' *Journal of Mixed Methods Research*, 5(1), 7-24.

<sup>375</sup> Eskola, J. and Suoranta, J. (2008). 'Johdatus laadulliseen tutkimukseen (An Introduction to Qualitative Research).' Tampere, Finland: Vastapaino.

<sup>376</sup> Creswell, J., Plano, C. and Vicki, L. (2007). 'Designing and Conducting Mixed Methods Research.' Thousand Oaks, California, USA: Sage Publications.

<sup>377</sup> Teddlie, C. and Tashakkori, A. (2009). 'Foundations of Mixed Methods Research. Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences.' Thousand Oaks, California, USA: Sage Publications.

<sup>378</sup> O'Cathain, A., Murphy, E. and Nicholl, J. (2007). 'Integration and Publications as Indicators of "Yield" from Mixed Methods Studies.' *Journal of Mixed Methods Research*, 1(2), 147-163.

<sup>379</sup> Creswell, J., Plano, C. and Vicki, L. (2007). 'Designing and Conducting Mixed Methods Research.' Thousand Oaks, California, USA: Sage Publications.

<sup>380</sup> Onwuegbuzie, A., Bustamante, R. and Nelson, J. (2010). 'Mixed Research as a Tool for Developing Quantitative Instruments.' *Journal of Mixed Methods Research*, 4(1), 56-78.

<sup>381</sup> Molina-Azorin, J. (2011). 'The use and Added Value of Mixed Methods in Management Research.' *Journal of Mixed Methods Research*, 5(1), 7-24.

involves people, who create their own reality and their own environments.<sup>382</sup> In addition, the knowledge created in this study has been gathered through the researcher's experience.

This study uses current theory and empirical work. The empirical work includes a collection of written material, observations, interviews, and large samples in close connection and in cooperation with the organisations researched, and its aim is to accomplish a theoretical contribution with a deductive process approach. This study aims at giving recommendations on solutions to specific problems for a specific organisation and industry. Furthermore, the study is also used as a means for initiating change and to advance theory. Gummesson<sup>383</sup> points out that an advantage with a qualitative study is the opportunity for a holistic view. The fact that productivity is not easy to express quantitatively also argues for choosing mixed methods in this management study.

Value-in-use is a major part of productivity in services. During the research process of this study, many types of data were gathered to investigate customers' value-in-use. Observations were collected using written material, interviews, and sampling on the same topic. Material concerning safety telephone services and wellness technology in general was studied first. After becoming familiar with the collected background information, there were study visits to organisations to gain experience and understanding about the field.

Further exploratory study visits were made to organisations providing safety telephone services in order to be able to formulate an employee interview structure. After the visits, new question topics were added to the original interview design. The objective of the employee interviews was to discover whether the service supply met customer expectations. Customer interviews were also conducted. The interviews showed clearly the necessity to collect more information.

Among the elderly people to be interviewed there were those, who could not be interviewed because of impaired cognitive abilities and them not knowing their own needs. That is why

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<sup>382</sup> Burrell, G. and Morgan, G. (1979). 'Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life.' London, England: Heinemann

<sup>383</sup> Gummesson, E. (2000). *Qualitative Methods in Management Research*. Sage Publications: Thousand Oaks, California, USA.

ways of studying the expectations of the elderly, other than the usual customer satisfaction surveys in the form of interviews, had to be found. Other reasons for not using interviews or surveys could be that they need excessive costs or time. Further data was collected concerning alarm calls coming into a major call centre. The interviews permitted the development of the measurement instrument that was used in the call centre data collection. A sample of incoming safety telephone calls and the corresponding decisions of the call centre operators about customers' expectations for help were collected. The perspective of this study was to see if the services offered by the call centre operators satisfied the expectations of the customers. In order to discover the customers' value-in-use as regards these services, this study examined why customers called for help and how these alarm calls are answered by the operators, the latter being an indication of services received by the customers.

Furthermore, a second set of data about safety telephone alarm calls and the customers who made them was collected from a call centre log database to shed more light on customers' value-in-use. This data concentrated on those cases where it was suspected that customer expectations were not met. Such customers were selected, whose most recent alarm call was for a non-physical reason. Safety telephone call centres exist to receive physical help requests.

All safety telephone customer groups are included in this study. The customer calls' samples from the call centre include customers who have made an alarm call. However, the customer interviews also cover those customers, who have not made alarm calls, because they have not had a dangerous situation. Furthermore, employee interviews shed light on some other aspects of possible customers, for example, those who are not able to use safety telephones because of their impaired cognitive abilities.

Workshops were held. In one workshop the Quality Function Deployment (QFD) method<sup>384</sup> was used to set expert quality standards for safety telephone services. The acceptable expert quality level was defined using expert opinions. This is the Zone of Tolerance model<sup>385</sup> type of threshold. This is used here for quality management purposes to guarantee that the

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<sup>384</sup> Mizuno, S. and Akao, Y. (1994). 'QFD: The Customer Driven Approach to Quality Planning and Development.' Asian Productivity Organization, Tokyo, Japan.

<sup>385</sup> Yap, K. and Sweeney, J. (2007). 'Zone-of-tolerance Moderates the Service Quality-Outcome Relationship.' *Journal of Services Marketing*, 21(2), 137-148.

efficiency of a service organisation does not diminish quality below mutually agreed standards and thus does not damage value-in-use. To evaluate effectiveness, it helps to find expert defined quality criteria besides customers' value-in-use since there are those among the elderly people, who do not know their needs or cannot express their needs.

Data collection is described in Chapter 4.3 in more detail. The interviews provided a strong qualitative base for the more quantitative call centre data collection. The strength of the qualitative part of the study lay in its proximity to the truth, which gave validity to the study. This qualitative part of the study also sought to provide a deep understanding of social phenomena<sup>386</sup> and to describe organisations.<sup>387</sup> The strength of the quantitative part of the study lied in its repeatability, which gave reliability to the study.

This study based data analysis on a well-established theoretical foundation.<sup>388</sup> The methods for the analysis of the productivity of services are induced from a theoretical foundation of Customer Relationship Management. The study is a deductive case study. The combination in this study was to look at matters from the organisations' and from the customers' points of view simultaneously and to add an outside expert view. A qualitative approach is appropriate in areas where research is at an early stage. There was a need to advance existing theories and notions.

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<sup>386</sup> Silverman, D. (2001). 'Interpreting Qualitative Data: Method for Analysing Talk, Text and Interaction.' London, England: Sage

<sup>387</sup> Wellman, J. and Kruger, S. (1999). 'Research methodology for the business and administrative sciences.' Thomson, GA, USA: Halfway House.

<sup>388</sup> Yin, R. (2003). 'Case Study Research: Design and Methods.' Newbury Park, California, USA: Sage Publications.

## 4 EMPIRICAL INVESTIGATION

This chapter presents the data collection and analysis of safety telephone services and their users. The study flow chart, shown in Figure 5, portrays how this study was structured starting from the theoretical foundation of customer relationship management theories and ending with a new way to investigate service productivity in situations, where traditional ways are not possible or are not sufficient.

### 4.1 Safety telephone services

The development of wellness technology is leading to the development of new service types, which can be located between the home and service organisations. New information and reception services in the form of call centres, contact centres, and help desks by public organisations and commercial companies have been widely developed. In the new remote services, wireless communication devices have been linked with social services and health care services in many different ways. One of these services is the safety telephone services.

The use of these services is rapidly increasing because safety telephone services are meant to help the elderly live an independent life. According to many research studies, the elderly usually want to live at home as long as possible.<sup>389 390</sup> Older people want to and often are able to live independently at home.<sup>391</sup> The present prevailing elderly policies in Finland support living at home as long as it is sensible. Accordingly, when care at home is no longer possible, the first choice should be according to recommendations a service home, and only those who are seriously ill should be placed in hospitals.

The ground work for this study was done in a nation-wide research and development project ‘Turvapuhelinpalvelut ikäihmisen elinympäristössä’ (Safety telephone services in the living

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<sup>389</sup> de Blok, C., Luijkx, K., Meijboom, B. and Schols, J. (2010). ‘Modular Care and Service Packages for Independently Living Elderly.’ *International Journal of Operations & Production Management*, 30(1), 75 – 97.

<sup>390</sup> Lawrence, E., Sax, C., Navarro, K. and Qiao, M. (2010). ‘Interactive Games to Improve Quality of Life for the Elderly: Towards Integration into a WSN Monitoring System.’ *Second International Conference on eHealth, Telemedicine, and Social Medicine*, pages 106-112.

<sup>391</sup> Lyytinen, A-L. (2012). The head of City of Helsinki Home Care Department, Finland.

environment of the elderly, 2002-2004). Although the oldest data collection for this present study is about 10 years old, the author argues that the age of the data does not have any major significance, because safety telephone services have changed very little. Close follow up of the services during the years has ensured that the data is up to date.

Within the project there were several studies, which analyse the use of safety telephones in different environments. These different studies provided knowledge about safety telephone functionality and about the different ways in which personnel work in the various functions of safety telephone systems. In one study, the elderly were interviewed at home to ascertain the safety needs of the elderly and their experiences when using safety telephones.<sup>392</sup> The study of the author of this present study looked into the work at call centres and into ways to develop the operations of call centres. Customer needs and how they are met was investigated.<sup>393</sup> A third study dealt with information transfer and management within safety telephone service networks.<sup>394</sup> <sup>395</sup> A fourth study analysed the skills of trained personnel in elderly care homes.<sup>396</sup> A fifth study, made by the author of this present study along with other researchers, provided knowledge of what affects service quality, as defined by experts, in safety telephone services.<sup>397</sup> Table 9 describes the data and objectives of the different studies.

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<sup>392</sup> Pekkarinen, S. (2003). 'Ikääntyvä ihminen turvapuhelinpalvelujen asiakkaana (An Elderly Person as a Customer of Safety Telephone Services).' In Serkkola, A. (ed.) Turvapuhelinpalvelut ikääntyvän ihmisen elinympäristössä (Safety Telephone Services in the Life of an Elderly Person). Helsinki University of Technology Lahti Center, Publication Series of the Institute for Regional Economics and Business Strategy, Lahti, Finland.

<sup>393</sup> Molander, S. (2003). 'Call Centeristä Contact Centeriksi – Turvapuhelinkeskus ikäihmisten tukena (From a Call Centre to a Contact Centre – Safety Telephone Centre Supporting the Elderly).' In Serkkola, A. (ed.) Turvapuhelinpalvelut ikääntyvän ihmisen elinympäristössä (Safety Telephone Services in the Life of an Elderly Person). Helsinki University of Technology Lahti Center Publication Series of the Institute for Regional Economics and Business Strategy, Lahti, Finland.

<sup>394</sup> Melkas, H. (2003). 'Informaation hallinta turvapuhelinpalvelujen organisaatioverkostoissa (Managing information in safety telephone organisation networks), in Serkkola, A. (ed.) Turvapuhelinpalvelut ikääntyvän ihmisen elinympäristössä (Safety Telephone Services in the Life of an Elderly Person). Helsinki University of Technology Lahti Center, Publication Series of the Institute for Regional Economics and Business Strategy, Lahti, Finland.

<sup>395</sup> Melkas, H. (2004). 'Towards Holistic Management of Information within Service Networks: Safety Telephone Services for Ageing People.' Disertation. Helsinki University of Technology Lahti Center, Espoo, Finland.

<sup>396</sup> Rauma, M. (2004). 'Turvapuhelinpalvelut Vanhustyössä, Osaamisen Hasteet Palvelutalossa (Safety Telephone Services in Elderly Care, Requirements of Workers in Serviced Homes).' Helsinki University of Technology Lahti Center Research series, Lahti, Finland.

<sup>397</sup> Serkkola, A., Rauma, M. and Molander, S. (2005). 'Turvapuhelinpalvelun laatuksiteerit (Safety Telephone Service Quality Criteria).' Helsinki University of Technology Lahti Centre, Lahti, Finland.

In addition, some municipal pilot schemes for safety telephones were organised in the Päijät-Häme region in Finland. The five studies and the municipal pilot schemes form an important basis, on which to develop understanding of the elements of safety telephone services in elderly services. Figure 5 shows the study flow chart of this present study.

**Table 9** *Safety Telephone Services in the Life of an Elderly Person*

	<b>Data</b>	<b>Objective</b>
<b>Melkas study</b>	Study visits, Employee interviews	Safety telephone service networks: Information transfer, Management
<b>Pekkarinen study</b>	Study visits, Customer interviews	Safety needs of the elderly, Experiences when using safety telephones
<b>Molander study</b>	Study visits, Sample of incoming alarm calls	Customer needs and how they are met, Call centre operations, How to develop call centre operations
<b>Rauma study</b>	Study visits	The skills of trained personnel in elderly homes
<b>Serkkola, Rauma &amp; Molander study</b>	Workshop	Safety telephone service quality criteria



Figure 5 The study flow chart

There are only a very limited number of previous studies that focus on the same area as this present study, which deals with the productivity of safety telephone services. Based on study visits to safety telephone service centres to interview their employees, a picture of the services was formed.

Safety telephone services had the following elements:

- organisation with management and supporting services
- safety telephone device and the local telephone network
- safety telephone customer and user, sometimes, but not always the same
- operator in the safety telephone call centre
- call centre technology
- physical helpers
- emergency and nonemergency transportation services

It was difficult to distinguish between public and private sector services in safety telephone services since the public sector also used private sector suppliers. This is the case in many social and health services. Safety telephone services are provided by the municipal social and health sectors, the private sector, and third sector organisations.

Customers could either own or rent safety telephones. Safety telephone service organisations also installed and fixed these appliances for their users. Safety telephone call centres concentrated on solving the particular physical problem of each alarm call maker. Service providers did not advise on mental problems. Service providers often had medical education and training. Call centre time for each safety telephone call was usually limited to one minute or so. To receive services, customers have to join the service production. Call centre services are expert services.

Safety telephone services include health care and other physical help, such as helping to lift the customer up after a fall when they could not get up alone. The central idea in safety telephone services is giving first-aid, other physical help, and arranging transportation to a hospital when needed. This is why safety telephone services exist. The route to receiving help is through a safety telephone call centre, which transmits a customer's call for help. Customer

contacts were meant to be individual incidents. Every customer of a service provider is in the organisation's data file and customer contacts are saved in the log database. Table 10 shows the characteristics of safety telephone services.

**Table 10** Characteristics of safety telephone services<sup>398</sup>

		The object of safety telephone service	
		Person	Technology
The nature of safety telephone service	Concrete action	Body <ul style="list-style-type: none"> <li>• health care</li> <li>• other physical</li> </ul> Help <ul style="list-style-type: none"> <li>• transportation to hospital</li> </ul>	<ul style="list-style-type: none"> <li>• installation</li> <li>• fixing</li> </ul>
	Other action	Mind <ul style="list-style-type: none"> <li>• forwarding help requests</li> </ul>	<ul style="list-style-type: none"> <li>• advice</li> </ul>

According to numerous studies in Finland, insecurity has been among the most common reasons for the elderly to move into an old people's home or a serviced apartment.<sup>399</sup> Safety telephones enable a call for help by pushing just one button. This helps an elderly person to continue living at home. Safety telephones increase the feeling of safety for the users and their relatives, who worry about the safety of their close ones.

Apart from home use, safety telephones are also used in serviced apartments and old people's homes. Besides giving a feeling of safety to the elderly, safety telephones help the work of personnel. It is easier for personnel of old people's homes to know if help is needed. For instance, when an elderly person has fallen on the floor and is unable to get up without assistance, he/she can press the emergency button.

<sup>398</sup> Adapted to safety telephone services from Ylikoski, T. (2000). 'Unohtuiko asiakas? (Was the Customer Forgotten?)'. Keuruu, Finland: Otavan Kirjapaino Oy.

<sup>399</sup> Mölsä, M., Blomqvist, M., Ekholm, F. and Hietola, T. (2010). 'Psychological Aspects of Aging Among Older People Living in a Nursing Home.' Older People in Europe: New Needs, An Erasmus Intensive Program.

There were some 80,000 – 90,000 users of safety telephone services in Finland according to more recent interviews in 2007 for this study. In the interviews three of the largest safety telephone service organisations in Finland, Mainio Vire, Esperi Care, and Miratel gave their estimates of the total number. No-one has officially been keeping track of the figure. The present day number of safety telephone users could be estimated by a new interview round among the employees of the largest safety telephone organisations.

Most safety telephone services have been acquired by individuals at their own expense. The rest were offered by municipalities as part of the public service for elderly and handicapped people. Within one municipality, there could be several systems in parallel use at the same time. It is the duty of municipalities in Finland to also give guidance on private sector safety telephone services. It is expected that the need for safety telephone services will increase considerably with the increasing elderly population.

There were three major nationwide services in Finland in 2013 run by private companies: Mainio Vire, Esperi Care, and Ascom Miratel. Mainio Vire had about 8,600 safety telephone service customers in 2011. Esperi Care had about 22,000 safety telephone service customers in 2010. The number of customers for Ascom Miratel was not available. Apart from these three, other safety telephone services were regionally operated, such as, Suomen Ensiapupalvelu in the City of Tampere region and in Lounais-Häme region, or municipally operated, for instance, Suomen Kotisairaanhoido in the City of Turku. There were also old people's homes with their own safety telephone services e.g. Jyllin Kodit in the City of Ikaalinen. Safety telephone service providers are in transition, the larger ones buying the smaller ones.

The system of safety telephone services includes a call centre, which receives the alarm calls. Through a microphone and loudspeaker system, which is built into the safety telephone, the user is able to communicate with a call centre operator. The safety telephone systems, which were mainly in use, required the users to be conscious of the need for help and to be active in getting in contact with the call centre.

If necessary the call centre operator sent out a helper, who went to the customer's home to provide help. Call centre operators passed on appropriate information about the caller to the helper. Safety telephone service organisations had their own helpers but some also used municipal home care services or third sector organisations. Relatives and neighbours were also sometimes such helpers. When there was a lack of trained care personnel in some geographic areas, even security companies or taxi drivers were used as help. In safety telephone services, there has to be a network of people helping, who provide also almost immediate emergency help 24 hours a day, seven days a week. Sometimes obtaining help very quickly is a matter of life and death.

Some call centres were small, for instance those in individual old people's home. In these cases, the call centre was operated by the personnel who also gave care services. This also meant that the personnel who answered the alarms were familiar with the health condition of all those who made alarm calls. The personnel were able to provide help to the callers in minutes.

In the large nationwide call centre there were thousands of customers and the operators answering alarm calls could not know all of them. Health condition and other relevant information about the caller appeared on the computer screen in the call centre as did information about the person or persons who were expected to provide help. It could take up to an hour before help arrived after it had been requested. In large cities with busy traffic or in rural areas where distances were long, waiting time for help could be even more than an hour. In the cases of life threatening emergencies, a rescue ambulance was always sent by the call centre. In a large nationwide safety telephone service organisation customers paid a fixed monthly fee and could conduct as many safety calls as they desired. For physical help they usually paid an extra fee.

