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<p>Abstract</p> <p>Digitalization of services is a current trend and services and products are being increasingly digitalized. Still, there are large amounts of people with either no means, skills or will to use information systems. Such digital divide between digital “haves” and have-nots” is a global problem and is causing inequalities. Although Finland is one of the most digitally connected countries in the world, the problem of digital divide is present here as well. Especially it is the problem for elderly population in sparsely inhabited areas, as the services are being digitalized and physical outlets are centralized to larger centres. In India the digital gap is vast and number of people with insufficient skills, hardware or infrastructure is large. To bridge this gap, a business model of assisted e-commerce has emerged. It combines virtual services with assistant and works on the side of a physical business, providing the skills, hardware and trust for its user. This research aims to clarify the concept of assisted e-commerce for transferability to another environment and researches the attitudes of elderly population in Finland for such a business model to gap the digital divide for them.</p> <p>The empirical part of this research is based on thematical interviews in India and Finland. As the concept of assisted e-commerce is relatively new, two interviews have been conducted with Indian developers of assisted e-commerce concept to clarify the model and get an understanding, how the model can be modified for transferability to another environment, for example, Finnish. The core finding was, that the assisted e-commerce is a light service which can be integrated on the side of another physical store without excessive inputs required from the agent. In Finland goal of the interviews was to find out the attitudes and current use of digital services among people of age 65+ years. The interview topic was considered very uncomfortable and the people were either reluctant to talk about digital related topics or had very strong negative opinions towards them.</p> <p>The assisted e-commerce model is very versatile and can contain almost any services that can be digitalized. The assistant can be either physical person, or virtual with video or chat support. The largest hindrance for adapting the service model in Finland is the attitudes of potential user group, who often select in their day to day lives a more expensive, time-consuming and ineffective method of dealing when there is a digital option provided. The elderly tend to be reluctant to use the digital devices, have little or none interest for learning to use new digital services or have no courage for operating with online services. Family and other close social networks influence is important in encouraging for digital service use, but the priority still seems to be operating with a “real” person.</p>			
Key words	digital divide, assisted e-commerce, digitalization		
Further information			





**UNIVERSITY
OF TURKU**

Turku School of
Economics

ASSISTED E-COMMERCE AS A TOOL TO GAP DIGITAL DIVIDES

Possibilities of adapting the Indian model to Finnish environment

Master's Thesis
in International Business

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The originality of this thesis has been checked in accordance with the University of Turku quality assurance system using the Turnitin OriginalityCheck service.

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1 INTRODUCTION

1.1 Background of the research

Information technology, Internet and digital services are nowadays considered as an integral part of the society and they have become an integral part of various services and industries. For many people, the Internet and digital services are taken for granted and are used in work as well as in leisure. Although the Internet availability has improved worldwide during the past decade, the digital divide still remains a problem due to the skills of the users and cost-related issues (Kende 2015). People who lack access to the modern technologies, equipment for the use, non tech-savvy and illiterate people are in threat to be left out from the benefits of digitalization and electronically powered services. As a people group the elderly is facing the digital divide related problems most often, regardless of the continent (Milward 2003).

Finland is one of the most advanced digital economies in Europe (ITU 2017c, 63.). Still, there is a significant group of people who although have access to the digital services, are reluctant to use them. Mostly these people belong to the older age groups. According to Statistics Finland, in 2016 88 percent of Finnish people under the age of 55 are using the Internet. About half a million people at the age over 65 lived without using Internet or information technology-based systems. The Internet use in older age groups is also slowly increasing, but as the age gets higher, the Internet use is dropping dramatically. 74 percent of people in the age group of 65-74 are using the Internet, but in the age group 75-89 only about a third is utilizing the Internet. This is problematic, as the services are transferred to the online form and basic Internet skills start to be a necessity for the everyday life. In survey conducted by Valli ry (2016) in 2015 Finland had approximately 400 000 people without electronic bank ID, which is the most common of the electronic identifiers.

To bridge digital gap, a model of assisted e-commerce has emerged in India, in which the digital gap is a vast problem throughout the society (ITU 2017c., 90.). To gap the digital divide, a service model of assisted e-commerce has emerged among the Indian m-commerce actors. The assisted e-commerce concept is based on a regular e-commerce facilitated by a physical agent. It is often based on a mobile platform, such as tablet and located in side of a physical store, where it can be managed by the shopkeeper as agent among regular activities (Bhusan 2016). The affiliated companies have been establishing information kiosks or knowledge centers in rural villages. The virtual kiosks can be set up to provide services including email, chat and Internet browsing to agricultural and governmental services as well as services for education on distance. An information kiosk typically contains a computer with printer, web camera, and multimedia system

connectivity. As the mobile phone penetration in rural India is significant and is constantly growing, the current trend is transferring the eKiosk services to the mobile form so that the end users do not need to travel to the kiosk location in order to access the service. Also, the virtual kiosks often have an option to use voice interaction (VOI) in their service palette, which can be accessed through a phone call. According to field studies and literature reviews, the semi-literate and illiterate people are comfortable with speech-based interfaces. An advantage of VOI Kiosks is that they are not dependent on the Internet connection and are automatically located conveniently to the end user. (Agarwal et al. 2008. 53)

1.2 Development cycle of assisted e-commerce

The assisted e-commerce is a very new concept with little to none academic research on the topic. There is plenty of research regarding regular e-commerce and m-commerce which will be reviewed for the applying parts in this paper. The social impacts of the e-commerce have however been paid with less attention and the role of m-commerce as a tool to bridge digital divides has been researched only shortly.

E-commerce is rather new concept, which has emerged just a few decades ago and faced the significant growth only in the past decade. E-commerce is a growing trend in retail, in all the transactions including b2b, b2c and c2c. Recently the commerce has been transferring to mobile e-commerce or so-called m-commerce. E-commerce describes as the process of buying, selling, and exchanging of products, services, and information primarily through Internet mediation. For the broader approach, which includes servicing the customers and conducting electronic transactions a broader term e-business can be applied. The e-commerce is very broad and interdisciplinary topic and its applications can be used in a variety of doing business. (Turban et al. 2013 275)

M-commerce is roughly described as “*any transaction with a monetary value that is conducted via a mobile telecommunication network.*” (Durlacher 1999.) However, the concept has revolutionized the electronic commerce by bringing the services to follow people and be available regardless of the place. Also, even people with very little IT-skills or even illiterate have been able to use the mobile services due to their simplicity and visual aids. (Lehner & Watson 2001.)

The assisted e-commerce is a concept developed in India in past 2-3 years. Following figure is attempting to sum the main characteristics of assisted e-commerce.