Some call centres were also of a medium size, such as municipal call centres. However, basically, all the different safety telephone call centres gave the same type of service. Call centre operators tried to minimise the time spent on the telephone with customers. Safety telephone service organisations have many users with many different situations and expectations. There are an increasing number of elderly and handicapped people as customers

for all the safety telephone service vendors. Call centre services, which direct the help when necessary, are a crucial and central part of the operation of safety telephone services. Call centres also received notifications concerning technical faults or service needs related to safety telephone devices.

Call centre services are, like any other services, perishable, heterogeneous and service production and consumption take place simultaneously. What all these features mean as implications to the services, are shown in Table 11. It shows the safety telephone call centre service features and corresponding implications. A service process is a series of service encounters, where employees and customers, supported by systems and technology, meet and interact. In the safety telephone service environment, this happens through call centres and through the help services. Although the help service is the core service of the safety telephone services, call centres are the main contact points for customers. As call centres are spreading in all areas of business, their importance can be seen more widely. Call centres are deployed throughout the world as a cost effective way of enabling a very large number of customers to interact with an organisation.

Customers look for comfort, low costs, and no problems when using any services. Technological development gives opportunities to organisations. For example, better computerised information systems in safety telephone call centres have made it possible to have better data about customers.

In safety telephone services, a call centre is central to its operations. A call centre has most contact with the customers and maintains records of customer data. If a call centre does not function, it is impossible to provide the core physical help services. In safety telephone services, call centres can be and basically are customer interaction centres. Interactions between service providers and their customers take only a short time when a customer makes a safety telephone alarm call and talks to the operator. In safety telephone services, there can be many service processes even in a short period of time, including a large number of contacts and interactions.

**Table 11** Call centre operation features and the corresponding implications<sup>400</sup>

Service features	Implications to services
Perishable	<ul style="list-style-type: none"> <li>• cannot be stored</li> <li>• difficult to coordinate supply and demand</li> <li>• cannot be returned</li> <li>• cannot be shown without use</li> <li>• it is difficult for the customer to evaluate beforehand</li> </ul>
Production and consumption simultaneous	<ul style="list-style-type: none"> <li>• customers participate in the production</li> <li>• customers affect the end result</li> <li>• multiple distribution channels are possible</li> </ul>
Heterogeneous	<ul style="list-style-type: none"> <li>• production and value-in-use depend on employee actions</li> <li>• difficult to control quality and value-in-use</li> <li>• cannot guarantee that the service is that which has been promised</li> </ul>

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<sup>400</sup> Adapted to safety telephone services from Zeithaml, V., Parasuraman, A. and Berry, L. (1985). 'Problems and Strategies in Service Marketing.' *Journal of Marketing*, 49(2), 33-46.

## 4.2 Safety telephone service productivity

Figure 6 presents how different factors influence productivity. The figure is an application of Ojasalo's model.<sup>401</sup>

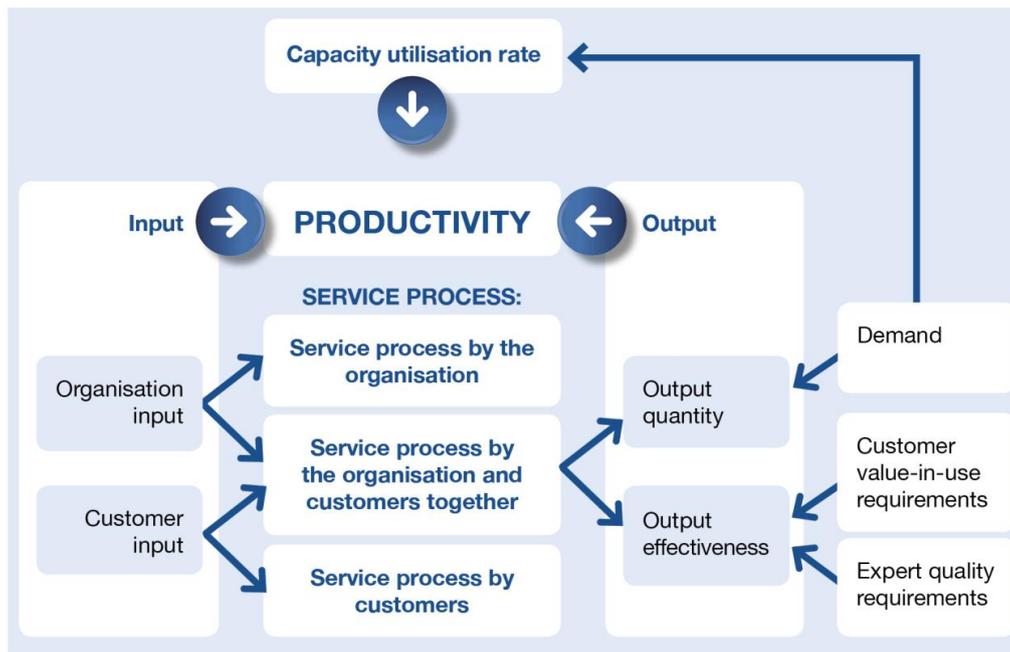


Figure 6 Different factors influencing the productivity of service organisations<sup>402</sup>

The objective of this present study is to investigate service productivity in situations, where traditional ways are in some cases even not possible or are not enough. Effectiveness is not measured numerically here. The service environment is highly demanding and customers' value-in-use and expert defined quality are difficult to assess in numbers.

<sup>401</sup> Ojasalo, K. (1999). 'Conceptualizing Productivity in Services.' A doctoral dissertation. Swedish School of Economics and Business Administration, Helsinki, Finland.

<sup>402</sup> Application of Ojasalo, K. (1999). 'Conceptualizing Productivity in Services.' A doctoral dissertation. Swedish School of Economics and Business Administration, Helsinki, Finland.

### **4.3 Data of safety telephone services**

#### **4.3.1 Study visits**

This study was directed towards the operations of safety telephone services and their customers' expectations. The reasons for safety telephone alarm calls were selected to show customer expectations. How the call centre responded to alarm calls was selected to show the services provided. The actual help services were not included in this study. Before gathering research data about safety telephone customers, material concerning safety telephone services and wellness technology in general was studied by the author. After becoming familiar with the collected background information, study visits were made to safety telephone organisations to gain experience and understanding about the field. As a result of these visits, an understanding of the organisations, their background attitudes, and the organisations' ways of operating were gained. It was understood that the researcher's own experiences always influenced her reaction to the knowledge gained.

Five further exploratory study visits were made to organisations providing safety telephone services in order to be able to formulate an employee interview structure. Contextual data was gathered in the form of documents related to the organisations and their services. These data were used in forming a pre-understanding of the specific context against which each individual interview could be reflected. After the visits, new question topics were added to the original interview design.

#### **4.3.2 Background to the employee interviews**

The call centre population had been first identified before sampling. Overall a comprehensive picture was formed. The call centre sample was made to reflect the members of the entire call centre population in Finland and to be an indication of what the call centre population is like. Seven safety telephone service organisations were finally picked and members of the organisations were interviewed with the formulated interview structures. These seven organisations included a nationwide call centre with several years of experience. Other interviews were of employees in local, municipal, and regional services. The organisations studied were a good cross-section of the fragmented safety telephone service environment and

also represented a variety of geographic regions, of different sizes and of various living environments in Finland and one in Sweden.

Among the safety telephone services there were organisations from the private sector, municipally operated services, third sector organisations, and blocks of serviced apartments. A pilot project with new tracking technologies was also included in this study. A large nationwide call centre was a particularly good example of the rapidly expanding call centre services. This kind of service environment has barely been studied as regards the productivity of services.

The safety telephone organisation in Sweden was a large municipal service centre in the Stockholm area, which included the smaller towns surrounding Stockholm. It was selected because Swedish social care is internationally recognised to be of a high standard, as is Finnish social care.

There were 40 employee interviews in total. Of the employee interviews, 23 were made by the researcher of this study with one to three other researchers present, and 17 by three other researchers. The interviewers were aware that their personal hypotheses about events could have an impact on the manner in which they conducted interviews, and they made preparations to avoid interviewer bias. The interviewers worked together daily. They avoided interviewer bias by discussing the topics, which were being researched, and all having the same information about safety telephone services.<sup>403</sup>

Interviews were taped and transcribed verbatim. The interviews were recorded with the permission of the employees. Rules for confidentiality were established. The interviewees were not identified by names and were assured that their comments would be published so that their anonymity was maintained. Some anonymous direct quotes are included in this report.

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<sup>403</sup> Joy, A-L. (2000). 'The Effects of Interview Bias and Number of Interviewers on Interviewing Style and Accuracy of Children's Eyewitness Accounts'. A dissertation, York University, Toronto, Canada.

The number of interviewees in each organisation was determined by the size of the organisations and the total number of interviewees needed was determined by saturation.<sup>404</sup> There is a saturation of qualitative material as the same things appeared repeatedly in the interviews.<sup>405</sup> It was deemed that there were sufficient interviews when it seemed that additional interviews did not bring anything new that appeared to be relevant. The interviews gave information on value-in-use of customers, on customer services in safety telephone service call centres, the roles of call centre operators, and the content of information being transferred between operators and users. The selection of the interviewees was not random, but the selection was made so that it ensured that different interest groups were represented, such as top management, staff, and organisation developers. By using a discretionary sample, knowledge was gained on this topic quicker than if we were to rely only on random sampling.<sup>406</sup>

Written questionnaires were considered inappropriate for this study. There were no ready-made questionnaires for the personnel to answer.<sup>407</sup> Semi-structured interviews were chosen and the interviewers followed a plan in a conversational manner.<sup>408</sup> This made it possible to collect interview data while interviewees actively addressed topics within the theme. Ready-made questionnaires could have caused biases. One such bias is overly positive attributions on the part of the interviewees. That is why ready-made questionnaires were not used in this study.

However, it was recognised that a discussion interview situation is not necessarily neutral. The interviewers were conscious of their possible personal biases during the interviews, and this awareness reduced their possible effect on the interview data. Beforehand, the interviewers had among themselves discussed the topics to be covered in the interviews and formed a mutual understanding about the issues.

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<sup>404</sup> Gummesson, E. (2000). 'Qualitative Methods in Management Research'. Thousand Oaks, California, USA: Sage Publications.

<sup>405</sup> Hirsjärvi, S., Remes, P. and Sajavaara, P. (2009). 'Tutki ja kirjoita (Research and Write)'. Helsinki, Finland: Tammi.

<sup>406</sup> Polit, D. and Hungler, B. (1995). 'Nursing research: Principles and methods'. Philadelphia, USA: Lippincot.

<sup>407</sup> Hirsjärvi, S. and Hurme, H. (2001). 'Tutkimushaastattelu: Teemahaastattelun teoria ja käytäntö (Research Interview: Theory and Practice of Theme Interview)'. Helsinki, Finland: Yliopistopaino (University press).

<sup>408</sup> Yin, R. (2003). 'Case Study Research: Design and Methods'. Newbury Park, California, USA: Sage Publications.

The interviews began with a short introduction of the present research project. The personnel interviews were conducted as theme interviews and advanced according to their respective themes. Theme interviews pay regard to different views of different interviewees and to different meanings and contents they give to the same matters. The conversations were about call centres, management, customer expectations, and information transfer within safety telephone service networks.

The interview outline included a section discussing the assessment of help expectations and difficulty in recognising the real expectations of the caller. There was also the necessity to be aware that the study was entering into the lives of people who may be threatened or unsure of what the study will reveal. The interviews were conducted in Finnish in Finland and in Swedish in Sweden.

The employee interviews were conducted at each person's work place. The interviews lasted one to two hours. Some of the call centre operator interviews took place in call centres which allowed the interviewers to follow the call centre operator's work. In the hectic environment of safety telephone service call centres, where alarm calls were being received, the personnel being interviewed were constantly interrupted by alarm calls, so that they could do their work. Other interviews were conducted in privacy, in a meeting room or in the interviewee's office. This report presents quotations from the employee interviewees mentioned. The type of work the interviewees do is meaningful, because people in different jobs operate differently. Quotations are chosen according to their descriptiveness.

The first interviewees selected were known to be informative sources within their organisations<sup>409</sup> and were well acquainted with the call centre functions. The number of interviewees was increased and further connections were made during the study.<sup>410</sup> Of all the personnel interviews the interviews with call centre operators gave the most information for this study. There were no basic differences between the Finnish and Swedish interviews. One

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<sup>409</sup> Laumann, E., Marsden, P. and Prensky, D. (1983) 'The Boundary Specification Problem in Network Analysis.' In Burt, R. and Minor, M. (eds.) *Applied Network Analysis: A Methodological Introduction*. Thousand Oaks, California, USA: Sage Publications.

<sup>410</sup> Scott, J. (2000). 'Social Network Analysis: A Handbook.' London, England: Sage Publications.

difference, however, is that in Finland there is no municipally provided service that includes several municipalities as the one in Sweden does. Call centres in other countries can be regarded as being similar but with variations in the type of services.

### 4.3.3 Employee interviews

Visits to safety telephone service organisations showed clearly that the key people in safety telephone organisations could be identified as the call centre operators, who had direct contact to users and their expectations. Examining the employee interview data, it was possible to find central information about customer expectations and whether these expectations were met. Moreover, from the organisations' viewpoint, it was also possible to find information about organisational efficiency.

#### 4.3.3.1 Alarm calls other than for physical help

Customers made alarm calls for reasons other than expectations of physical help. In the safety telephone service organisations' language such alarm calls were called 'unnecessary alarm calls'. From the customer point of view, it may be unfair to name any alarm call unnecessary.

*'When you know this person (a user), you know that she asks for help although she gets daily private home care service. So we do not need to react very much to her requests.'*

*(Speaking to the customer) 'Safety telephone. Yes, yes. After 12 noon you will have home care visiting you again. Yes, it is 10 to 12. Yes. They will arrive after 12 noon. Yes, it will take 10 minutes and then it is 12 noon and then after 12 noon home care will arrive. OK again, bye, bye.'*

*'In other words this is just such (an alarm call), which cannot be classified what it eventually is. Is it loneliness or social need? We always mark them in some way in the log database.'* (Call centre operator 1.)

Over many years, the call centre operators had learned to know many customers, especially when customers repeatedly made alarm calls without physical help requests. The attitude of the call centre operators was that such individuals did not necessarily need help. Some customers asked almost daily what day it was and what time it was.

False alarms occurred, when customers pressed the alarm button accidentally and battery alarms also occurred when the device's battery had run out. It is necessary for someone, usually the safety telephone service provider, to quickly take care of battery changes after battery alarms.

#### 4.3.3.2 Alarm calls for physical help

Alarm calls for physical help did not usually mean that there was a life-threatening situation. However, helpers from large organisations used ambulances in many cases when there was no need for transportation of a customer. A fall was a common reason for customers to make an alarm call. In many cases there was a need for help, but no need for an ambulance. However, it was often left to the ambulance drivers to determine at the customer's home whether it was necessary to take the customer somewhere.

If a customer had fallen, two people were often needed to get him or her up so that the situation could be safely taken care of. It could clearly be seen in the operations that the help services at the customers' homes were often similar to home care services. Most often it was not urgent help that was needed and rarely was there a need for medical treatment. The situations were often that a customer needed incontinence pads changing, needed help to go to the toilet, and then back to bed. Such needs were very usual. To send an expensive ambulance with two men for such reasons was in fact often unnecessary.

*'Mostly at daytime we should need a full time helper, who would drive around in a small car picking up these customers, when they have fallen down and do not need an ambulance. We are getting small cars. We have recognised that the ambulance is so busy that customers have to wait... There is a need to get help quite quickly. (...) Customers' waiting time gets longer when all the cars are booked like they sometimes*

*are. Then if a customer has some bigger problems, like chest pain or such, then we ask the rescue department with their ambulance to go and help. And they break open the door if necessary. We have sometimes paid for locks, when the rescue squad has broken them. The keys are here with us and the rescue department breaks open the door if necessary. Customers always get the service they need.’ (Call centre operator 2.)*

Safety telephone organisations had a lack of helpers and had difficulties in making supply and demand meet. It could take quite a long time to get help to the customer from the arrival of an alarm call. In fact there was supposed to be an agreed maximum waiting time. If the case was urgent, it was taken care of quickly by a municipal rescue squad. However, if the case was considered not to need urgent help and there were many requests for help, then getting help could take up to one and a half hours. When a person had fallen and could not get up by him/herself, it was not considered an urgent alarm unless the person was hurt. A customer could be lying on the floor for one and a half hour if there was no injury. Organisations were trying to make customers’ waiting time shorter by acquiring help personnel who were not medical staff. Driving to customers by ambulances cost much more than a help person’s visit would otherwise cost.

#### 4.3.3.3 Devices

Safety telephone technology, which was used by customers, raised many questions and many of them were left somewhat unanswered. There was a conflict that on the one hand, safety telephone devices had many features and, on the other hand, that the devices needed to be simple and easy to use. The devices had many features which could be programmed but the customers required that the devices should not be complicated. Customers were not able to use complicated devices.

*‘This safety telephone device has, for instance, these alarm alternatives. The device can be programmed to give a notification that the customer is out of the house (door alarm). The safety telephone can have a medicine reminder connected to it, a bed alarm, a door alarm, a fire alarm, notification possibility for the care taker when leaving the customer or arriving at the customer’s home, besides the ordinary safety*

*telephone function. But these are only possible functions of the devices. We do not even have instructions on how to use all these alternatives. (...) These safety telephone devices already have many features, which we cannot utilise. (...) You can add whatever you want, burglar alarms and anything. We have not marketed those alarms, like door alarms. We have some door alarms in a town. Door alarms are a problem. When an elderly person goes out of the door it causes an alarm call. When an elderly person goes out, we cannot be responsible of him or her, because our helper is 50 kilometres away. That is why we have not marketed door alarms.' (Call centre operator 4.)*

It was possible for customers to take a shower wearing the wrist alarm apparatus, because the apparatus was quite water proof. However, if customers had the wrist band on in the shower, then the apparatus got wet and the band stayed wet. The band was uncomfortable when wet. Taking a shower with the wrist band on was not recommended. Usually, if customers were not in a good condition, they did not take a shower alone without help. However, if they did take a shower alone then they had the wrist band somewhere near on a chair, where they could reach it if necessary. It had never happened that a customer had fallen in the shower and had not received help, according to a call centre operator of a large safety telephone service organisation.

It might be thought possible that when taking showers customers could use the pendant and then take the wet string off their neck and put a dry alarm device on their wrist; but this it seems was not possible. The most commonly used pendant around the neck was so tight that the elderly could not take it off. The pendant was on a string and it must be pushed upwards to open. It was so tight that the elderly could not open it. However, the lock was designed so that a person could not get caught in it. If the string got stuck somewhere, the lock opened. For rheumatic people there was a different kind of pendant provided, which functioned well and could be opened.

Usually the service organisation gave its customers a safety button that was either a wrist band or a pendant around the neck. They did not particularly market the pendant. The problem was that if a person fell the pendant easily trapped under the person. Alternatively,

the pendant might also swing to the back of the person and then the elderly person could not press the button.

There was demand for devices that are designed-for-all. Design-for-all devices are better looking and cheaper, because they are being bought by more people. Most customers, according to call centre operators, thought that safety telephone devices looked ugly. Moreover, calling safety telephones aid devices was quite unthinkable for customers. The term aid device could not be used as the elderly did not tolerate that term.