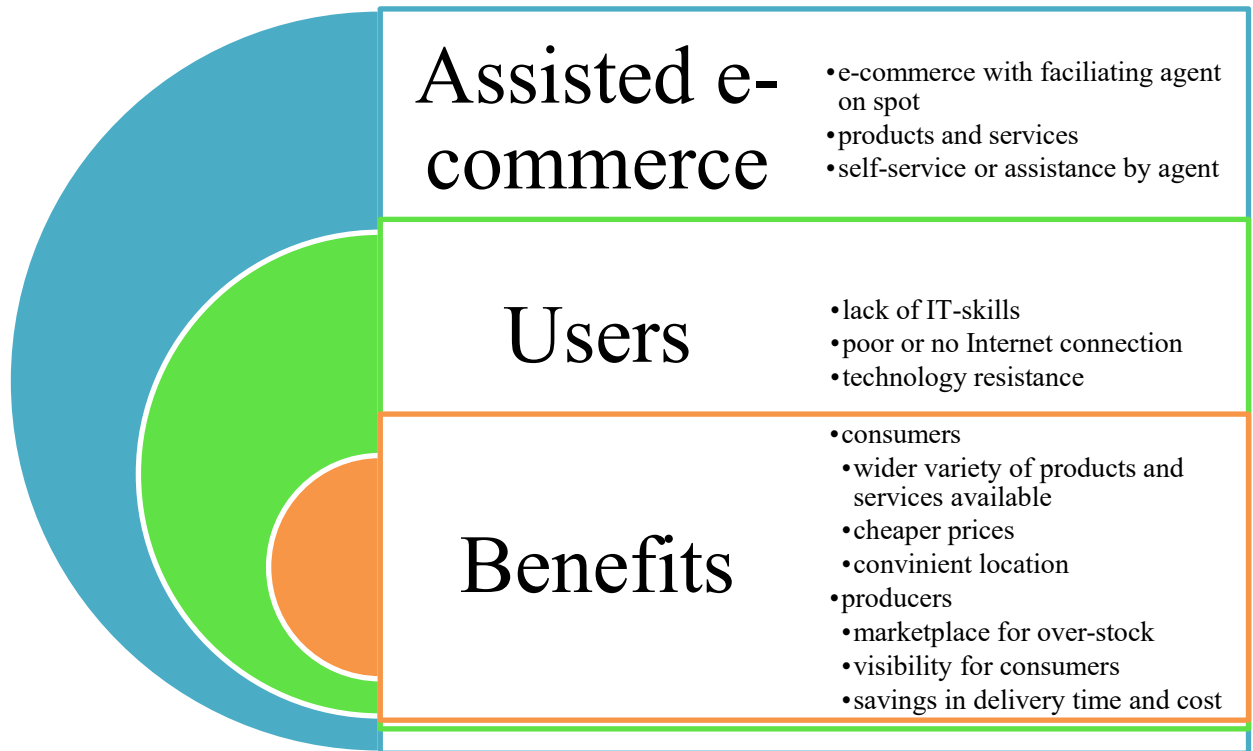


Figure 1 Main characteristics of assisted e-commerce (Bhusan 2016, Rajglopan 2016)

In general, the assisted e-commerce concept is regular e-commerce facilitated by an agent. It is often based on a mobile platform, such as tablet and located in side of a physical store, where it can be managed by the shopkeeper as agent among regular activities. The customers can use the assisted e-commerce either on their own or with the help of agent. The target users for the service are people who lack IT-skills or equipment or are unwilling or unable to use electronic services. Benefits of the service for the consumers include larger variety of products and services available and bringing the assortment closer to the consumer removing the need to travel long distances in order to make the purchase. As there are more products available this also often reflects to the consumer prices and quality by lowering the prices and improving quality on average. On the other hand, for the companies the assisted e-commerce opens a wider market to people offline. Also, the service can be used as a market place especially for local producers for selling their products or over-stock without investment in own e-store. Also, the assisted e-commerce terminal can be a shipping point for the orders, which reduces the shipping costs for the producers. (Bhushan 2016.)

Even though the model is initially developed for rural areas in developing countries the problem of digital divides is present even in the most network ready countries, such as Singapore, Finland and Sweden (World Economic Forum 2015). At first Finland could seem as an unlikely environment for adopting the assisted e-commerce service model. However, the service model could be very useful in the rural areas of Finland as well due

to long distances, aging population and reducing the cover of services in sparsely inhabited areas. It is obvious that due to the differences in Finnish and Indian business and social environments the model need to be modified by the content of the service.

This paper begins with presenting of the key terms of e-commerce followed by the methodology and empirical data. My thesis is fitting to the framework of bridging digital divides. I will discuss the types of digital divides them being regional and global, the factors behind the divide as well as the user profiles based on the digital skills and readiness. I will make a brief analysis on few indicators and their correlation with the width of the digital gap in a society.

Especially in the developing countries a mobile phone is more common attribute in the household than electricity and water. Almost 70 percent of the world's poorest population own a mobile phone. (World Bank 2016a,28.) The m-commerce usage growth has largely been driven by the Scandinavian countries, where in Denmark the m-commerce transactions already exceed e-commerce by a margin of 55 percent to 11 percent. Also, in Spain and China m-commerce is rapidly growing trend. Taiwan and India, with significant mobile device usage, the m-commerce usage has already grown 60 percent in the time period of 2012 to 2014. The global growth of m-commerce is expected to be 50 percent in the period of 2013 to 2016. The m-commerce growth in Asia is powered by the growing number of mobile subscriptions, cheap and "smart" mobile devices along with diminishing mobile data costs. (Karr 2015.)