*'In the Finnish Association of People with Physical Disabilities I heard that the TV remote control has formerly been an aid device for disabled and now the remote control is in use in every household. And dish washing machines used to be such aid devices. And now there are electric can openers and what else... It is good that they are design-for-all now and do not categorise people. (...) The same way people who have impaired hearing have been delighted that SMS messages are used by everyone. (...) Safety telephone service is a typical area where devices come from engineers only. (...) In Finland, we do not have big enough safety telephone organisations. (...) One organisation should have 10,000 safety telephone customers to be profitable. (...) No one has such sales that they could affect the technical devices they require. That is why we get these ugly boxes because no one can invest much.'* (Call centre operator 7.)

#### 4.3.3.4 Customer needs

Organisations were very interested in customer needs, but they did not seem to do anything to obtain the necessary information. There were no feedback systems and claims submitted by customers were noted but other than that, organisations did not look at customer needs. Home care services had feedback systems and there were also quality control systems in home care units. Call centres had also worked on quality control systems but there was no certification system in that area of the safety telephone service organisation. Even relatively large safety telephone services had very small organisations. Nevertheless, there were goals and visions among call centre operators about the services and what should be done and how to develop functions as a whole.

The main target customer group of the safety telephone services was the elderly. Safety telephone operations were connected to elderly home care and elderly medical services at home. The social and health services' staff worked in municipal service centres and gave services to the surrounding area. According to one call centre operator, social and health service staff will also serve as safety telephone care helpers in the future. The operator also thought that this current technology is only temporary and that we are on the way to use technology, which will allow a two-way information flow with a webcam system, which can help in medication and in general well-being and be a kind of social channel.

The turnover of customers in safety telephone service organisations seemed quite large. In one major service organisation, there were quite constantly 58 new customers and 57 retrievals a month; a good month being 98 instalments and 58 retrievals. Retrieval took place, when the organisation removed the safety telephone device from a customer.

#### 4.3.3.5 Barriers to receiving physical help

There were different situations when a customer could have difficulties in getting help. These barriers, which could prevent customers from obtaining physical help, should be recognised and they could include such incidents as wrist device batteries running out, customers' home door keys being changed, or difficulties in the call centre to find the right helpers.

*'It is best that customers make an alarm call once a month. Sometimes customers have not remembered to press the alarm button for many years and when they have needed the safety telephone service, the device has not functioned. For example batteries in the wrist apparatus have run out without the customer noticing it.'* (Call centre operator 1.)

Sometimes there were problems, because in large cities there were many different municipal home health care areas and operators were sometimes confused about which home care unit took care of which area and which customers. Sometimes operators had to make several phone calls to different numbers to find out in which home care unit the customer belonged.

In the evening and at night this was not such a problem, because often at these times only one care unit was in charge then.

Sometimes operators got in touch with customers if there was some specific reason. Such reasons were that keys did not fit the customers' home door locks i.e. the locks had been changed and no one had informed the service provider. Incidents such as a lock to a downstairs door or something changing occurred almost daily. A call centre operator related that large cities had the habit of changing locks in all their elderly service apartment buildings. If someone was informed that the locks had been changed in a city owned service apartment building, the safety telephone service organisation had to look up every one of their customers, who lived in that building and then call all those customers. According to a call centre operator, maybe only two of the customers had let the service provider know and had asked them to come and get the new key. The rest, however, had forgotten to let the service provider know. Customers did not think the safety telephone services needed a key. There were many unwritten matters that the staff knew and could relate.

How much of the customer information data was incorrect was difficult to evaluate. The interviews indicated that customers' telephone numbers were not often wrong. A wrong telephone number was found only in those cases where a customer's phone number had changed for some reason and the customer had not remembered to tell the safety telephone service organisation about it. However, there were cases when telephone lines had been disconnected, as the telephone companies disconnect the line if the invoice has not been paid. Unfortunately, the elderly had not always remembered to pay their bills.

Giving help or sending for help contributed to meeting customer expectations and produced value-in-use. One or two examples from the safety telephone service manager interviews show how safety telephone service systems could further enable customers to receive help and also what the barriers were. The following is an example of activity that made different kinds of help, either verbal or physical, more difficult.

*'The prerequisite is that we can show such added value to those who pay for the services, in other words to municipalities and individuals, so that they see the cost (of*

*safety telephone services) is reasonable. Currently there is a problem developing the services, because the development does not create sufficient added value, for which municipalities would be ready to pay for.’ (A safety telephone service top manager 1.)*

An example of help-enabling activity is the following.

*‘Most of our call centre staff has medical training. Some are ambulance drivers who have served for a long time and have gained competence at work.’ (A safety telephone service top manager 2.)*

#### 4.3.3.6 Customer profiles

There were many types of elderly people as customers of safety telephone service organisations. A typical customer was a woman over 75 living in a large city.

*‘I can tell an example of a woman who called (...) to order a safety telephone for her husband. She said that he is 84 years old and needs a safety telephone because his driving licence was not renewed. Quite wild... He cannot help himself any longer, because he cannot move around with a car. This must be remembered when driving in traffic.’ (Call centre operator 1.)*

There were also customers with dementia, but safety telephones were of no use for people with dementia. These people were not able to use the alarm call device at all.

#### 4.3.3.7 The key topics in the employee interviews

The key topics in the interviews were identified by content analysis in the way that first the author of this study became well acquainted with safety services for the elderly. Several visits to service organisations were made to follow their daily routines. Then an employee interview collection design was made limiting the discussion to the research subject. Interviews took place in various locations and different environments of safety telephone services. The organisations visited were of different sizes and with different procedures, which increased

validity. The interview data were analysed with effectiveness and efficiency in mind which brought out the key topics. In personnel interviews, the main informants turned out to be call centre operators. Call centre operators were clearly the key people in the organisation to evaluate matters concerning customers and safety telephone operations in the organisation. The key topics that were revealed in the employee interviews and related to the aims of this study are summarised in the following Table 12.

Inefficiencies were found in help personnel's transportation methods. Most of the time helpers needed small cars, not necessarily fully equipped ambulances. This affected the efficiency of the organisation.

There was an indication of user expectations as regards social contact. Call centre operators seemed to identify these users who make 'social calls' daily. There was little or no attempt to solve this problem, which caused inefficiencies in operations. These users repeated their "social calls" over and over again. Call centre operators knew these particular customers and their habits of making frequent calls. The existing services were burdened with such lack of efficiency.

Technology was a help to call centres in identifying customers. Therefore, up to date customer data was an integral part of giving and receiving physical help when expected. Up to date customer data increased value-in-use for customers. It also enhanced efficiency because then employees did not need to make several phone calls to different numbers. Safety telephone service organisations needed to ensure that their customer database only included correct information. A concern about this was raised.

*Table 12 Key topics in the employee interviews*

Key topics	Illustrative interview comment	Tendency (frequently, moderately, seldom occurring)
An ambulance is sent although it is unnecessary (efficiency)	<p>"... falling is a common reason for making an alarm."            "... rarely is there a need for medical treatment."            "... we should need a full time helper, who would drive around in a small car to help these customers, when they have fallen..."            "... a customer might needs their incontinence pads changed or need to get back to bed or to go to the toilet and then back to bed. ...Such needs are very usual."            "Driving to customers by ambulance costs much more than a help person's visit would otherwise cost."</p>	Frequently
The rescue department is asked to go and help (efficiency)	"... all the cars are booked as they sometimes are."	Seldom
How the device meets customer expectations and employee capabilities (efficiency)	<p>"The device can be programmed to give a notification that the customer is out of the house... can have a medicine reminder connected to it, a bed alarm, a door alarm, a fire alarm, a notification possibility for the care taker..."            "We do not even have instructions on how to use all these alternatives."            "Customers cannot understand complicated devices."</p>	Frequently
Barriers (efficiency) (value-in-use)	<p>"We have had to make several phone calls to different numbers to find out in which home care unit the customer belongs."            "... Keys do not fit the locks."</p>	Frequently
Help-enabling (efficiency)	"Most of our call centre staff have medical training."	Frequently
Alarm calls made for reasons other than physical help expectations means that the service does not meet customer expectations. (efficiency) (value-in-use)	<p>"When you know this person, you know that she asks for help although she gets daily private home care service. So we do not need to react very much to her requests."            "There are very many such customers, who have been very familiar to me for many years, when they have made alarm calls...they do not necessarily need help. Then I just say something to the person."</p>	Frequently
Customers' waiting time is long (value-in-use)	"...the ambulance is so busy that customers have to wait..."	Frequently
The apparatus is uncomfortable and ugly (value-in-use)	<p>"... in the shower, then the apparatus is wet and the band stays wet."            "... I noticed that customers thought that safety telephone devices looked ugly."</p>	Frequently
Barriers preventing getting help (value-in-use) (efficiency)	<p>"... the device has not functioned."            "...batteries in the wrist apparatus have run out without the customer wnoticing it."            "Door alarms are a problem..."            "When an elderly person goes out, we cannot be responsible of him or her, because our helper is 50 kilometres away."            "There are also customers with dementia, but safety telephones are of no use for people with dementia."            "There are so many of these municipal home health care areas that it is confusing who takes care of which area."            "... telephone numbers have got mixed up..."            "Keys do not fit customers' locks."            "Customers' telephone lines are disconnected because of unplugged telephones or unpaid bills."            "The call button in a pendant is trapped under the person and cannot be reached for a help call."</p>	Moderately

Call centre operators could not always identify if the reason for an alarm call was a physical help expectation. In such cases of uncertainty help was sent by the operators. In non-emergency cases customers could be left waiting for up to one and a half hours for help to arrive, but in life-threatening situations a rescue ambulance was summoned. However, there were many different situations when a customer could have difficulties in getting help, such as when safety telephone wrist device batteries had run out, with confusion about helpers, with keys that did not fit customers' locks, customers' telephone lines being disconnected because of unplugged telephones or unpaid bills, the elderly with dementia did not know how to call for help or the call button in a pendant got under the person and could not be reached for a help call.

Safety telephone devices had a number of different alarm alternatives, which were not used because they were far too complicated for the customers to use and would cause extra unnecessary alarms. This raised the question of whether the devices could be simpler and less expensive if they only performed the core alarm call function, for which they were used. Besides these ordinary safety telephones, other means of communication could be developed. As a vision for future development, an interactive TV, which is being used in some location now, was seen as a possibility for wider use. In addition, using helpers that work locally was suggested, in order to avoid long distances and to create more efficient work time.

There were new customers coming in and almost same number leaving the safety telephone services every month. The causes of this have not been studied further. Customers were elderly and ill and their death caused retrievals of safety telephones. How many left the service for other reasons or moved in order to use another organisation, was not answered in this study. In general, keeping existing customers is more efficient for a company than having to acquire new ones.

From interviews with safety telephone service managers we learned that the customers' willingness to pay for additional services was minimal. It was difficult to develop services because municipalities and customers were not ready to pay more. Customers were often

ignorant, unwilling to learn, and want everything cheap, as Gummesson has stated.<sup>411</sup> This strengthens the need for organisations to increase their productivity.

#### 4.3.4 Customer interviews

A second set of interviews was conducted among customers of safety telephone services using another interview framework. Not all customers could be interviewed because they were not able to express their expectations. Of the 36 successful customer interviews, 31 were conducted by two other researchers.

In this study, a customer is a person who has access to safety telephone services. In the context of safety telephone services, there are no age limits to customers. Safety telephones were mostly used by older people, but they were also used by younger disabled people. In the

context of this study, the customer was an elderly person, often aged 75 and above. The interviewed customers were between 62 and 98 years old, living at home or in service homes in different parts of Finland. The customers were reached with the help of organisations working in cooperation with the research project. Among the interviewed customers 29 used the traditional safety telephone, five used the so called wellness wristband and two were test users of mobile safety telephones with tracking devices. The elderly were a very heterogeneous group with different abilities and different expectations. They were very heterogeneous also in terms of health, situation in life and experience in using safety telephone services.

The elderly customers were interviewed in different municipalities both large and small. The customer interviews had their own semi-structured outline concentrating on the customer background and customers' experiences with safety telephone services. The customer interviews were conducted in the privacy of the customers' homes. Customer interviews in this present study were used to add to the understanding of whether the safety telephone

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<sup>411</sup> Gummesson, E. (2008). 'Customer Centricity: a Reality or a Wild Goose Chase?' *European Business Review* 20(4), 315-330.

services were able to meet customer expectations or not. Customer interviews more generally have been reported by Pekkarinen.<sup>412</sup>

#### 4.3.4.1 Customer view of ‘unnecessary’ alarm calls

When installing safety telephone devices for customers, safety telephone service organisations tried to ensure that customers understand, what they are getting and how the safety devices are used. The reasons for making an alarm call varied from one service provider to another. Some serviced homes allowed the customers to use the safety telephone on all occasions as a call button, others had more detailed instructions.

Some customers of safety telephone services, which were for physical help services only, used the alarm call for purposes other than for physical help. They might have pushed the alarm button, if they had dropped something on the floor or after looking at their clock asked whether it was night or day.

*‘Last night I made an alarm call about midnight and asked if it is night or day. They told me it was midnight. Then I looked at my clock and said that is good, there is no emergency, thank you. I have a safety telephone and I press the alarm call button. They tell me not to do so because I shall be invoiced. But seriously, they do not invoice me because the municipality pays for it.’ (A small percentage of the safety telephone customers get the safety telephone free of charge from their municipality, because of their financial situation.) (Customer 2, 88 year-old female.)*

There were also unintended alarm calls. Some of the customers were unhappy when told not to make an ‘unnecessary’ alarm call. Some did not get disturbed about being corrected. Uncertainty and fear raised questions where to call. Some customers used the alarm call only in extreme emergencies and for instance did everything in order to manage to get up if they had fallen on the floor.

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<sup>412</sup> Pekkarinen, S. (2003). ‘Ikääntyvä ihminen turvapuhelinpalvelujen asiakkaana (An Elderly Person as a Customer of Safety Telephone Services).’ In Serkkola, A. (ed.) Turvapuhelinpalvelut ikääntyvän ihmisen elinympäristössä (Safety Telephone Services in the Life of an Elderly Person). Helsinki University of Technology Lahti Center, Publication Series of the Institute for Regional Economics and Business Strategy, Lahti, Finland.

#### 4.3.4.2 Customer view of devices

Watches and heart rate monitors are obvious mainstream products but safety telephone wrist devices look like aid devices more than trendy technology. Customers were not content with the way the wrist devices looked. Many of the customers thought that the wrist device was not pleasing and could be better designed or look more like a piece of jewellery. They even thought that people were staring at them because of the wrist band. However, they wore the wrist band because they thought that it was necessary. The devices were even uncomfortable for some.

*'The wrist band is not good. It slides down somehow and the band opens by itself.'*  
(Customer 8, 75 year-old female.)

The call button pendant around the neck did not receive much praise either. For instance customers felt that the safety telephone alarm call button hanging around the neck got often pressed onto something if it was hanging loose. One customer gave suggestions to home care personnel to shorten the cord around the neck, although the personnel did not pay any attention to it. The customer felt that if no advice was given to personnel from somewhere else, they did not do what the customer asked for.

#### 4.3.4.3 Reasons for acquiring a safety telephone

Safety telephones were sometimes acquired by users' relatives because they did not live close by, or had other reasons to be worried about the safety of their elderly. The families of elderly persons living in cities felt that there was a need for a safety telephone because the elderly were so much alone in the city. The elderly did not know the neighbours although they had neighbours. Moreover, the elderly thought that it was good to have the safety telephone so that they did not need to bother relatives. It was usual that safety telephone services had been bought after something had happened to the elderly persons, when safety telephone services could have been helpful. Some elderly persons felt dizzy all the time or often got heart attacks. Although the elderly sometimes objected to having a safety telephone, the elderly

also found positive aspects about it. One customer, who had not needed to make any alarm calls, felt that the safety telephone was a waste of money.

Feelings of insecurity made the elderly themselves want the safety telephone services. Being afraid of falling was one of the main reasons for getting the service. Additionally, any feelings of insecurity from outside threats, was a reason for getting a safety telephone. Some safety telephone customers had experienced a dangerous situation, where safety telephone services could have helped.

*'I got a safety telephone after I was here four days on my face unconscious. I realised subconsciously that I was still in the same room on the floor on my face and started to cry for help. Luckily the downstairs retired lady heard that cry, that loud cry.'*  
(Customer 9, 66 year-old male.)

Safety telephone services are considered by many customers important and the main reason for being able to live at home. People trusted the services and felt that safety telephone services were a life expander. They felt that the safety telephone saved them from being institutionalised and that they could manage at home for a long time. Living in their own home gave the elderly the feeling of a kind of freedom, which they could not experience in old age homes or hospitals. In their own home they could eat or take a bath whenever they wanted.

#### 4.3.4.4 The key topics in the customer interviews

The key topics that were revealed in the customer interviews and related to the aims of this study are summarised in the following Table 13. Customer interviews gave information about customer opinions and about safety telephone services. These interviews also included customers who had not made an alarm call. Not all customers could be interviewed because they could not express their expectations.

Safety telephones were often acquired after something had happened to the elderly persons. In addition to which the feelings of insecurity made the elderly persons or relatives want safety

telephone services. In the customer interviews, safety telephone wrist devices did not get approval about their design and some dissatisfaction was also expressed about the discomfort of the wrist device and the pendant around the neck. Sometimes the devices caused unnecessary alarm calls. There was stress and uncertainty of when to call and when not to call. Some customers used the safety telephone when they wanted to ask something, some did not use it even if they fell down but instead they did everything to manage the situation all by themselves.

There is a need to investigate and develop improved services for the elderly living at home. We need new methods especially to help those cases where customers have difficulties in expressing their own expectations. New technologically enabled services need to be looked at from this point of view and to be used to benefit care for the elderly also more generally. Wellness technology, such as the rapidly growing safety telephone services, has challenging environments when dealing with the increasing service expectations and escalating costs.