Following figure visualizes the population percentage in different geographical regions using the Internet in their everyday life, be it with own, or public use hardware and mobile or fixed device.

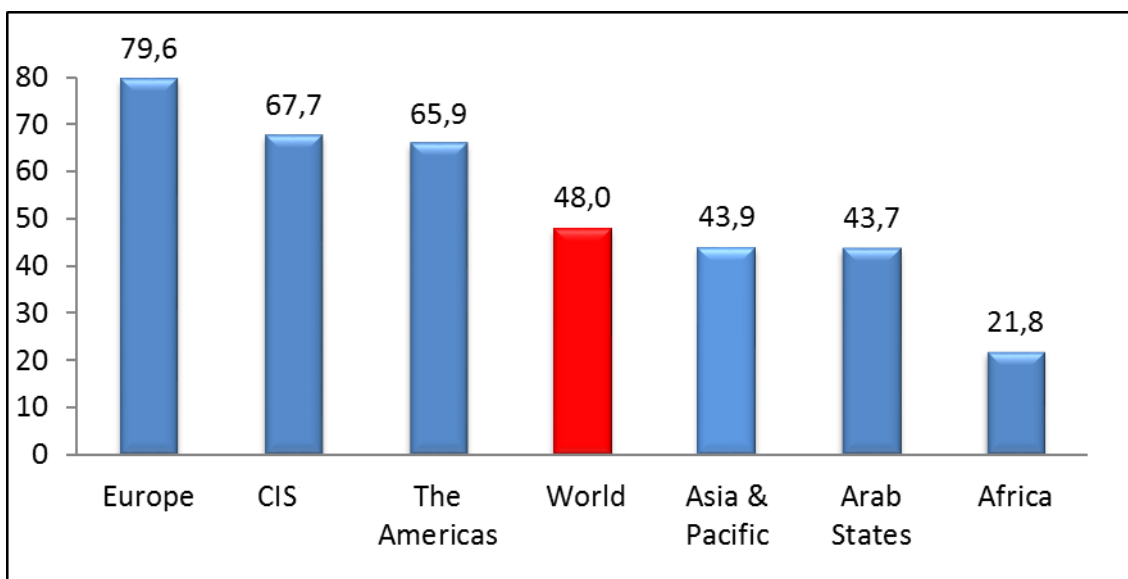


Figure 2 Individuals using the Internet per 100 inhabitants, 2017 estimate (ITU, 2016)

As can be seen from the International Telecommunication Union (ITU) statistics in Figure 2, the highest number of Internet users is in developed regions of the world, while developing regions, such as Asia and especially Africa are falling behind the global average. The number of Internet users worldwide has tripled during the past decade from one billion in 2005 to almost 3,6 billion users by the year 2017 (ITU, 2017).

The disparities are present on many levels. They appear between countries but also within societies. Although many people have access to use the digital services, the information technology is not distributed equally across the globe or even within a country or a living area. Especially in last ten years scope the research has more and more concentrated on these digital disparities, unequal distribution of information technology and the social effects of the same.

The existing technology is constantly improved and developed further to tackle different social problems as well as create new solutions with innovations. As the information technology use efficiency is higher in developed countries and in certain areas, the development tends to concentrate to the areas and people who have already chance and skills to use the technology. However, in India, where the clear majority of the population is rural, has emerged in recent few years a new model of assisted e-commerce to tackle the problem of digital divide. The assisted e-commerce not only provides access to electronic services for people incapable of using them, rather than also bring together small producers and retailers in the local area.

1.3 Research aim and questions

This research is aiming to find out how Indian model of assisted e-commerce can be applied in Finnish environment to gap digital divides.

The sub questions to my topic are following:

- What is the Indian model of assisted e-commerce?
- In what form the assisted e-commerce model could be adapted in a developed country environment, namely Finnish countryside?
- What are the attitudes of the potential assisted e-commerce target group affected by digital divide, namely the elderly people, in Finland?

The topic is relevant, as digital gaps are present worldwide, although the gap size is varying strongly from region to region, and even within a country (Hargittai 2003, 93). The problem can be widespread throughout the society or be a problem of a particular group of people (Fuchs & Horak 2008, 76). In either case, the affected form a significant population which needs to get access to the same services and customer experience as the people who are using the Internet and digital services. From the company point of view, the digital outcasts form a large group of potential customers who are falling short of the

companies' increasingly digitalizing services. Also, digitalization of products and services is often driven by cost reductions of a company and doubling the services and products in both analog and digital form causes additional expense (Dewan & Riggins, 2005, 201). Assisted e-commerce kiosks are a safe and low-barrier bridge to companies' digital assortment to those who would not otherwise resort to digital service.

The assumption is that in general the information technology can improve the social and economic disparities between the differently tech-abled people in the society. In general, the technological improvements tend to have more effect in the areas with already technically developed fields, as the infrastructure is already developed, and the environment has a strong push-effect towards the technology use. (Fuchs & Horak 2008,215.) The assisted e-commerce could be used in the Finnish countryside to diminish the digital divides, along with improving the quality and premises of living in the sparsely inhabited areas. (Bélanger & Carter 2009, 185.) The assisted e-commerce as a service was developed in India for village areas, where the people lack Internet access, along with IT skills and equipment. Although Finland and India are very different business environments, the digital divide problem is still current in Finland (Statistics Finland 2016). Especially the elderly people often lack IT-skills and equipment for using the Internet. The assisted e-commerce could diminish the digital divides problem in Finland as well, and along with this improve the quality of living in the countryside. Assisted e-commerce could involve local producers creating them a marketplace for their production and diminishing the costs on logistics.

This thesis will clarify the concept of assisted e-commerce and its benefits to different stakeholders as well as how the service model could be modified to suit different business environments. Also, it will discuss and analyze the attitudes of the elderly people in the Finnish countryside in order to find out the attitudes towards an assisted web service model and the form in which it could gain users in the Finnish context. The study will solely concentrate on how the concept of assisted e-commerce could be used in the context of Finland and how the service would improve the quality of living of the people in sparsely inhabited areas. It will not explore the social effects as such, but try to explore, how assisted e-commerce service would improve the quality of living of people by providing them larger variety of products by lower price and for vendors to provide access to market by cheaper price. The core of the paper is in how the service should be altered to be applicable in the Finnish environment. Geographically this paper is discussing only the applicability and alterations of the model for Finnish environment. However, the results may be applicable also to other industrialized countries with similar environment.

Time scope of the research is considering the immediate effects of assisted e-commerce available. The effects of the service availability depend strongly on the technology acceptance time of the users, which however in this service should be rather short. The

study is not considering the long-term effects rather than just discusses the immediate relief of such service to the elderly people in the Finnish countryside.

The empirical part of this thesis is collected with thematical interviews from assisted e-commerce developers in India as well as the potential end users in Finland. The interviews will be conducted in spring 2016. The interview method depending on the interviewed person will be either by e-mail, Skype video call or face to face. The thesis has qualitative approach on the topic interviewing few assisted e-commerce actors and developers in India. The interviewees are chosen from the people who have been in the core of developing and executing the assisted e-commerce service and who have the first-hand information of what the service is capable of and what alterations are possible in it. Also, the Finnish side is considered by interviewing few people of the potential target group in the Finnish countryside. The insights of the interviewees will be used to comply an understanding on the research question. The assisted e-commerce developers' interviews are designed to get to the core of the ontology of the assisted e-commerce service model. The interviews of the potential Finnish target group for the assisted e-commerce service model will be analyzed for the rhetoric in order to dig into the attitudes and interest in the assisted web service use.