*Table 13 Key topics in the customer interviews*

Key topics	Illustrative interview comment	Tendency (frequently, moderately, seldom occurring)
An ambulance is sent although it is unnecessary (efficiency)	<p>"... falling is a common reason for making an alarm."</p> <p>"... rarely is there a need for medical treatment."</p> <p>"... we should need a full time helper, who would drive around in a small car to help these customers, when they have fallen..."</p> <p>"... a customer might needs their incontinence pads changed or need to get back to bed or to go to the toilet and then back to bed. ...Such needs are very usual."</p> <p>"Driving to customers by ambulance costs much more than a help person's visit would otherwise cost."</p>	Frequently
The rescue department is asked to go and help (efficiency)	"... all the cars are booked as they sometimes are."	Seldom
How the device meets customer expectations and employee capabilities (efficiency)	<p>"The device can be programmed to give a notification that the customer is out of the house... can have a medicine reminder connected to it, a bed alarm, a door alarm, a fire alarm, a notification possibility for the care taker..."</p> <p>"We do not even have instructions on how to use all these alternatives."</p> <p>"Customers cannot understand complicated devices."</p>	Frequently
Barriers (efficiency) (value-in-use)	<p>"We have had to make several phone calls to different numbers to find out in which home care unit the customer belongs."</p> <p>"... Keys do not fit the locks."</p>	Frequently
Help-enabling (efficiency)	"Most of our call centre staff have medical training."	Frequently
Alarm calls made for reasons other than physical help expectations means that the service does not meet customer expectations. (efficiency) (value-in-use)	<p>"When you know this person, you know that she asks for help although she gets daily private home care service. So we do not need to react very much to her requests."</p> <p>"There are very many such customers, who have been very familiar to me for many years, when they have made alarm calls...they do not necessarily need help. Then I just say something to the person."</p>	Frequently
Customers' waiting time is long (value-in-use)	"...the ambulance is so busy that customers have to wait..."	Frequently
The apparatus is uncomfortable and ugly (value-in-use)	<p>"... in the shower, then the apparatus is wet and the band stays wet."</p> <p>"... I noticed that customers thought that safety telephone devices looked ugly."</p>	Frequently
Barriers preventing getting help (value-in-use) (efficiency)	<p>"... the device has not functioned."</p> <p>"...batteries in the wrist apparatus have run out without the customer noticing it."</p> <p>"Door alarms are a problem."...</p> <p>"When an elderly person goes out, we cannot be responsible of him or her, because our helper is 50 kilometres away."</p> <p>"There are also customers with dementia, but safety telephones are of no use for people with dementia."</p> <p>"There are so many of these municipal home health care areas that it is confusing who takes care of which area."</p> <p>"... telephone numbers have got mixed up..."</p> <p>"Keys do not fit customers' locks."</p> <p>"Customers' telephone lines are disconnected because of unplugged telephones or unpaid bills."</p> <p>"The call button in a pendant is trapped under the person and cannot be reached for a help call."</p>	Moderately

#### 4.3.5 Call centre data collection

This study started from the idea that the analyses of customer activity data can be the basis of developing services and decreasing waste in the organisation. A customer database can be analysed with the intent to define customer segments. The idea of using customer segments is to divide customers into smaller groups according to their expectations and to plan and supply them with customised services.<sup>413</sup> Demographic data such as gender, age, education, income, family situation, and address are often used in defining customer segments. A variety of multivariable statistical methods, such as cluster analysis and discriminant analysis, can be used to group together customers with similar behavioural patterns. Descriptive data can also be used and based on these methods organisations can develop different product offerings.<sup>414</sup> Customer segments can also be based on life style. This means information on how customers live, what hobbies they have, and what their interests and opinions are, among other data.<sup>415</sup> It is known that the demographic factors affect life style,<sup>416</sup> so that life style analysis may not be necessary.

Customer segments can also be formed according to the benefits that customers are seeking, when using the services. Service benefits for the customers may be, for instance, price, quality of service, or a combination of several customer benefits.<sup>417</sup> Sometimes customers' ability to pay for the services is used as a segmentation criterion to set the prices for the services.<sup>418</sup> Customer segments can also be formed according to the usage of the services, for instance, the quantity of usage, willingness to use the service, length of time as a customer, and the attitude towards the service.<sup>419</sup>

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<sup>413</sup> Kotler, P. (1997). 'Marketing Management. Analysis, Planning, Implementation, and Control.' Upper Saddle River, New Jersey, USA: Prentice Hall.

<sup>414</sup> Wedel, M. and Kamakura, W. (1999). 'Market Segmentation: Conceptual and Methodological Foundations.' New York, New York, USA: Kluwer Academic Publishers.

<sup>415</sup> Solomon, M., Bamossy, G. and Askegard, S. (1999). 'Consumer Behaviour. Building Marketing Strategy.' Boston, Massachusetts, USA: McGraw-Hill.

<sup>416</sup> Ylikoski, T. (2000). 'Unohtuiko asiakas? (Was the Customer Forgotten?).' Keuruu, Finland: Otavan Kirjapaino Oy.

<sup>417</sup> Kotler, P. and Andreasen, A. (1996). 'Strategic Marketing for Non-profit Organisations.' London, England: Prentice Hall.

<sup>418</sup> Ylikoski, T. (2000). 'Unohtuiko asiakas? (Was the Customer Forgotten?).' Keuruu, Finland: Otavan Kirjapaino Oy.

<sup>419</sup> Kotler, P. (1997). 'Marketing Management. Analysis, Planning, Implementation, and Control.' Upper Saddle River, New Jersey, USA: Prentice Hall.

Segmentation approaches are also criticised. Taking a large number of customers and forming groups (for instance based on age or handicaps) presumes an average customer in the group. Given the range of tools available, which can reach customers one at a time using personalised services, there is less need to consider the usual segmentation schemes. Rather, there can be increased attention paid to understanding each customer on individual bases.<sup>420</sup>

The necessary first step is the construction of a customer database.<sup>421</sup> In safety telephone call centres, this was a relatively straightforward task as the customer transaction and contact information was accumulated in a log as a natural part of the interaction with users. For organisations that have not used customer information very much, the task would involve seeking historical customer contact data from internal sources.<sup>422</sup>

There were elderly people, who did not know their own needs. That is why ways of studying the expectations of the elderly, other than the usual customer satisfaction surveys in the form of questionnaires, must be found. Further data was collected from alarm calls coming into a major call centre. The interviews permitted the development of the instrument that was used in the call centre data collection.

A 2,830 sample of incoming safety telephone calls and the corresponding decisions of the call centre operators about customers' expectations for help were analysed. The perspective of this study was to see if the services offered by the call centre operators satisfy the expectations of the customers. In a call centre, operators made quick decisions whether the customers, who had pushed the alarm call button, expected physical help and what kind of physical help they expected. In order to find out customers' value-in-use for these services, this study looked into why customers called for help and how these alarm calls were answered by the operators, the latter being an indication of services received by the customers.

The data was produced by sampling incoming safety telephone calls and the customer information connected to those calls. Furthermore, information about safety telephone alarm

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<sup>420</sup> Peppers, D. and Rogers, M. (1993). 'The One to One Future.' New York, New York, USA: Doubleday.

<sup>421</sup> Glazer, R. (1999). 'Winning in Smart Markets.' *Sloan Management Review*, 40(4), 59-69.

<sup>422</sup> Winer, R. (2001). 'Customer Relationship Management: A Framework, Research Directions, and the Future.' Haas School of Business, University of California at Berkeley, Berkeley, California, USA.

calls and the customers who made them was collected from the call centre log database to shed more light on customers' value-in-use.

The safety telephone alarm call data was collected in a Finnish nationwide safety telephone service company. Data was collected concerning alarm calls and the customers who made them. The first sample size was 770 alarm calls and was collected by the author of this study. The second sample was 2,060 alarm calls and was collected by the author of this study with the help of a research assistant.

The raw data was examined. Confidence in the findings increased, when multiple observations converged. Focused, short, repeat interviews with safety telephone employees were necessary to verify the key observations and check facts. Seminars, workshops and other meetings connected to the data collection took place at the same time. The results were then discussed on different occasions and in seminars with researchers, interviewees, and others in safety telephone services and elderly care.

#### 4.3.5.1 The first sample of customer alarm calls

In order to examine customer profiles and reasons for safety telephone customer alarm calls, a sample of incoming alarm calls was gathered by the author of this study in a nationwide safety telephone service company call centre. As an example of how customers' value-in-use of services can be investigated in the present day environment, this study looked at help requests coming in at a safety telephone call centre and compared them to the answers given by the call centre operators. The incoming help requests represented customer expectations and the compared answers represent how these expectations were satisfied. This showed customers' value-in-use of the safety telephone services.

Preliminary research showed that the call centre received about 260 alarm calls in 24 hours. It was also found that many alarm calls did not require visits to the customers. To get a comprehensive view of the reasons for the customer alarm calls, the author of this study decided to set a target of obtaining a sample of 780 alarm calls. This particular safety telephone organisation had 3,900 customers and thus 780 customers represented 20% of their

customers. Some customers, however, did not use the safety telephone for years, some made alarm calls daily. The sample was collected over three separate 24 hour periods.

There were no statistics available about all the customers of the safety telephone service organisation. Information about the customers was not available to the researcher, because the organisation protected its customers' privacy. There was no analysis made by the organisation about the safety telephone users either.

The sample of alarm calls was taken on Tuesday, Saturday and Sunday, for 24 hours each day, to cover a weekday and the weekend. There were altogether 770 incoming alarm calls during those days, 290 on Tuesday, 225 on Saturday and 255 on Sunday. There was an average of 257 incoming alarm calls in 24 hours.

Forms to be filled were designed and printed to make it as quick as possible for the call centre operators to fill in the required data besides performing their normal work duties. The following information was collected for each safety telephone alarm call. Most of the information was available for the operator on the screen, when a customer made an alarm call:

- call centre operator's initials
- date of the alarm call
- time of day of the alarm call
- birth year of the customer
- gender of the customer

There was a list of health-related issues:

- heart condition
- diabetes
- stroke
- falling
- asthma
- difficulties in regard to memory
- difficulties in verbal expression
- hearing disabilities

- information about vision

There was also a list of life-supporting aid devices:

- hearing aid
- walking stick
- rollator
- wheelchair
- other

There was a space for:

- alarm call code, the reason for the alarm call
- code which indicates how the call centre operator responded to the customer's request

Filling out the forms was mainly ticking the boxes and each alarm call was registered on an individual form. Because of time pressures and other such reasons call centre operators could not complete all the forms and some information was missing. The reasons for the alarm calls were registered in 759 of the 770 alarm calls.

It was revealed that in 13 % of the alarm calls customers needed physical help. In 41 % of the alarm calls no physical help was needed. The remainder of the alarm calls, 46 % of all alarm calls, took place because of the safety telephone apparatus. (See Table 14.) Test calls were made by safety telephone installers, when they tested if the installed device functioned as needed. Technical calls indicated that the safety telephone became unplugged or was put back into the socket, which happened sometimes, for instance during house cleaning.

**Table 14** Percentages of different reasons for all alarm calls

Reasons for alarm calls	%
Physical help needed	13
No physical help needed	41
Apparatus caused alarm calls	46
Total n=759	100

There was a case of acute illness in 1.4 % of all alarm calls. Other physical help needs were: 4.5 % needed help because of falling over, 0.4 % needed to be lifted, 0.9 % needed help to go to the toilet and 0.9 % a known illness. The door alarm had gone off in 2.8 % of all alarm calls and in 2.2 % the reason for the alarm call was not clear or the operator could not establish voice contact with the customer. (See Table 15.)

*Table 15 Expected help for different physical needs, as a percentage of all the alarm calls*

Reasons for alarm calls	%
Acute illness	1.4
Falling	4.5
To be lifted	0.4
Need to go to the toilet	0.9
Known disease	0.9
Door alarm	2.8
Unclear reason	2.2
<b>Total physical help expected</b>	<b>13.0</b>
<b>No physical help expected plus apparatus caused alarm calls</b>	<b>87.0</b>
Total n=759	100.0

Among the alarm calls, which were unrelated to physical help needs, there were repeated alarm calls during the periods where the customers had to wait for the physical help that the call centre had promised. Some of the alarm calls made for reasons other than physical help expectations, were coded to indicate that the customers were waiting for help. This meant that the customers had regular home service and they were waiting for the service to arrive.

Some of these alarm calls caused the call centre operators to call the home service personnel to make sure they were on their way. In some cases where no such call to a home service employee was made, the operators had coded that help was on its way. These were cases where the operators saw from the customer information what time the home service was due to come and the customer had called a short time before the home service was scheduled to arrive.

When the 349 alarm calls caused by apparatus were discarded, there were 410 customer alarm calls during these three days, an average of 137 customer calls in 24 hours. Out of the 410 customer alarm calls 24 % were about getting physical help and 76 % of the alarm calls were related to some other customer needs. Of these 410 customer alarm calls, in 2.6 % the customers needed acute help. The other 21.4 % of the physical help alarm calls were nonemergency help calls. (See Table 16.)

**Table 16** Percentages of different customer alarm calls (apparatus caused alarm calls discarded)

Reasons for customer alarm calls	%
Expectation for acute help	2.6
Nonemergency help expected	21.4
<b>Total physical help expected</b>	<b>24.0</b>
<b>No physical help expected or asked for</b>	<b>76</b>
Total n=410	100.0

When looking at the operator actions we see that in 0.7 % of the customer alarm calls, (apparatus caused alarm calls discarded), the operator arranged a rescue service to send an emergency rescue ambulance to the customer. In 26.3 % of the alarm calls the operator arranged some other kind of physical help for the customers, such as a nonemergency ambulance, a nurse, the home care, a serviced apartment employee, a night duty helper, a relative or a neighbour. (See Table 17.) Help was arranged more often than it was asked for

because the reasons for customer alarm calls were not always clear to the call centre operators.

**Table 17** Percentages of different operator actions (apparatus caused alarm calls discarded)

Operator action	%
Emergency rescue ambulance arranged	0.7
Other physical help arranged	26.3
<b>Total help arranged</b>	<b>27.0</b>
<b>No help arranged</b>	<b>73.0</b>
Total n=410	100.0

In a safety telephone service environment all alarm calls, which do not require the call centre operator to arrange physical help, are quickly by-passed. The reasons for such alarm calls were not investigated further by the organisation. In terms of meeting customer needs it can be concluded that if the apparatus caused alarms are discarded, in 24 % of the customer alarm calls customers asked for physical help and the safety telephone service call centre helped the customers. In 76 % of the customer alarm calls, customers did not ask for physical help and there is evidence that customer expectations were not met.

Of the customers who made an alarm call, 78 % were over 75 years-old. Ages of the customers, who made alarm calls to the safety telephone call centre, varied as follows in Table 18. When looking at the customer data of these customers who made alarm calls, the most common health issue was a heart condition. The alarm calls were coming into the call centre twenty-four hours a day. Alarm calls increasingly took place over the mornings, reaching a peak between 11 am and 12 noon as seen in Table 19.

**Table 19** Frequencies of incoming alarm calls every hour

Time o'clock	Frequency
1-	5
2-	4
3-	4
4-	8
5-	5
6-	7
7-	11
8-	14
9-	13
10-	15
11-	22
12-	16
13-	15
14-	17
15-	12
16-	11
17-	9
18-	14
19-	8
20-	9
21-	14
22-	10
23-	7
24-	7
Total n	257

**Table 18** Ages of the customers, who made alarm calls to the safety telephone call centre

Age, years	%
under 66	9
66 - 75	13
76 - 85	41
over 85	37
Total n=410	100

The above sample of safety telephone alarm calls shows that in 24% of customer safety alarm calls the service provider sent physical help to the customers and we can assume that customer expectations for services were met. There was an urgent need to further investigate closer what the expectations of the customers in the 76 % of the safety alarm calls were, when customer expectations did were not recognised.

#### 4.3.5.2 The second sample of customer alarm calls

Customer segments in the safety telephone service world could be defined according to the use of the safety device, in other words according to the requests the customers have. The ‘unnecessary’ alarm calls are a burden to organisations and the more organisations can prevent them the better. The ‘unnecessary’ alarm calls are not good for customers either, because those alarm calls do not lead to the service that the customer was expecting.

For the second sample of customer alarm calls, data was collected from a customer log database at the same safety telephone service company. Such customers were selected whose most recent alarm call was for a non-physical reason. All together the sample size of 55 customers was taken and information on all the previous alarm calls of these customers during the past 12 months was collected. The total number of alarm calls was 2,060.

There was no personal information available about these customers other than their incoming alarm calls and how these calls had been answered by call centre operators. Customers had a customer number and they were anonymous without a profile. These 55 customers made mostly non-physical alarm calls repeated over again. The average number of alarm calls during 12 months was 36 per customer. Of the 55 customers, 47 % had made at least one alarm call with a request for some physical help among the alarm calls they made. Some of these customers received a helper a few times because the call centre operator could not hear the voice of the customer during the alarm call. Of these customers, 53 % had only made alarm calls with no request for physical help. (See Table 20.)

*Table 20 Percentage of the 55 customers, who made alarm calls with no physical help requests and who made at least one request for physical help*

Customer alarm call requests	%
Customers with at least one request for physical help	47
Customers with no request for physical help	53
Customers total n=55	100

One of these customers made 152 alarm calls in 8 months and 10 days. Of the alarm calls of this customer, only one (0.6 %) was for a physical need. Another alarm call (0.6%) from this customer caused the operator to send help because the operator could not hear the customer's voice. All the other 98.8 % of the alarm calls by this individual customer indicated no physical help expectations. The call centre operators did not react much to these 98.8 % of alarm calls of this customer. When one person makes many alarm calls without physical help requests, there is the danger that operators get so used to the person's 'unnecessary' alarm calls that in a case of a real physical help expectation, an operator does not recognise it. However, this did not happen.

#### 4.3.5.3 Customer alarm call results

In safety telephone service organisations, it is not easy to adapt capacity in accordance to alarm calls. The efficiency of an organisation suffers if the available capacity exceeds that which is needed for alarm calls. An organisation tries to maximise its efficiency by keeping the call centre personnel to the minimum.

In the first sample of customer alarm calls, 76 % of customer alarm calls were those where no physical help was asked for by the users. When investigating further how call centre operators had time for users, it was found that the average number of incoming alarm calls was 257 in 24 hours, out of which 54 % (139) were customer alarm calls and the rest 46 % (118) alarm calls were caused by apparatus. There was one operator at a time working in the call centre. If  $i$  is the number of alarm calls per the unit of time and  $d$  is the average duration time of an alarm call, then  $i \times d = s$  is how many customers need to be serviced at the same time. From this, it can be calculated that one call centre operator sitting in the call centre at a time would have an average of 5.6 minutes for each of the above alarm calls. Apparatus calls caused operators to make reports of apparatus failures, but the reports could be done in a few minutes. That left even more operator time for each customer alarm call.

The alarm calls, however, did not come in evenly. They clustered in certain times of the day, from 11 am to 12 noon being the peak and during the night from 1 am to 4 am being the quietest time. Even during quieter times, the operator had to keep each conversation with a

customer short to be able to answer the next possible incoming alarm call immediately. If the operator lingered in a conversation, he/she would have needed to cut the conversation short when the next alarm call came in.

One operator could handle 30 incoming alarm calls in one hour, if the operator limited the time in 2 minutes for each alarm call. However, answering alarm calls was not the only task. The operator also had to contact the helper if needed and follow the physical help services in that the help service person informed the call centre about his/her arrival at the customer's home. During the peak hour from 11 am to 12 noon, there were 22 alarm calls. This left the operator with 2.7 minutes for each alarm call.

If we assume that an operator needed a maximum of 4 minutes to evaluate the situation and to call for help, then the operator could handle 15 alarm calls in one hour. From 10 am to 3 pm there were more than 15 alarm calls per hour. During the rest of the day and night capacity was not fully used. It can be thought that time spent in conversations with customers could then be longer.

Looking at how safety telephone services functioned, there did not seem to be problems for customers to access call centre operators 24 hours a day, 7 days a week. The problem was the adjustability and flexibility of employees to the expectations of the customers. Safety telephone services were not built for social calls, although this study shows that customers most often asked for them. Social calls were repeatedly made by the same customers. For the services to function effectively and efficiently, those customer expectations should be answered by someone. Safety telephone service organisations would benefit from taking care that the social calls get answered by them or by someone in their network.