2 DIGITAL DIVIDE

2.1 Definition of digital divide

In the early 1990s the researchers and political actors started to raise concerns about the growing disparities in the Internet usage of people (Anderson, Bikson, Law & Mitchell, 1995, 15, DiMaggio, Hargittai, Celeste & Shafer, 2001, 8). The term digital divide itself has emerged in the 1990s and gained support in several scientific areas, including information technology, business, management and social studies (Pick & Sarkar, 2016, 83). Later, as the technology as well as the research have developed, the attention has switched to the unequal distribution and growth of information technology between people and global areas.

The term digital divide refers to digital inequalities in access to and use of the Internet and thus the information. Hargittai (2003) states that the connectivity can be high, medium or low not only between continents, countries and areas, but also between people's characteristics in gender, race, ethnicity, income and education level as well as living area. The digital divide itself can be divided into two main levels: primary and secondary. The primary level digital divide appears in the unequal availability of the information technology and the means to use it. The secondary digital divide is appearing as a gap between people willing and being able to use the information technology and the issues that are coming out of it. (Hargittai, 2003, 176, Dewan & Riggins, 2005, 203.) In this thesis, I am particularly paying attention to the secondary level digital divide where the people could theoretically have all the means to use the information technology, but for one reason or another are not using it on their own.

Fuchs & Horak (2008, 80) define digital divide through following aspects:

- Material access
- Usage and skills
- Benefit access
- Institutional access

The divide in material access is bound with the availability of hardware, software, applications, networks as well as their usability. The divide in usage and skills includes human capabilities for using the digital hardware and software as well as producing online content and engaging in the online communicating. The divide in benefit access is ICT usage that benefits the individual and advances a good society for all. The divide in institutional access refers to the participation of citizens in institutions that govern the Internet and ICTs, and to the empowerment of citizens by ICT to partake in political information, communication and decision processes. (Fuchs & Horak 2008, 80.)

Roughly it can be said that the digital divide consists of skills divide and access divide. Skills divide means that there are people in the society who do not have skills to use the information technology. Skills often refer to people's technical competences, which include on the basic level typing, using a mouse and giving instructions to the computer. (Bélanger & Carter 2009, 194.)

The digital divide is often resulted by the asymmetries in material access, usage capabilities, ICT participation, economic resources, social structures and human capital (Fuchs & Horak 2008, 77). However, experiencing the digital divide is often to large extent dependent on the person's own skills and interest. This means, that for example high education level does not necessarily shrink the divide if the person's own attitudes towards the technology are negative. Also, benefiting from the ICT is highly dependent on the personal abilities as well. (Selwyn & Facer 2007, 53.) In spite of explosion in the number of Internet users during past decade, the digital divides are present as well between as within different countries (Chen & Wellman 2004, 88).