It was found during this study that due to the many alarm codes, different operators within the same organisation had somewhat different ways of coding. There were three different codes for alarm calls that did not require physical help to be provided:

1. Social call
2. Unintended call
3. Call without reason

In practice, it is difficult to distinguish these calls from each other. Customers pressed the alarm call button unintentionally, they pressed the button to require social contacts or asked for instance what time it was. These were coded differently by different operators in the same organisation.

The system made alarm calls, when a safety telephone wrist device battery had run out. When the battery was dead, the safety telephone system was operational for that customer only through the button, which is directly on the device connected to the telephone. Some of the battery alarm calls came repeatedly from the same customers. One battery alarm call caused a rescue ambulance to be sent to the customer in the middle of the night. This was an elderly person in a weak condition. The battery running out is risky for the customer. The technical personnel were usually informed about the non-functioning batteries and went to the customers to install new batteries. This study raises a serious question of battery changes and a question of whether the functioning of all technology is guaranteed. Modern technology can take care of apparatus caused safety telephone calls so that call centre operators do not need to receive them any longer, but apparatus caused calls are routed to the back office. Nevertheless, the question of adequate battery changes remains.

When customers make alarm calls and do not ask for physical help, customer expectations are not met by safety telephone services. The 55 customers of the second sample of customer alarm calls repeatedly made non-physical alarm calls. The question for safety telephone service organisations is how to tailor their offerings according to the distinct needs and characteristics of specific customers, without losing operative efficiency. Understanding customer expectations and providing services, which meet these expectations, is a win-win situation. It seems that safety telephone services did not serve the users as well as they could. Organisations also did not seem to run as efficiently as they could.

Safety telephone technology was much more developed than that being used by safety telephone service organisations. This raises a question of how technology can be developed so that it meets the exact expectations of customers. Technology can benefit more people and can be utilised more efficiently, if the users had better cognitive abilities to get acquainted

with it. If the type of technology used by safety telephone service was developed with a design-for-all in mind, people could become acquainted with it before losing their cognitive abilities.

According to this study, we can divide problems, which customers faced in safety telephone service environments, into:<sup>423</sup>

- Time problems, in other words call centre operators had too little time to communicate with their customers. It also took too much time for customers to receive the services required via safety telephone systems.
- Information problems, which included not understanding when safety telephone alarm calls were supposed to and not supposed to be made. There was also lack of knowledge about the safety telephone technology and how it worked. There was also excessive paper work, which customers with poor cognitive abilities had to go through to first give their personal information when they joined safety telephone services and then as their life situations changed. There was ambiguity as to who gave various services in the wide elderly services field. There was bureaucratic language when service organisations communicated with their customers.
- Psychological problems, which were caused by feelings of not receiving services that were not as good as expected or possible or the kind of services needed. Most often safety telephone service organisations did not supply users with what they expected.
- Economic problems, which were caused by too high costs to customers to use the safety telephone services. Services were not developed further by organisations because customers' willingness to pay for additional services was minimal.
- Third party problems, in other words the lack of a network of close relations, who could assist a safety telephone customer in getting the services. Moreover, organisations lacked functioning networks, which could benefit them in providing services in cooperation.

According to this study, there was evidence that if no physical help was asked for in a safety telephone alarm call, it meant that the customer expectations were not met. The safety

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<sup>423</sup> The problem division is applied from Kiviniemi, M. (1986). 'Palvelukykyisyyden kehittämisestä julkisessa hallinnossa (To Develop Service Ability in the Public Sector).' *Sosiaalinen aikakauskirja*, 80, 18-22.

telephone services were built especially to provide physical help. Physical help was provided or not provided after a quick assessment of the situation by call centre operators. Call centre practices limited the length of the telephone contacts between operators and customers to the minimum. Physical help was received when it was expected, but the majority of the alarm callers expected something else.

Customers' value-in-use and service productivity could be increased by minimising disturbance to the service production. It does not help to have high technology if service processes left room for uncertainties about customer expectations. Uncertainties could create mistakes and delays in providing services.

#### **4.4 Expert defined quality of safety telephone services**

This study combines organisational efficiency with how customer expectations are met and with expert assessments of service quality. This study adds the component of expert defined quality being used in addition to customers' value-in-use. Expert defined service quality and customers' value-in-use together define the effectiveness of services in this study. Service quality is probably necessary for most, but not, however, sufficient. Expert defined service quality forms a judgment about an organisation's processes and not the customer's.

The definition of technical quality as 'what' is received in services is interpreted in this study as expert defined service quality. The expert discussions were converted into a set of standards using Quality Function Deployment method.<sup>424</sup> One of the reasons why expert defined quality is added to the effectiveness of the services here is that customers do not always know what they need and have no skills in technology. Elderly people do not always know their needs or cannot express themselves. This study deals with productivity, expert defined service quality and customers' value-in-use in an organisational context, which has practically been disregarded in previous research studies.

Expert defined service quality is the provider perspective and the technical quality of safety telephone services. Evaluating expert defined quality for safety telephone services is based on

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<sup>424</sup> Mizuno, S. and Akao, Y. (1994). 'QFD: The Customer Driven Approach to Quality Planning and Development.' Asian Productivity Organization, Tokyo, Japan.

the study by Serkkola, Rauma and Molander, Turvapuhelinpalvelun laatukriteerit (Safety Telephone Service Quality Criteria).<sup>425</sup> The author of this study organised with three others workshops for 29 safety telephone service experts. They were from 23 different organisations working in cooperation with the research project. The Quality Function Deployment method was used to analyse the quality criteria of safety telephone services in order to help set standards for the services. Discussions at this expert workshop were recorded and transcribed. The results are an integral part of this present study. Other methods could also be used to set expert standards for the services. This provider perspective is a quality requirement and could be used in limiting excessive efficiency aspirations of service providers and in establishing the efficiency limits for safety telephone service organisations.

Quality Function Deployment is a method to transform user demands into design quality and to deploy methods for achieving the design quality into subsystems. The method was developed for industry by Yoji Akao in 1966. It was also developed to transform customer expectations into characteristics for services, prioritising each service characteristic while simultaneously setting development targets for the service. Quality Function Deployment seeks both 'spoken' and 'unspoken' customer requirements and maximises positive quality that creates value instead of minimising negative quality. For elderly services the experts were used in place of the users of elderly services, because the elderly are not always able to express themselves.

The Zone of Tolerance theory<sup>426</sup> is applied here. With the Quality Function Deployment method the acceptable service quality level was established. Tests of Zone of Tolerance model have found one threshold where service quality and customer satisfaction were linked. This threshold is the acceptable service quality level.<sup>427</sup> According to the Zone of Tolerance theory, the relationship between service quality and customer satisfaction is not quite as strong above the acceptable level of service quality as it is below the level.<sup>428</sup>

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<sup>425</sup> Serkkola, A., Rauma, M. and Molander, S. (2005). 'Turvapuhelinpalvelun laatukriteerit (Safety Telephone Service Quality Criteria).' Helsinki University of Technology Lahti Centre, Lahti, Finland.

<sup>426</sup> Parasuraman A., Berry, L. and Zeithaml, V. (1991). 'Understanding Customer Expectations of Service.' *Sloan Management Review*, 32(3), 39-48.

<sup>427</sup> Teas, K. and DeCarlo, T. (2004). 'An Examination and Extension of the Zone-of-tolerance Model.' *Journal of Service Research*, 6(3), 272-286.

<sup>428</sup> Yap, K. and Sweeney, J. (2007). 'Zone-of-tolerance Moderates the Service Quality-Outcome Relationship.' *Journal of Services Marketing*, 21(2), 137-148.

In this present study, Quality Function Deployment is used so that a group of experts raised all the customer expectations that they thought of as being important. This can be thought of as being a good approach when the assessed quality is used to limit the efficiency of organisations and real customer expectations and value-in use are found in other ways.

An expert group was gathered. The group had the task of identifying and prioritising all possible different quality criteria of safety telephone service systems. The experts were from the public sector help services, safety telephone service organisations, elderly care homes, and other organisations and companies in closely related fields. In selecting the expert group, care was taken to ensure that major official players in the field of safety telephone services were present.

Quality criteria were developed based on the present safety technology and services. Quality criteria can be updated when a need arises, for example, because of new safety technologies such as the global positioning system, tracking,<sup>429</sup> possible new safety apparatus and possible systems innovations.

Safety telephone services only function when all parties of the service process do their own share of the task carefully. It is essential that quality criteria are developed so that standards are set for the whole safety telephone service supply chain as well as its elements. In this way the quality assessment will give an idea of which parts of the service supply chain are satisfactory and which need further development.

The safety telephone service supply chain consists of the following parts:

- Arranging the safety telephone services
- The skills of the employees
- Securing the functioning of technology
- Guidance to the use of the safety telephone services
- Receiving alarm calls
- Help services

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<sup>429</sup> Mobile phone is used as a tracking device connected to a call centre.

The quality criteria for the service supply chain and its elements are presented in the Appendix.

Quality criteria were defined here so that they are applicable to different types of safety telephone service organisations. These quality criteria define those properties, which should be taken into consideration in safety telephone services so that customers' requests for physical help can be answered quickly and safely. This is a prerequisite for service efficiency. They are the organisations' input criteria.

The quality criteria of safety telephone service organisations can be used in many ways:<sup>430</sup>

- to support the planning of safety telephone services, arranging them and evaluating quality from a service suppliers' perspective
- to support customers, service organisations, and municipalities in negotiations concerning safety telephone service agreements. The quality criteria are not meant to be a ready-made form to be used when municipalities ask safety telephone service providers to submit tenders

The methods here present new ways, which support the service organisations. The quality criteria use could also be:

- to increase quality also from the customers' points of view by preventing organisations from such efficiency aspirations, that would hurt customers and thus the organisation itself
- to integrate safety telephone services into other internal and external services

These quality criteria are meant to benefit both private and public sector suppliers of safety telephone services, as well as buyers of these services. These quality criteria are not adequate for service effectiveness and customer satisfaction. Value-in-use requires, in addition, another approach.

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<sup>430</sup> Serkkola, A., Rauma, M. and Molander, S. (2005). 'Turvapuhoelinpalvelun laatukriteerit (Safety Telephone Service Quality Criteria).' Helsinki University of Technology Lahti Centre, Lahti, Finland.

The quality criteria may be used in the following additional ways:

- as a check list if a specific individual matter in the services been taken into consideration or not
- in evaluating and developing different areas of the service chain as to what is the present quality level of a particular part of the services
- in evaluating and developing the complete state of the service chain. Using quality assessments would definitely be too complicated for most safety telephone service customers but gives organisations guidelines to limit excessive service efficiency aspirations.

The Quality Function Deployment method<sup>431</sup> is used here to transform the expert ideas about user demands into quality criteria of services. The above mentioned expert group divided quality assessment into six parts and gave a weight to each part, according to their understanding of the importance of each part in the whole system. The experts named the following six parts:

1. Arranging safety telephone services

The service provider makes a plan of who receives the alarm calls and how the help service network functions. The safety telephone service plan is shown as a process with the tasks and the areas of responsibility of everyone involved. There is also the need for documentation and reports of the procedures. The supplier of the safety telephone services informs other interest groups in its network about this plan and about the duties and responsibilities assigned.

2. Receiving alarm calls

The call centre receives alarm calls and contacts safety helpers. The call centre knows who makes the alarm call and decides about the helper. The call centre has updated information about the customers of safety telephone services and updated contact information of the safety helpers. Call centre operators decide, based on each alarm

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<sup>431</sup> Mizuno, S. and Akao, Y. (1994). 'QFD: The Customer Driven Approach to Quality Planning and Development.' Asian Productivity Organization, Tokyo, Japan.

call, what help to send, whether emergency help, nonemergency help or not to send physical help at all.

### 3. Help services

Help arrives to the person making an alarm call, if he/she needs physical help. The person giving help is in the help network of the person making the alarm call, often an employee of the safety telephone organisation, an employee in the municipal social and health services, an employee in a third sector organisation, or in a home care company. Relatives and neighbours are also sometimes in the help network of the safety telephone service customer.

### 4. Ensuring that technology functions

The safety telephone service supplier guarantees that the safety telephone service system functions properly, which means changing batteries, making test calls regularly, and using technology properly. The employees of the service provider know what to do in case the system malfunctions. The service provider is in charge of reporting possible malfunctioning systems and authorises technical personnel to be responsible for ensuring that the technology functions properly. Technical personnel decide how quickly the maintenance takes place in cases of defects, and are responsible for the availability of backup systems. Technical personnel are responsible for ensuring that the whole system and its appliances function according to the specifications of the device manufacturers. The call centre has on line control over the safety telephones of its organisation if the call centre receives test alarms, automatic false alarms, (battery failures, power failures) and failure notifications. These are all directed to technical service staff. There is a time limit set for the service provider to bring a new appliance to replace a broken one.

### 5. Guidance for the use of safety telephones

Both the safety telephone service supplier and customers are offered guidance and training in the correct use of safety telephones and other technology involved. Customer training includes that the service supplier continuously monitors the routines of the safety telephone users and the safety telephones' readiness.

6. The skills of employees

The employees of the safety telephone services are trained to use the technology. Depending on the position of the employee in the service chain, different special skills are needed. Call centre employees need three types of skills:

- a. Knowledge of the help network and of the technology to answer the alarm calls, to send physical help, to save customer data and to ensure that the appliances are working.
- b. The ability to co-operate that means proper and friendly telephone conversation behaviour, negotiation skills, proper judgement in alarm call situations and clear communication.
- c. The ability to take care that means skills to make a correct assessment of the help needed, and to make independent decisions. First-aid skills and basic health care skills are also included in these abilities.

Each of the above six parts of quality assessment, defined by the above mentioned group of 29 experts, was divided by them into one or more criteria. Altogether 16 criteria were identified and listed. The criteria are shown in the form of hypotheses.

Each of the 16 criteria can be described by qualities. These qualities are in the form of explanations, notes or examples. An example of the quality assessment structure is shown in Table 21.

*Table 21 An example of the quality assessment structure*

<b>Quality assessment part</b>	2 Receiving alarm calls
<b>Criterion</b>	2.3 Receiving alarm calls functions
<b>Quality</b>	2.3.1 Call centre operator answers an alarm call in 30 seconds.

When this quality assessment structure is used, the experts conducting the quality assessment give their opinion of each quality on the scale 0 - 5 regarding how well the quality is fulfilled in their services being assessed. If the quality is not fulfilled at all, 0 points are given. If the

quality is fulfilled completely, 5 points are given. The assessment of each criterion is the average points of its qualities.

0 – The criterion is not fulfilled at all in practice. The importance of the criterion is not understood or its development is still in the planning stage.

1 – The criterion is partly fulfilled. Only some of the recommended qualities of the criterion are fulfilled.

2 – The criterion is satisfactorily fulfilled. Half of the quality criteria are fulfilled.

3 – The criterion is fulfilled well. Over half of the quality criteria are fulfilled.

4 – The criterion is fulfilled very well. All or most of the quality criteria are fulfilled and the safety telephone service organisation's actions have been developed.

5 – The criterion is excellently fulfilled and the safety telephone service organisation's actions are continually being developed.

In addition, each of the six parts has a weight, given by the expert group, as shown in Figure 7.

A safety telephone service system can receive points on the scale 0 – 100. The criteria points are interpreted as follows:<sup>432</sup>

85-100 means that the service is accomplished outstandingly

65-84 excellently

50-64 well

30-49 fair

0-29 partially

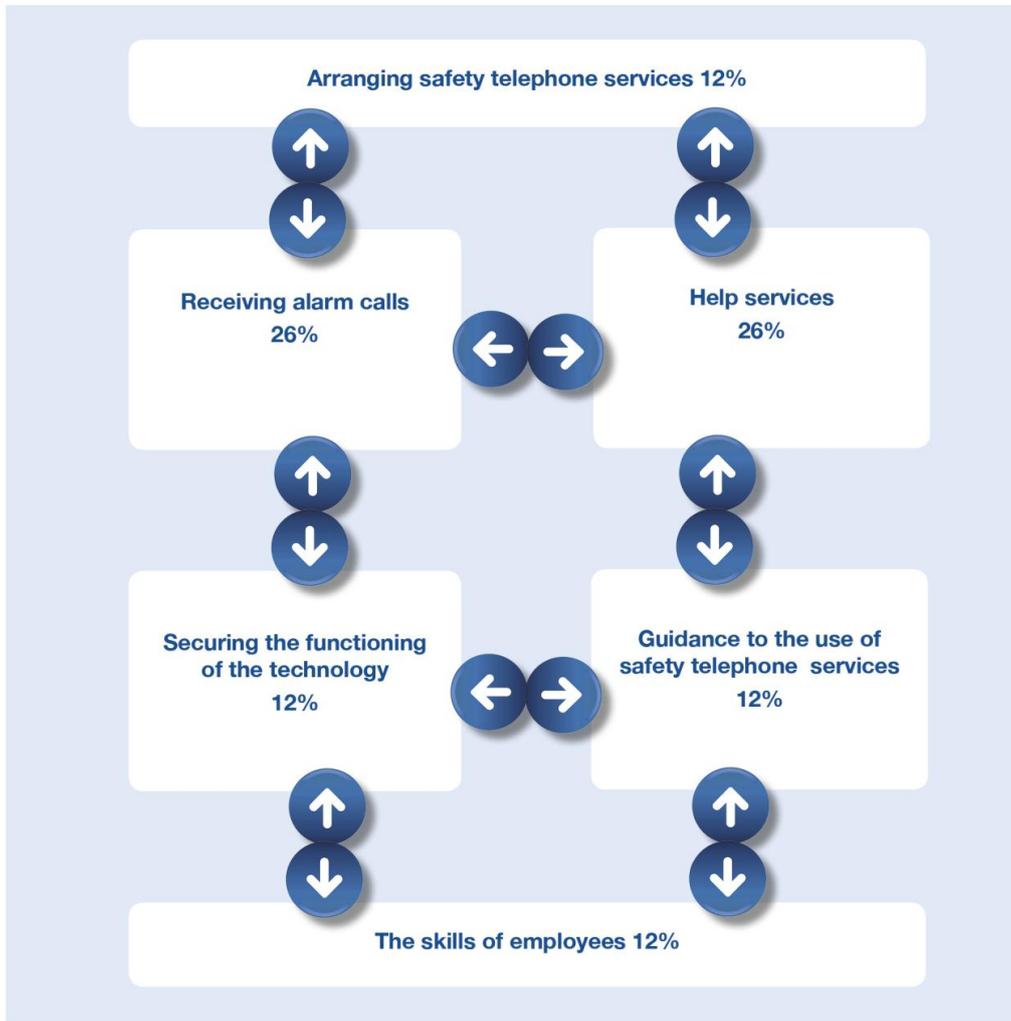
The whole structure of the quality assessment is given in the Appendix.

The above quality criteria were defined by professionals. These quality criteria can limit the efficiency aspirations of service organisations. After satisfactory levels of these criteria have

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<sup>432</sup> Valtiovarainministeriö (Ministry of Finance, Finland) (2004). 'Julkisen verkkopalvelun laatukriteerit (Quality Criteria in Public Net Service).' Työryhmämuistioita (working group memos) 8. Helsinki, Finland.

been achieved, the users of the services, together with the operators of the service, create the value-in-use of the service.



*Figure 7 The weights of the quality assessment*

## 5 RESULTS

### 5.1 Value-in-use and the quality of safety telephone services

In this section, the first research question of what has to be introduced to meet customer expectations is looked into by dividing it into two other questions: what services are received and how the services are received. Grönroos in his quality model<sup>433</sup> defined technical quality as what is received in services and functional quality as how the services are received. In this present study expert defined quality and customers' value-in-use answer these questions.

The effectiveness of services is closely connected to customers' value-in-use. Quality here is represented by mutually agreed standards defined by experts and included in the effectiveness concept. This is discussed in the dissertation's section 2.8.3 and defined in section 4.4. This study suggests limiting the efficiency of service organisations so that quality is not reduced below mutually agreed standards. Ideally, service organisations aim towards better effectiveness and increased efficiency at the same time, which means increased productivity.

When this study looked at value-in-use, the first and third criteria of good service by Grönroos<sup>434</sup> were not part of the study. The first criterion of good service is image-related. The third criterion refers to the impact of elements surrounding the service. The impact of physical elements like the technology surrounding services was omitted from this study, as were image-related matters. So this study looked at quality of what was received in services and the value-in-use of how they were received.

Besides what services were received, this study looked at how these services were received. In 76 % of the incoming customer alarm calls required services were not received. The interviews of customers revealed that customers experienced stress about those cases. Some customers were told not to call if they were not physically in danger or if they just wanted to ask something. Some customers for other reasons did not feel good or were nervous about

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<sup>433</sup> Grönroos, C. (1988). 'Service Quality: The Six Criteria of Good Perceived Service Quality.' *Review of Business*, 9(3), 10-13.

<sup>434</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

false alarms. Otherwise, according to the interviews, safety telephone customers seemed to have the feeling that services could be trusted, and they could rely on the service suppliers. Customers felt that safety telephone services gave them freedom and made it possible for them to live at home, which they preferred to old age homes and hospitals.

Organisations saw some problems in fulfilling customer expectations in some cases because the background data of helpers and their telephone numbers were not in order. This could cause delays in providing help. Call centre services of even the same organisation were different at different times because the production of the services was, as always, based on individual employees and thus were heterogeneous. It was difficult to control the quality of call centre operations because it is people who provided the services. It was, furthermore, not always possible to be certain that the services produced met customer expectations. Different customers expected different things.

Safety telephone organisations could analyse the way customers use services in order to understand what their customers expect. Organisations could provide their customers with services, which consist of those components that create value for the customers. This would answer the question: What has to be introduced to meet customer expectations? In addition, a help service had no value for customers or had only reduced value, if the call centre answered calls too slowly. It is difficult to build a competitive advantage based only on the functioning core service of providing physical help for the customers. To be competitive, an organisation has to offer customers something more in comparison to other organisations.<sup>435</sup>

This study defined quality and value-in-use so that the organisation could use the information in identifying bottlenecks in their operations and target for development, when they strive for improvements. Understanding the value generating services for elderly customers, and understanding how organisations can develop these, gives a good perspective on services for the elderly. It is imperative to develop services, be innovative and provide individual services,

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<sup>435</sup> Ylikoski, T. (2000). 'Unohtuiko asiakas? (Was the Customer Forgotten?)'. Keuruu, Finland: Otavan Kirjapaino Oy.

value-in-use, information and effectiveness.<sup>436</sup> Although technology is developing towards increasingly advanced levels, human factors do not disappear. To ensure good services, organisations have to listen to their customers and the personnel providing the services. Although everyone in the organisation is responsible for offering good quality services and every employee affects directly or indirectly customers' value-in-use, it is the call centre operators that are in a key position. To keep customers happy should be a central value also in organisations providing services for the elderly. Management is in a decisive position to make this happen. It has become more usual to employ innovative management.<sup>437</sup>

## **5.2 Customer expectations**

This section continues to show answers to the question what has to be introduced to meet customer expectations. As wellness technology is developing, it provides customers with more services and with new ways to receive services. Customers did not necessarily know what services they needed before the services were provided. It was not always useful to ask them about their expectations either. Some elderly individuals had difficulties in defining their expectations when asked. The expectations and problems of customers had to be revealed and thoroughly understood by the means of using call data log. This contributes to an alternative way of evaluating and improving productivity.

A fact, which prevented safety telephone organisations from solving the problems of their customers, was that there were customers with dementia, who did not know how to use a safety telephone although they had a device. This subgroup of customers did not make alarm calls even if in physical need. They did not understand why they had the wristband button. There were also customers with weakened cognitive abilities, who created some difficulties for the work of the safety telephone organisations.

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<sup>436</sup> Doyle, P. (1998). 'Marketing Management and Strategy.' London, England: Prentice Hall.

<sup>437</sup> Lovelock, C. , Wandermerwe, S. and Lewis, B. (1999). 'Services Marketing. A European Perspective.' London, England: Prentice Hall.

### 5.3 Service logic

In this section, the second research question of what does not constitute real value and can be eliminated is looked into. The study showed that service logic approach would give a win-win result for an organisation and its customers.

Safety telephone users had divergent views of what services should be delivered. According to this study there was much customer-introduced variability and it created operational issues for the service producer. Organisations have a choice whether they want to accommodate this variability or reduce it; whether organisations want to adopt service logic or emphasise operational simplicity. The two approaches can be in conflict. Some safety telephone service customers' behaviour was difficult to influence because of the limited cognitive abilities of the customers. Furthermore, some calls took place unintentionally and that seemed to bring stress to those users who recognised the service's meaning of giving only physical help.

How to serve two distinct segments of customers, those who expected physical help in 24 % of the customer calls, and those who did not expect it, namely 76 % of customer calls? However, those who did not expect physical help most of the time, when they made an alarm call, may expect it some other time. This makes it difficult to present a solution that divides services on the basis of service product type.

The elderly expected effective services, which are correctly targeted from the customer's point of view. The safety telephone service organisation had considerable information about customers and the information was relatively easy to use. The rich information from the alarm calls and other sources would be useful for the service organisations and for elderly services more generally without elaborate customer opinion surveys. This gives a new way to analyse customers' value-in-use and answers the research question: What has to be introduced to meet customer expectations?

It was shown in the study that call centres can play a major role in answering the problem of recognising customer expectations beyond physical help expectations. The approach was taken here to look at customer satisfaction through call centre operations. The reasons for the

alarm calls to safety telephone service call centres represent here the customers' expectations. Recognising the expectations and assessing the help required represent key elements in the strategy of providing help for elderly customers. The recognition of expectations is typically complicated because the customers in services for the elderly can be physically, recursively, or mentally impaired.

Because call centre work was hectic, there was hardly any time for operators to contribute to innovations. However, call centre operators were in a prime position to act as relationship promoters, because they saw customers' expectations first hand. There were skills behind the services and there were proper operational systems but innovation was lacking. Lack of value-in-use was seen in this study through the fact that the incoming safety telephone alarm calls were different from the services offered.

There was little or no attempt for spontaneous problem solving in the safety telephone call centre, when customers did not request physical help, even though there was a great demand for new ways to handle the calls, these calls were considered a nuisance. In services for the elderly, new ways of service could be built into the given service selection. This could enhance the provision of efficient services.

It was seen that elderly customers demanded flexible responses from the service supplier. Customers also needed quick responses on the safety telephone. Organisations needed to offer guidance. The elderly, for instance, needed advice on operating the safety telephone. Employees were authorised to make their own assessments, so they had to have the knowledge needed to do that. Technology helped both service providers and their customers. Technology needed to be as good as possible, but it was the skills of employees that were the drivers behind successful services. Employees could have acted as consultants, who are prepared to do their duty when customers need them and in the ways customers want.

In safety telephone service systems, interaction between operators and users was direct and immediate action had to be decided upon and taken by the operator. If an operator noticed that there was no physical danger, the operator tried to end the conversation very quickly. Users were not served properly for whatever reason they were calling for other than their physical

needs. Users were left without any non-physical service and they had a tendency to return with the same needs on the safety telephone lines. This left unsatisfied customers, overloaded the lines, and repeatedly gave operators unnecessary work. The work was neither effective nor efficient, and it was not as productive as it could be.

For the services to function efficiently, these user expectations should have been answered by someone. Safety telephone service organisations could benefit from taking care that the 76 % of customer alarm calls receive satisfactory responses from the safety telephone organisation or by someone else in the network. This would eliminate much of the so called 'unnecessary' alarm calls. In services for the elderly, adjustable and flexible ways of services could be built into the given service selection. This answers the research question: What does not constitute real value for service users and thus could be eliminated?

It should be seen as an opportunity for safety telephone service organisations to use the call centre data of their customers, and the call centre log database of their users' needs, to develop more customer-oriented and value-enhancing services and to create complete service offerings. Going through and analysing the log database of alarm calls can ease the operators' work. Analysing the log database also gave answers concerning the customer expectations and directions as to how to help create value for customers. Both these means can increase the efficiency of a technologically enabled service organisation. The results of this study clearly showed that service providers can improve things for their customers and, at the same time, also increase their own efficiency. This means increased productivity, which is the aim of every organisation.

As this study showed, safety telephone call centres collected a considerable amount of information about their customers, but the data was not used within the organisation - or more generally within social and health services to gain a better understanding of customer expectations or to give better services for customers. Such customer information could also become part of a systematic planning and evaluation of elderly services in general. The role of call centre operators could be taken to a novel level in that user needs through call centres would have a real impact on social and health services produced. This would be a new approach to such social service related work.

## 5.4 Social contact

One problem was that the customers often expected other services than those that had been promised to them. Customers of safety telephone services were mainly elderly people, some with cognitive disabilities, some others otherwise unable or unwilling to act according to the designed services. From the customers' perspective, it was not always easy to comprehend for which needs the customer was allowed to make safety telephone alarm calls, and for which the customer was not supposed to make alarm calls. A social need could be as strong as a physical need from the customers' point of view.

Customers did not always understand who to turn to. The elderly cannot be expected to be trained to distinguish between service providers. Making a distinction between service providers is often difficult even for those with all their cognitive abilities functioning well. The elderly expected help and if they did not get it, they pushed the safety telephone device button over and over again. In 76 % of customer alarm calls no physical help was requested by the customers. This can be interpreted as meaning that in most of the alarm calls made by users, their problems remained unsolved. As a result the effectiveness and efficiency of the safety telephone service organisation suffered.

Safety telephone services were built solely to answer customers' physical help requests. Call centre operators had little time to be on the line in each alarm call. In that time they had to decide if the user calling expected physical help and how quickly he/she expected to receive that help. However, it was also shown that the operators would have had more time to be on the line with the users during other than the busiest hours from 10 am to 3 pm.

In order to operate in the best interest of customers, an organisation serving the elderly should take into consideration that customers often do not understand what all the different organisations in elderly services are offering. It is the duty of the organisation to develop its operations, not only the customers need to be 'educated'. Call centre services could meet customer expectations much better than they do presently. Organisations could develop services individually and together with networks of other service providers in order to provide complete services.

This study showed that in Finland elderly people suffer from loneliness, for which no one has been able to provide much help. A gap between expectations and the services received exists. Loneliness seems to be the cause for much of the gap. The loneliness of the elderly can create problems also for many service sectors other than safety telephone services. Safety telephone service providers cannot alone fill this gap. Besides all the different points to estimate for the quality criteria of safety telephone services, a new important function, social contact, also emerged from the ideas of the experts using the Quality Function Deployment method. In the section on quality assessment structure, which discusses receiving alarm calls, there is the request that the operator knows where to direct the alarm call for social contact. This result is in line with the results of the collected alarm call data from the call centre. Figure 8 below shows a suggestion for a solution for call centres.

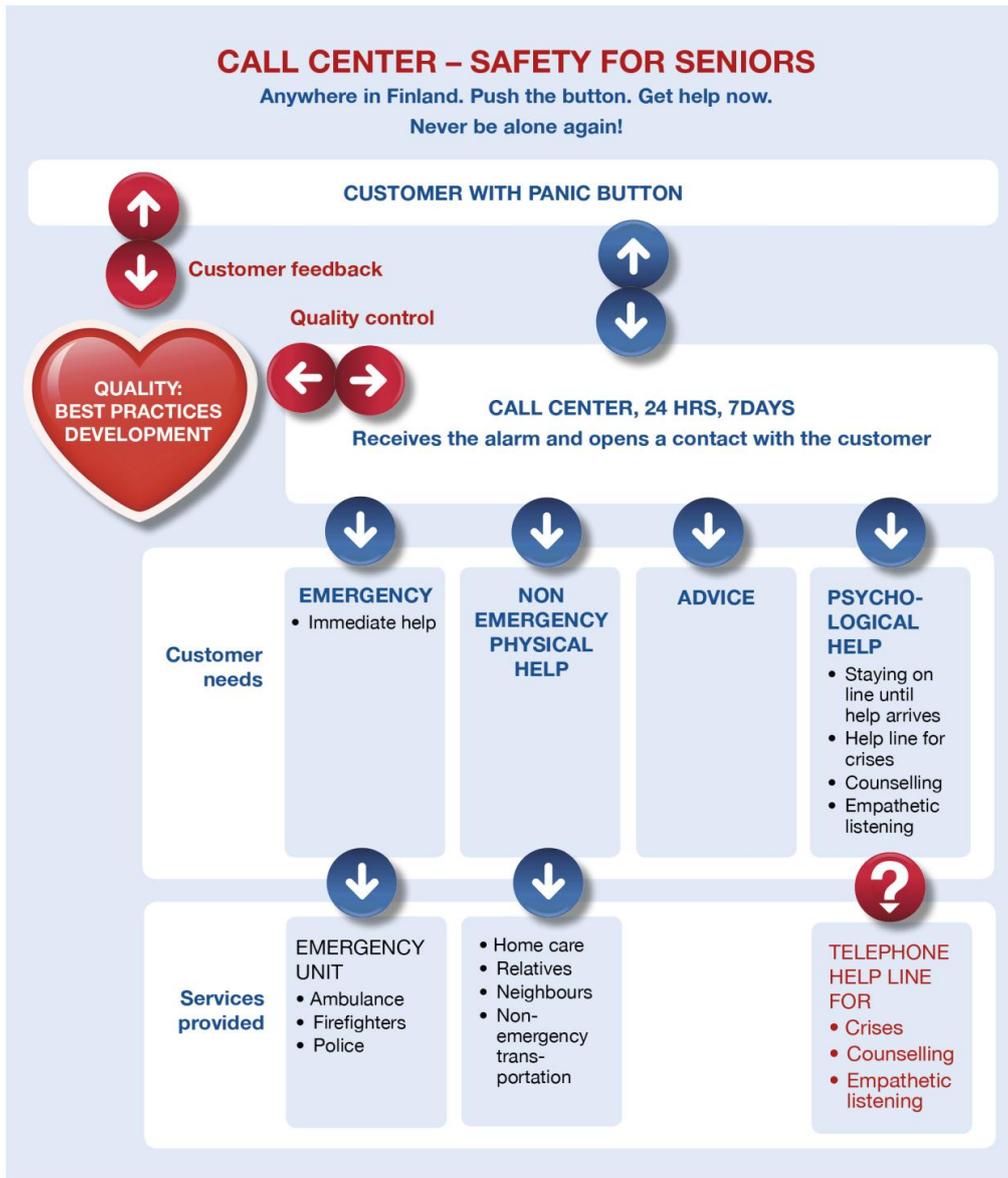


Figure 8 A suggestion for a possible call centre

## 5.5 Quality criteria

In creating the suggestion of Figure 8, also a provider perspective of service quality was studied using the Quality Function Deployment method<sup>438</sup> involving an expert group. The Quality Function Deployment method was used to transform user demands into design quality and to deploy methods for achieving the design quality into subsystems. A group of experts raised all the customer expectations that they thought of as being important. The experts had their own interests and were carefully collected from the public sector help services, safety telephone service organisations, elderly care homes, and other organisations and companies in closely related fields to ensure a wide selection of interests. For safety telephone services the experts weighted the received alarm calls and help services according to their understanding of the importance of each part in the whole service system.

Expert defined quality and the customers' value-in-use together defined the effectiveness of services in this study. Expert defined quality was the technical quality that is received in services. Customers do not always know what they need and have no skills in technology. Elderly people do not always know their needs or cannot express themselves. That is why expert defined quality is important.

The quality assessment process found six major areas of concern in safety telephone services.

1. The quality criteria for arranging safety telephone services defined the kind of mutual plans the safety telephone service customer and the service provider have to make for help services.
2. The quality criteria for receiving alarm calls defined:
  - the capabilities of call centres to receive alarm calls
  - how call centre operators professionally handle the help requests

One of the eight criteria for professionally handling the help requests was that the operator knows where to direct the alarm call for social contact. This is an important message from safety telephone experts since it supports the need to

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<sup>438</sup> Mizuno, S. and Akao, Y. (1994). 'QFD: The Customer Driven Approach to Quality Planning and Development.' Asian Productivity Organization, Tokyo, Japan.

solve the problem of customers using safety alarms to deal with their loneliness.

- can the customers trust that their alarm calls are answered
  - what kind of documentation and reporting systems the services need
3. The quality criteria for help services defined:
    - how quickly help service arrives
    - that the safety telephone service provider has made agreements about help services with each helper
    - that the service provider has defined the co-operation with the rescue services
  4. The quality criteria for securing the functioning of technology defined:
    - what is meant by the statement that the safety telephone technology will function at all times
    - how the service provider arranges the maintenance of the safety telephone appliances
  5. The quality criteria for guidance as to the use of the safety telephone services defined:
    - how the user is given training in the use of the safety telephone
    - what is meant by stating that the safety telephone is in continual operation
  6. The quality criteria for the skills of the employees defined:
    - what is needed for the call centre operators to have sufficient skills to handle the incoming alarm calls
    - what is needed for the operators to be able to make the help requests and monitor the cases
    - what is needed for the helpers to have the professional skills necessary

The quality criteria were developed based on the present safety technology and services. Safety telephone service organisations can use the quality assessment structure to evaluate their own organisation. Quality criteria can be updated when a need arises, for example,

because of new safety technologies such as the global positioning system, tracking,<sup>439</sup> possible new safety apparatus and possible systems innovations.

## 5.6 Relationship Management of the Elderly

This study was based on previous theories and concepts of service productivity. Service logic in this study was approached by looking at what was received in services and how services were received.<sup>440</sup> This was studied in the empirical environment of safety telephone call centre services.

The customer point of view in this study revealed inefficiencies in the organisation. These inefficiencies, together with the expert criteria for estimating service quality, introduced new methods in this study that can improve value-in-use for the elderly and improve the efficiency of organisations. The aim of improved efficiency is an increase in productivity. The call centre example showed that productivity can be improved in this way.

Relationship Management of the Elderly includes expert criteria achieved by a Quality Function Deployment method to properly direct the efficiency aspirations of technologically enabled service organisations. In this method, at least the minimum expert defined quality level must be exceeded. According to the Zone of Tolerance theory, the relationship between service quality and customer satisfaction is not quite as strong above the acceptable level of service quality as it is below the level.<sup>441</sup> Quality criteria can be used to define the acceptable level of service quality and to limit the efficiency aspirations of safety telephone organisations from damaging the effectiveness of services.

### 5.6.1 The database of customer activity

In the safety telephone service world, customers sought security and immediate help in cases of physical accidents and needs. In addition, many customers pressed the alarm button for other reasons that are non-physical. The collected customer alarm call data showed that this

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<sup>439</sup> Mobile phone is used as a tracking device connected to a call centre.

<sup>440</sup> Grönroos, C. (2007). 'Service Management and Marketing.' Chichester, England: John Wiley & Sons Ltd.

<sup>441</sup> Yap, K. and Sweeney, J. (2007). 'Zone-of-tolerance Moderates the Service Quality-Outcome Relationship.' *Journal of Services Marketing*, 21(2), 137-148.

caused a two-fold problem: most customer needs were not met and these users also burdened the organisation. Effectiveness of the services given left considerable room for improvement. Ascertaining the customers, who make alarm calls with no requests for physical help, is possible with the rich customer data. This makes service development work possible.

It was shown in this study that customer activity data gave information on how to service customers so that value-in-use is increased and that organisational efficiency also improves. It is beneficial for an organisation to look at the safety device users and to try to study their behaviour. Looking at the study data, it can be concluded that one customer segment could be separated according to the use of the safety telephone i.e. those customers with frequent safety calls for non-physical reasons. The use of safety telephones could, with this knowledge, also serve as a data source for a much wider sector of elderly care.

For a safety telephone service organisation, a most beneficial customer was a customer who never used the safety device. Such a customer paid the monthly service fee to the organisation but never burdened the organisation with safety alarm calls. The feeling of security and knowing that help can be called, if needed, were enough for such a customer. There are other customers, who did not use the service they had joined, because there were factors which prevented the use of the safety telephone appliance. Such customers were not able to understand that they should press the alarm call button when in need of physical help.

There are many potential safety telephone users although some factors prevent them from acquiring safety telephone services. These factors include the appearance of the safety telephone apparatus, the image of the safety telephone as an apparatus for disabled people, and the inconvenience of the wrist appliance. It is not enough to acknowledge these as preventive factors for customers or potential customers; the service supplier must also study who these people are.

### 5.6.2 Which customers should be targeted?

Given the construction and analyses of the customer information contained in the database, the next step is to consider, which customers to target. As the analysis showed, there was a large group of customers, who did not receive the services they required and at the same time

burdened the organisation with many calls. Efficiency and effectiveness could be improved thus increasing the productivity of the organisation. The goal is to separate out customers, who are currently harming the organisation. This should allow the organisation to think of other ways of serving those customers for whom the organisation's services are of no value. This means adopting service logic.

Frequently, most of an organisation's profits are derived from a small percentage of their customers. This distribution often follows the 80/20 rule: 80 % of an organisation's profits come from 20 % of its customers.<sup>442</sup> Of customer alarm calls 76 % can be thought of as harming the organisation. These are the alarm calls where there are no physical problems. Results of this study emphasised the need to find ways of serving the major part of safety telephone users so, that they do not burden the service organisation with repeated requests.

### 5.6.3 Relationships with targeted customers

Elderly customers seemed to have difficulties in understanding the meaning of different services for themselves. Any contact, which customers have with an organisation, is a customer service encounter. Dissatisfied customers seemingly hurt the organisation. New tools are needed to service those customers, who at the present receive no service. The organisation can develop the tools within its organisation, create a new organisation for the services or join other existing service organisations.

A call centre is a front line contact to customers. The view of safety telephone call centre operators as relationship promoters was raised by Melkas<sup>443</sup> in connection with transferring information within a network. This present study showed that call centre operators are in a key position to act as relationship promoters, because they see customers' needs first hand.

Customer services were of two types. Firstly, reactive services where customers had problems such as a fall or non-physical requests for help where customers contacted the organisation to

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<sup>442</sup> Winer, R. (2001). 'Customer Relationship Management: A Framework, Research Directions, and the Future.' Haas School of Business, University of California at Berkeley, Berkeley, California, USA.

<sup>443</sup> Melkas, H. (2004). 'Towards Holistic Management of Information within Service Networks: Safety Telephone Services for Ageing People.' Dissertation. Helsinki University of Technology Lahti Center, Espoo, Finland.

solve these problems. Secondly, proactive services situations where an organisation has decided not to wait for customers to contact the organisation. In these situations the organisation took the initiative itself, such as asking for new keys, when it was known that the locks in buildings where customers lived had been changed. Service organisations' personnel dealing with customers need to be trained to anticipate customer needs. Proactive services on a wide scale would be more than those the elderly generally receive now.

Information is increasingly available through advanced computer solutions making it possible, at least in theory, to serve customers individually with customised services. However, too much customising can ruin a service providers' efficiency. The question for safety telephone service providers and other elderly services is how to tailor their supply according to the distinct needs and characteristics of their customers. The supply architecture must be robust in order to be applicable to different demands in different customer situations.

This study showed that better value-in-use for customers can go hand in hand with organisational efficiency. A manageable number of alternative modular service offerings, which can be adapted to individual customer situations and requests, could be developed. The idea is to develop optimum operative efficiency for the organisation within the constraints set by customer requests and by expert assessment of quality.

If this improvement agenda, which is developed with the help of customer data, is implemented, productivity increase can follow. The above implies the creation of services for those individual customers, who do not receive help now, not just a matter of simply communicating with them.<sup>444 445 446</sup> If new non-physical help services are provided, physical help services still need to be the core services. Relationship formation is needed with the existing and the new customers, who possibly enter via the non-physical help services.

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<sup>444</sup> Cigliano, J., Georgiadis, M., Pleasance, D. and Whalley, S. (2000). 'The Price of Loyalty.' *The McKinsey Quarterly*, 13(4), 68-77.

<sup>445</sup> Dowling, G. and M. Uncles (1997). 'Do Customer Loyalty Programs Really Work?' *Sloan Management Review*, 38(4), 71-82.

<sup>446</sup> Reinartz, W. and Kumar, V. (2000). 'On the Profitability of Long-Life Customers in a Noncontractual Setting: An Empirical Investigation and Implications for Marketing.' *Journal of Marketing*, 64(4), 17-35.

#### 5.6.4 Privacy Issues

The methods of Relationship Management of the Elderly being described here, need data to deliver customised services. Many customers and their advocacy groups were concerned about the amount of personal information contained in databases and how this was used. This is not a new issue. For instance, the collection, use, and maintenance of personal and behavioural data for marketing purposes are a growing threat to consumers' privacy rights.

Particularly in services for the elderly, ethical issues must be taken into consideration. Organisations cannot only satisfy their own goals but they must also take into consideration the benefits for their elderly customers. Many people consider, for instance, their medical information to be among the most sensitive of any information about them. People enjoy legal rights to privacy. These govern how personal information can be used by the public, as well as by the private sector entities.

However, it is vital that medical and other information is included in elderly services such as safety telephone services. Laws should not prevent the rational operations and networks for those elderly services that provide essential help. Privacy issues need to be taken into consideration but they should not prevent customers from getting proper help in whatever area they expect it.

#### 5.6.5 Measuring the success of management

To successfully apply Relationship Management of the Elderly means that the traditional metrics used by organisations to measure the success of their services have to be updated. Financial and market-based indicators are important<sup>447</sup> but not used here. Relationship Management of the Elderly emphasises methods, which adopt service logic. Constant follow up of the success of the services needs to be monitored. The quality of services provided may have seemed good from the service provider's internal point of view even though customers complained. The service provider may also not understand why customers were complaining as the services and technology were according to agreed standards, personnel were trained, and the service network adequate. However, there is more than this to customer value-in-use,

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<sup>447</sup> Lehmann, D. and Winer, R. (2001). 'Product Management.' Burr Ridge, Illinois, USA: McGraw-Hill.

as can be seen in this present study. Customers judged services according to what they received and how they experienced the process of obtaining the services. An organisation and its customers can mean different things when they talk about the quality of services. Both views are needed.

Call centre operators of safety telephone service organisations interact with customers and they have a direct impact on value-in-use. The idea behind Relationship Management of the Elderly is to increase customer contact points, to investigate customers' reactions to these contacts, and to develop immediate responses to possible negative experiences. One of the key features would be to manage multichannel interactions. Successful businesses influence people through experiences, and these experiences render personal value.<sup>448</sup> It can be seen from this study that a service provider created an experience every time it interacted with a customer.

Elderly customers received experiences, ranging from positive to negative, during safety telephone service processes. Relationship Management of the Elderly is a set of methods that focus the service processes of an organisation around the expectations of each individual customer. The ways in which customers and organisations communicate could be many, including the internet and interactive TV. However, it must be seriously studied what are the right ways to communicate with those customers who repeatedly make safety calls for non-physical reasons.

When a safety telephone service organisation understands the necessity to adopt service logic, the organisation can create good customer experiences for everyone. A difficult situation for customers was to wait for help to arrive. Difficult moments for the customer were also those when they talked to a call centre operator and were uncertain what to do next. The customers should be remembered by organisations during these difficult situations by the customers receiving helpful suggestions. Customers should have the feeling of being certain that the services they get are the best for them.

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<sup>448</sup> Pine, B. and Gilmore, J. (1998). 'Welcome to the Experience Economy.' *Harvard Business Review*, 76(4), 97-105.

With qualitative methods we could see the burden on the efficiency of the organisation as well as the lack of the effectiveness of the services. We could also see clearly what needed to be done to improve efficiency and to improve effectiveness, which means that improvements could be made in productivity.

The existence and justification of an organisation's collaborative units can be described using its stakeholder relations. Relationship Management of the Elderly information systems include information about customers, personnel and the partners producing safety telephone and connected services plus experts and social services in general. Stakeholder relations based on the research results are described in Table 22. It shows the Relationship Management of the Elderly information system by safety telephone organisation's engagement with stakeholder groups. According to the research results, the stakeholder relations become more important when various units are trying to increase productivity.

*Table 22 Relationship Management of the Elderly: stakeholder relations*

Stakeholder group	Group tasks	Group goals	Group methods of engagement with organisation	How organisation could respond to group goals
<b>Customers</b>	<ul style="list-style-type: none"> <li>• Make alarm calls when in need</li> <li>• Give information of themselves and their helpers</li> </ul>	<ul style="list-style-type: none"> <li>• Interaction</li> <li>• Get physical help quickly</li> <li>• Get advice</li> <li>• Fulfilment of different expectations</li> <li>• Trust</li> <li>• Freedom</li> </ul>	<ul style="list-style-type: none"> <li>• Call centre alarm call</li> <li>• Other customer initiated contact</li> <li>• Organisation initiated contact</li> <li>• Interactive TV</li> </ul>	<ul style="list-style-type: none"> <li>• Quickly answer via call centre</li> <li>• Assess the help required</li> <li>• Fulfil customer expectations: physical help, social contact and other</li> <li>• Increase contact points</li> <li>• Investigate reactions to contacts</li> <li>• Develop immediate responses to possible negative experiences</li> <li>• Manage multichannel interactions</li> <li>• Create new services</li> <li>• Investigate actual customer behaviour</li> <li>• Identify bottlenecks for services</li> <li>• Understand the value generating services</li> <li>• Listen</li> <li>• Update traditional metrics used to measure the success of the services</li> </ul>
<b>Complementary service organisations</b>	<ul style="list-style-type: none"> <li>• Provide complementary services</li> </ul>	<ul style="list-style-type: none"> <li>• Benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Contacts with organisation</li> <li>• Contacts with customers</li> </ul>	<ul style="list-style-type: none"> <li>• Open discussions</li> <li>• Information sharing</li> <li>• Integration</li> <li>• Trust</li> </ul>
<b>Personnel</b>	<ul style="list-style-type: none"> <li>• Provide services</li> </ul>	<ul style="list-style-type: none"> <li>• Best service</li> <li>• Innovation</li> </ul>	<ul style="list-style-type: none"> <li>• Interaction</li> </ul>	<ul style="list-style-type: none"> <li>• Access to the data base</li> <li>• Best practice guidelines</li> <li>• Implementation plans in response to new data gathered by personnel</li> <li>• Listen</li> </ul>
<b>Experts</b>	<ul style="list-style-type: none"> <li>• Quality definitions</li> </ul>	<ul style="list-style-type: none"> <li>• Quality standards</li> </ul>	<ul style="list-style-type: none"> <li>• Information sharing</li> </ul>	<ul style="list-style-type: none"> <li>• Information sharing</li> </ul>
<b>Social services</b>	<ul style="list-style-type: none"> <li>• Planning of elderly services</li> <li>• Evaluation of elderly services</li> </ul>	<ul style="list-style-type: none"> <li>• More productive social services</li> </ul>	<ul style="list-style-type: none"> <li>• Information sharing</li> </ul>	<ul style="list-style-type: none"> <li>• Information sharing</li> </ul>

## **6 CONCLUSIONS AND IMPLICATIONS**

This concluding chapter summarises the research findings and discusses their implications for theory, practice, and for possible further studies in the field of service productivity. The methodology is also discussed. This chapter confirms why - on the basis of this dissertation - it is vital to study productivity in services, and how this study fills a gap in the literature.

There is much previous research on productivity, which is associated with manufacturing or uses the manufacturing definitions of productivity. Theoretical research on services has not been satisfied with the manufacturing definitions of productivity and no universal definition for service productivity exists. The lack of a universal definition highlights the complexity entailed in the concept of productivity. Even in medical service areas, productivity is often thought of as output divided by input although, at the same time, there is the requirement to take into consideration other aspects, too, such as effectiveness. The viewpoint of this present study is that the term productivity must include effectiveness because productivity is used as an important universal measure and output divided by input means only efficiency and alone this does not reflect the productivity of the real world with services.

Based on the results of this study it is reasonable to argue that services can be planned, implemented, assessed and continuously improved to meet the needs of the customers whenever the services are used. With such actions it is possible to increase both customers' value-in-use and the productivity of services.

### **6.1 Reliability and validity of the study**

A study has to prove its reliability and validity. Reliability means that the research methods are objective and accurate and the study can be repeated with the same results. Validity means that the research methods measure what was meant to be measured and that the study gives results, which are close to the truth. Finland is one of the most developed economies in the world according to many rankings,<sup>449</sup> and in the forefront of social and economic

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<sup>449</sup> World Economic Forum (2009). 'The Global Competitiveness Report 2009-2010.' Page 479. Geneva, Switzerland.

development. It is useful to make a study in Finland as it provides relevant information also for other industrial environments.

A key business phenomenon such as productivity is rarely mentioned in textbooks on qualitative methods. Only one textbook could be found focusing on qualitative methods applied to the study of consumers of services from a commercial perspective.<sup>450</sup> The Nordic School<sup>451</sup> in management, which is based on both customer and organisation understanding, has encouraged qualitative research and conceptual development about service management. According to the Nordic School, conceptual work can provide fresh perspectives on new and changing situations. These were also the basic assumptions of this present study.

This study used mixed methods. Many items of evidence from many sources were used. They yielded the same line of findings. Interviews of customers supported interviews of personnel and safety telephone alarm call data was supported by the interview findings. Moreover, expert defined service quality criteria were supported by earlier findings from other sources of knowledge gathering. It increased validity to use multiple sources of evidence in the data collection phase, as this study did by collecting documents, interview tapes, and data samples for protection against researcher bias.<sup>452 453 454</sup> Validity was increased by the establishment of a chain of evidence in the data collection phase, that is, use of notes of observations made during field trips and verbatim interview transcripts, which allowed the supply of sufficient citations and cross checked also further sources of evidence.<sup>455 456</sup>

First the author of this study became well acquainted with safety technology for the elderly. Several visits to service organisations were made to follow their daily routines. Then both

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<sup>450</sup> Gummesson, E. (2000). *Qualitative Methods in Management Research*. Sage Publications: Thousand Oaks, California, USA.

<sup>451</sup> Grönroos, C. (2007). *Service Management and Marketing*. Chichester, England: John Wiley & Sons Ltd.

<sup>452</sup> Flick, U. (1992). 'Triangulation revisited: strategy of validation or alternative?' *Journal for the Theory of Social Behaviour*, 22, 175-198.

<sup>453</sup> Silverman, D. (2001). *Interpreting Qualitative Data: Method for Analysing Talk, Text and Interaction*. London, England: Sage

<sup>454</sup> Riege, A. (2003). 'Validity and reliability tests in case study research: a literature review with "hands-on" applications for each research phase.' *Qualitative Market Research*, 6(2), 75-86.

<sup>455</sup> Hirschman, E. (1986). 'Humanistic inquiry in marketing research: philosophy, method, and criteria.' *Journal of Marketing Research*, 23(3), 237-249.

<sup>456</sup> Riege, A. (2003). 'Validity and reliability tests in case study research: a literature review with "hands-on" applications for each research phase.' *Qualitative Market Research*, 6(2), 75-86.

personnel and customer interviews were done in various locations and different environments. The organisations visited were of different sizes and with different procedures, which increased validity. In personnel interviews, the main informants were call centre operators. They were in direct contact to customers. For customer interviews elderly customers, who were able to give interviews, were visited in their homes. There were also some customers who were unable to express their expectations.

The interviews were in the form of discussions. This made it possible to collect interview data while interviewees actively addressed topics within the theme. Ready-made questionnaires could have caused biases. One such bias is overly positive attributions on the part of the interviewees. That is why ready-made questionnaires were not used in this study. It was recognised that a discussion interview situation is not necessarily neutral. The interviewers were conscious of their possible personal biases during the interviews, and this awareness reduced their possible effect on the interview data. Beforehand, the interviewers discussed the topics to be covered in the interviews and formed a mutual understanding about the issues.

The interview data were analysed with effectiveness and efficiency in mind. The analyses of the interviews helped in becoming aware of important factors of safety telephone usage.<sup>457</sup> It became evident that additional ways of gathering data were necessary. New ways to investigate were selected for the concepts being studied. A sample of alarm calls was taken at a large call centre to obtain a better idea of the customers and their expectations. Data of elderly persons' behaviour were collected because there were elderly persons, who could not express themselves as regards their real expectations. Then a further larger alarm call sample was collected concentrating on the requests for help. Data gathering was done systematically.

Finally, in order to gain an expert view of the quality of services, a safety telephone service quality assessment was constructed with the help of a large number of professionals. Guidelines based on a quality assessment are needed to limit the efficiency aspirations of organisations. In the data analysis phase assurance of coherence of the findings from different sources could be achieved by cross-checking the results.<sup>458</sup> This increased validity.

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<sup>457</sup> Gill, J. and Johnson, P. (1991). 'Research Methods.' London, England: Paul Chapman.

<sup>458</sup> Yin, R. (2003). 'Case Study Research: Design and Methods.' Newbury Park, California, USA: Sage Publications.

With qualitative methods we could see the burden on the efficiency of the organisation as well as the lack of the effectiveness of the services. We could also see clearly what needed to be done to improve efficiency and to improve effectiveness, which means that improvements in productivity could be made. The qualitative data collection and analysis was relatively easy with the help of technology.

In the research design phase, development and refinement of the subjectivist study protocol was achieved by conducting pilot visits testing the method of questioning and its structure. This increased reliability.<sup>459</sup> Concrete observations and actions were recorded and theories and ideas for each research phase were given to increase reliability.<sup>460</sup> The interviews by being recorded, using a tape recorder, increased reliability.<sup>461</sup> Assurance of meaningful parallelism of findings across multiple data sources also increased reliability.<sup>462</sup> In the interpretation of all of the data, awareness of the evaluator effect was a part of the reliability of the study.<sup>463</sup>

## 6.2 Findings of the study

The objective of this present study was to investigate service productivity in situations, where traditional ways are in some cases even not possible or are not enough. This study looked at effectiveness and even efficiency without measuring them numerically. The service environment was highly demanding and customers' value-in-use could not be put into numbers. There was no need to attempt to give numerical values here. If we tried to apply quantitative methods in the productivity of elderly services, we would run into difficulties in measuring effectiveness. Elderly people do not always know what they need and cannot put their thoughts in words, which could be quantified.

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<sup>459</sup>Eisenhardt, K. (1989). 'Building Theories from Case Study Research.' *Academy of Management Review* 14(4), 532-550.

<sup>460</sup>Riege, A. (2003). 'Validity and reliability tests in case study research: a literature review with 'hands-on' applications for each research phase.' *Qualitative Market Research*, 6(2), 75-86.

<sup>461</sup>Riege, A. (2003). 'Validity and reliability tests in case study research: a literature review with 'hands-on' applications for each research phase.' *Qualitative Market Research*, 6(2), 75-86.

<sup>462</sup>Yin, R. (2003). 'Case Study Research: Design and Methods.' Newbury Park, California, USA: Sage Publications.

<sup>463</sup>Mantere, S. (2004). Strategic Practices as Enablers and Disablers of Championing Activity. Research paper, Helsinki University of Technology, Department of Industrial Engineering and Management, Espoo, Finland.

There were challenges when studying the applications of wellness technologies and information and communication technologies in home and service environments. Elderly customers had user requirements for the applications. The requirements differed depending on the person's individual functional abilities. The elderly may not see, hear, or move well and their cognitive abilities varied. New perspectives to provide services were needed as the elderly could not always express themselves.

The context of this study was well-timed for a large group of people. Wellness technology and connected services are important to develop to help the life of the elderly at this time of ageing societies. There is also an increasing competition in services for the elderly and it is forcing organisations to pay considerably more attention to satisfying customers. 'The gulf between satisfied customers and completely satisfied customers can swallow a business.'<sup>464</sup>

Developing technology changes service production and gives an opportunity to increase productivity. For this study a business area was identified, where customers had their own ideas of the contents of the services but the services provided do not meet these customer expectations. This could reflect the wider problem that elderly services have a gap between elderly people's expectations and services provided by organisations.

Safety telephone devices are constantly being developed and new devices, wellness wristbands, mobile safety telephones, and tracking devices are now on the market. The technology is well developed, but there seems to be much to do to develop services based on these technologies. It is vital to pay increasing attention to the service systems and to develop technologies accordingly, not vice versa. The provision of services to customers using safety telephones is highly dependent on call centres where the situation of the caller is first assessed. Customers and their expectations are very heterogeneous.

Investigating incoming customer alarm calls, this study found a two-fold problem in that some customer expectations were not met and these same customers also burdened the organisation with demands. The organisation did not even try to meet these demands and this harmed the organisation's efficiency. With the help of technology, the organisation collected

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<sup>464</sup> Jones, T. and Sasser Jr., E. (1995). 'Why Satisfied Customers Defect.' *Harvard Business Review*, 73(6), 88-91.

a considerable amount of very useful data from its customers. However, the data was not used. With the help of this rich data of customer behaviour, which could be interpreted as customer expectations, the organisation may ease the situation by increasing value-in-use in order to decrease the burden caused by the demands on the services.

By the elimination of waste, where waste was work that added no value or only minimal value to services, service providers could in these safety telephone services create more value for their customers. When the organisations' work methods are developed to create more value for customers, resources could be used more efficiently by solving the inadequate and non-effective parts of the services, as was seen in this study. Minimising disturbance seems to benefit both the organisation and its customers. It does not help to use high technology if service processes leave room for uncertainties about the fulfilment of customer needs. Uncertainties can create mistakes and delays.

### 6.2.1 Requirements for organisations

Using the best available databases requires that personnel have access to the database, the development of high quality best practice guidelines, and the development of implementation plans in response to new data. Using information is not always straightforward for personnel, given the pressures of time and other commitments. Using data in a creative way puts pressure on the efficient use of an organisation's resources. Training personnel consumes more resources and again puts pressure on the efficiency of the organisation. These must be taken into consideration when increasing value, so that the resource increase does not increase production expenses but decrease them in the long run. By solving inadequate and non-effective parts of the services, organisations can be brave in taking favourable steps in improving customer value, which can create a win-win situation for both customers and organisations.

New ways to investigate service productivity of technologically enabled service organisations were developed in the study. How customers perceive the value of services should affect the service offering.<sup>465</sup> Different service areas have different types of customers. Organisations

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<sup>465</sup> Zeithaml, V. and Bitner, M. (2000). 'Services Marketing.' Boston, Massachusetts, USA: McGraw-Hill.

must also work with customers whose capabilities differ. Some customers are able to express their views better than others. Therefore some of the customers cannot be interviewed in addition to which interviews can be very costly and time consuming.

Other methods were developed to discover customer expectations. Actual behaviour was investigated here because people could not always express themselves. Generally used customer questionnaires were not equally functional in this context. When asked, there were people, who could not explain what was best for them. They did not necessarily even know what was best.<sup>466</sup>

Quality standards are defined by the society around us. The result of this study is a new way to investigate service productivity. It combines organisational efficiency with customer expectations and an expert assessment of quality. The new component of the study is the expert defined quality being combined with value-in-use to form effectiveness.

Organisational efficiency aspirations can decrease customers' value-in-use. This study found a solution in which increasing organisational efficiency goes hand-in-hand with increasing customers' value-in-use so that organisations' needs and service users' expectations were in line. Value creation for customers was seen to bring organisational efficiency. This means increased productivity.

## 6.2.2 Elderly services in the public sector

Servicing customers according to their expectations, which are easily found by technologically enabled data collection, plus professionally defined quality standards, are important points of view for service organisations. This concept opens a rigorous foundation for a new way of looking at services for the elderly. The idea is to reach high value-in-use while organisational efficiency is not neglected. Efficiency is important for companies when aiming at improved productivity and is also important for the third sector organisations.

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<sup>466</sup> Lillrank, P. (2008). 'Tuottavuuden merkitys ja tuottavuuden parantaminen yrityksissä ja julkishallinnon organisaatioissa (The Significance of Productivity in Companies and in Public Organisations).' Esitelmä Toimihenkilöiden tuottavuuspäivillä ( a lecture in Productivity Days for Employees), Helsinki University of Technology, Espoo, Finland.

Additionally, in the public sector, efficiency is important because there is always a lack of resources.

Customers, in the public sector as well as in the private sector, have the right to receive good services. Moreover, in the public sector it is the customers' money that pays for the services directly or indirectly through taxes. Organisations exist to give people services, not because of some internal needs of the organisations. This should be remembered especially in the public sector. The services, which municipalities provide, strongly affect people's quality of life.

Service logic requires profound changes in organisations' operations. The change may start by considering the management methods of the top management and then proceed throughout the organisation. Public sector organisations are very dependent on whether ministries, other administrations, and politicians in decision making understand how their decisions do or do not support service logic. To develop services, requires co-operation among everyone in the field. If technology is used to help in maintaining good quality and in developing value and efficiency, those possibilities, if used, make people happier both on the production side and on the consumption side.

### **6.3 Implications for theory and practice**

A theoretical contribution of this study is that it adds to the conceptual understanding of productivity and adds to traditional ways of defining productivity. This study discussed the concept of productivity showing the importance of including in it both customers' value-in-use and expert defined quality. Fulfilment of customers' requests indicates value-in-use, which fulfils the requirement to answer to the question of how the services are produced. Expert defined quality fulfils the requirement to answer to the question of what is produced in services. It is the technical quality that could be used to limit an organisation from excessive efficiency aspirations. An example of a structure for safety telephone service quality standards was developed. The selection of experts consulted is important and may have effects on the results of quality assessment. It is an interesting topic for a further study.

Productivity was studied in a safety telephone organisation environment, where services were enabled with the help of technology. No attempt here was made to estimate productivity in numbers. It could clearly be shown how to increase efficiency and to increase value to customers at the same time, in other words to increase productivity, by looking at customer behaviour and organisation's responses to it. It was shown how organisations' needs and service users' expectations can go hand-in-hand. An alternative way to evaluate and to study productivity and to improve an organisation's productivity was found.

A practical contribution of this study was to improve the understanding of productivity. This was done by discussing the concept of productivity from different points of view and also by bringing a new dimension to the definition of service productivity. The study also showed how safety telephone services were functioning and made recommendations to the services and to elderly services more generally.

The findings give important information concerning the ways to study elderly services and the productivity of technologically enabled services in general. The qualitative study showed that it is possible to identify increase in efficiency and increase in effectiveness at the same time. Quality assurance is the actions for developing service processes, which ensure that customer expectations are met by the final result. The increase in productivity requires an effective quality assurance system which improves the processes. The approach of this study can be generalised beyond safety telephone service organisations. The approach can be used in many other situations of quality assurance where customers do not know or cannot express their needs. Childcare, preschool education, the healthcare of mentally disabled persons and many other similar situations provide opportunities to use this approach.

Based on this study it can be recommended that much further research is needed in value-in-use, effectiveness, and productivity in social and health care, and more generally in all services. Stereotyping people is common. However, the elderly, like all other people have individual lifestyle choices, which can be taken into consideration. Advance prevention of problems could assume increasing prominence in future social and health policies. For instance, the elderly could be regularly screened for cognitive abilities, cognition changes, and depression instead of waiting until symptoms become problematic in the service

environment. For advance prevention there are an increasing number of possible customer contact points from multiple channels and contexts. Customer contacts are alarm calls by customers and also other customer-initiated or organisation-initiated contacts, interactive TV being one of the most recent.

To manage the variability implicit in customer heterogeneity is a central challenge for service organisations. It is also a central challenge for national economies, since service providers conduct more than 70 % of commerce in industrial economies<sup>467</sup> and there is a huge public service sector, too. Yet the methods for measuring the productivity of service organisations lag significantly behind those developed for manufacturing environments.

Each organisation can find its own ways to increase productivity according to the lines presented by this study. To avoid becoming overwhelmed by the wide field of service organisations, cases and pilot studies are necessary. Taking one service sector at a time we can move forwards in different organisations and find ways to increase productivity in them. We need to look at the reality to find methods in this process. Organisations can develop an understanding about the service effectiveness of their particular organisation. The study gives guidelines for this and shows that both professionals and customers are needed when developing service organisations. Technology is of considerable help in this process.

In order to develop basic new services, a new environment is needed. Open discussions can be suggested among providers working on complementary services. Discussions among service providers can provoke interaction and synergies and lead to innovative services. Trust and information sharing between organisations can bring about benefits through integration.<sup>468</sup>

A multi-party focus means that long-term relationships should be built, not only on customer expectations, but also on the expectations of many other stakeholders: employees, suppliers,

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<sup>467</sup> Frei, F. (2006). 'Breaking the Trade-Off Between Efficiency and Service Contents.' *Harvard Business Review*, 84(11), 92-101.

<sup>468</sup> These kinds of ideas have been introduced for radical innovation in industry by McDermott, C. and R. Handfield (2000). 'Concurrent Development and Strategic Outsourcing: Do the Rules Change in Breakthrough Innovation?' *Journal of High Technology Management Research*, 11(1), 35-57.

intermediaries, public sectors, and more. Using general network theory<sup>469</sup> in future research could bring more clarity to the difficulties of managing networks.

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<sup>469</sup> Gummesson, E. (2008). 'Customer Centricity: a Reality or a Wild Goose Chase?' *European Business Review* 20(4), 315-330.

## APPENDIX

### The quality assessment

The structure of the quality assessment:

1. Arranging the safety telephone services
2. Receiving alarm calls
3. Help services
4. Securing the functioning of technology
5. Guidance to the use of the safety telephone services
6. The skills of the employees

#### **1 Arranging safety telephone services**

##### **1.1 The customers of the safety telephone service and the service provider make a mutual plan for help services.**

- 1.1.1. The plan includes information as to who receives the alarm calls and who arrives to the customer to give help.
- 1.1.2. The plan gives information on the duties of those receiving the alarm calls and giving help.
- 1.1.3. The plan gives information about the co-operation between the service provider and other public and private services.
- 1.1.4. The plan defines the co-operation between the service provider and the general emergency number 112.
- 1.1.5. There is a plan as to how help services are documented and reported.
- 1.1.6. The service provider has informed all parties involved about the plan.
- 1.1.7. The service provider has informed the customer about the principles of receiving help.
- 1.1.8. The plan takes also into consideration those customers, who have bought their safety telephone apparatus from somewhere else.

**1.2 The service provider has defined equal criteria for customers to receive the safety telephone services**

- 1.2.1 Public services providers: Defining different user categories is based on a uniform estimation within a municipality.
- 1.2.2 Private services providers: The organisation has made agreements with its customers.
- 1.2.3 Private people: There is an agreement about receiving alarm calls and giving help.
- 1.2.4 The user is informed about the criteria of receiving free of charge safety telephone services.
- 1.2.5 There is a written agreement with the user about the services and when they start and end.

**2 Receiving alarm calls**

**2.1 The call centre has good capabilities to receive the alarm calls**

- 2.1.1 The call centre answers the alarm calls within 30 seconds of their arrival.
- 2.1.2 The call centre updates the customer data file as they arrive to the call centre.
- 2.1.3 The call centre can receive alarm calls from different types of safety telephone apparatus.
- 2.1.4 The call centre can manage high peaks of alarm calls.
- 2.1.5 The call centre has up-to-date information about alternative helpers in different locations
- 2.1.6 The call centre is able to speak the customers' native languages.

**2.2 The call centre operator handles professionally the help requests**

- 2.2.1 The operator knows who is calling and what type of help is needed.
- 2.2.1 The operator acts professionally when receiving the alarm calls.
- 2.2.2 The operator contacts the helper according to previously made plans.

- 2.2.3 The operator tells the user the time when help will arrive.
- 2.2.4 The operator directs the helper to the right address.
- 2.2.5 The operator knows which emergency unit to call in cases of emergency.
- 2.2.6 The operator knows which helper to call in nonemergency cases.
- 2.2.7 The operator knows where to direct the alarm call for social contact.

### **2.3 Receiving alarm calls can be trusted**

- 2.3.1 The call centre has sufficient as well as up-to-date information about the user.
- 2.3.1 Customer information confidentiality is guaranteed by employee agreements.
- 2.3.2 There is a back-up system
- 2.3.3 The service provider follows the instructions of the technical device.

### **2.4 The services have a good documentation and reporting system.**

- 2.4.1 The call centre has log data of all alarm calls and how they responded to them.
- 2.4.2 All safety telephone apparatus tests, services, and repairs are recorded.
- 2.4.3 The call centre reports to the customer as agreed.
- 2.4.4 The service provider follows closely the instructions of the appliances.

## **3 Help services**

### **3.1 Help arrives quickly**

- 3.1.1 There is a time limit defined for urgent help to arrive.
- 3.1.2 There is a time limit defined for non-urgent help to arrive.
- 3.1.3 The user is informed about the time at which help will arrive.
- 3.1.4 The agreed times for the arrival of help are informed to all concerned.
- 3.1.5 The helper informs the call centre about his arrival to the customer.
- 3.1.6 The call centre operator monitors that the help has arrived and that it is sufficient.
- 3.1.7 The helper reports all help provided.

**3.2 The safety telephone service provider has made agreements about help services with each helper**

3.2.1 The service provider has made agreements about the keys to the customers's home, and, when doors are broken about the expenses of possible damages

3.2.2 The service provider has agreed with helpers how each different kind of help service should be handled.

**3.3 The service provider has defined the co-operation with the 112 rescue services**

3.3.1 The service provider has arranged for non-urgent help.

3.3.2 The service provider has made an agreement concerning urgent help.

**4 Making certain that technology functions**

**4.1 Safety telephone technology functions at all times**

4.1.1 The customer's safety phone has been tested.

4.1.2 A test alarm call has been made.

4.1.3 The call centre has an automatic checking system with all its customers' safety phones.

4.1.4 There is a backup system. The backup system cannot cover telephone line malfunctions caused by storms.

4.1.5 When additional devices are integrated into the safety telephone system, they have the same quality criteria as the rest of the system.

**4.2 The service provider arranges the maintenance of the safety telephone appliances**

4.2.1 There is an agreement for appliance maintenance between the service provider and the customer.

- 4.2.2 A time limit is set for the replacement of a broken appliance.
- 4.2.3 Staff knows and follows the instructions of the appliance manufacturers.
- 4.2.4 The customer makes a test call once a month.
- 4.2.5 Staff changes the batteries regularly according to the instructions of the appliance manufacturers.
- 4.2.6 There is a back-up system to the technical appliances.

## **5 Guidance for the use of the safety telephones**

### **5.1 The user is given enough training in the use of the safety telephone**

- 5.1.1 The service provider delivers instructions that meet the user requirements.
- 5.1.2 The service provider trains the user and all the helpers.
- 5.1.3 The service provider is trained by the manufacturers of the appliances.
- 5.1.4 The user is informed about the help services.

### **5.2 The safety telephone operates continuously**

- 5.2.1 The service provider gives instructions to the user for cases of technical faults.
- 5.2.2 The helpers follow regularly how the user is able to use the safety telephone.
- 5.2.3 The service provider tests the connection every six months.
- 5.2.4 The user understands the technical basics.

## **6 The skills of the employees**

### **6.1 The call centre operators have adequate skills to handle the incoming alarm calls**

- 6.1.1 The operators can communicate with the user.
- 6.1.2 The operators can locate the alarm call and the helper.
- 6.1.3 The operators can handle the incoming help request information and can assess the needed help.

- 6.1.4 The operators can assess the need for immediate actions and can give appropriate instructions to the user on the phone.

## **6.2 The operators can make the help requests and follow the case**

- 6.2.1 All concerned know the mutual terminology.
- 6.2.2 The operators understand that they are responsible until the helper has answered the help request.
- 6.2.3 The operators make a log data of the alarm calls.
- 6.2.4 The operators can handle the safety telephone system.
- 6.2.5 The operators can handle the user and helper registers.
- 6.2.6 The operators can handle other information registers.
- 6.2.7 The operators understand the regulations about giving information.

## **6.3 Helpers have professional skills**

- 6.3.1 The professional helpers know how to use the safety telephone services and its appliances.
- 6.3.2 The professional helpers can co-operate with the other parties concerned.
- 6.3.3 The professional helpers can function so that the user is helped.

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