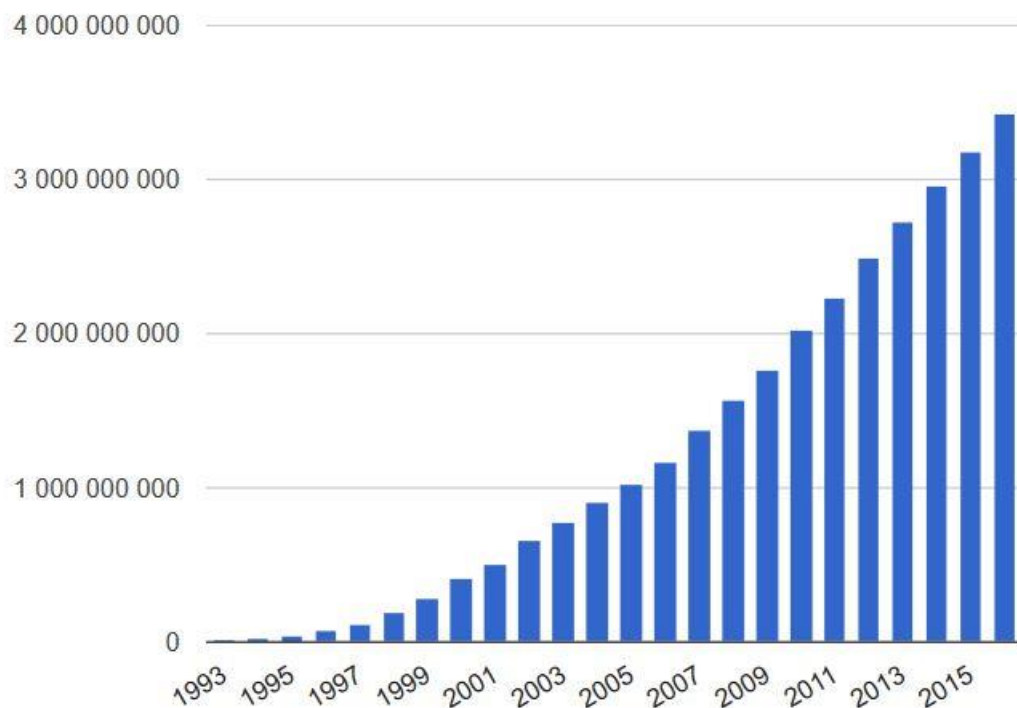


Figure 3 Growth of Internet users globally (Internet Live Stats 2016a)

Figure 3 indicates the growth in number of Internet users globally. As the use of broadband connection has grown explosively, also the bandwidth demands of the users have increased resulting heavy capacity requirements. The capacity use is growing annually with two-digit numbers. The fastest growth is occurring in the emerging markets, where

the capacity use growth rates have increased 50 percent annually between 2010 and 2014 in Asia, Africa and Middle East (ITU, 2016).

Although the numbers of unique users have been growing steadily the gap of digital divide has not narrowed down accordingly. To every person with access to fast broadband connection there is globally five people without such access. In the global scale, about four billion people do not have access to Internet, almost two billion are not using a mobile phone and 500 million live outside the coverage of the mobile networks (World Bank, 2016a, 30.). Considering conducted researches it appears, that digital divide has even tendencies to grow due to the so-called Matthew effect. The Matthew effect refers to the situation in which the people who have access to certain information will likely gain it even more. In contrast, the people without access to the information will eventually end up with less information. (Merton 1968, 24; Chen & Wellman 2004, 87.) The Matthew effect in digital divide suggests that people who have access to the Internet and electronic services will also more likely be able to utilize them more efficiently. On the other side the people with poor access to Internet and bad connectivity will benefit from the opportunities of Internet and ICT poorer and not completely take advantage of the available resources. Thus, the Matthew effect suggests that the digital divide gap is likely to grow over time. This is supported by the fact, that the new technology development often happens in high-tech areas with high skills and technology adaptation. This causes that the new developments are often also produced for the technologically developed environment and for the people with certain set of technical skills.

Selwyn and Facer (2007) have proposed six challenges that need to be addressed in actions for bridging the digital divide. The challenges are following:

- Starting point should be that all individuals regardless of sector of society can be digitally excluded – not only those who are considered socially disadvantaged in general, or those who just make no use of ICT.
- At base is a diverse and wide range of technologies, which can be considered ICTs – it is not just limited to computers and the Internet.
- Resources should be drawn from the diverse and wide range of activities for which ICTs can be used.
- A standpoint should go from extending the range of ICT-mediated activities through the involvement of all social groups in the production of digital content and services.
- Finding ways to make the full range of ICT-based activities visible and viable to all individuals – regardless of their current engagement with ICT.
- Seeking affordable uses of ICTs for everyday needs and corresponding to interests and desires of individuals.

In global scale, the economically more developed countries tend to use information technology more effectively and frequently than their developing counterparts. The least

developed countries are also the countries utilizing the information technology the least. Also, the differences in use of information technology are present not only between the countries but also inside them. The residents of the countries have different skills and effectiveness of use in information technology which is causing disparities within countries between the people who have the skills and will to use the technology and those who cannot or by some reason are reluctant in adapting the technology. (ITU 2017a.)

Often the digital inequality of the people is not only the reason but also the outcome of other social inequalities. There is a correlation between the digital skills and socio-economic position of the people which will be discussed later in this chapter. The digital divide and inequality are mirroring the other disparities of the society.

2.2 Profiles of digital users

Different digital users can be usually grouped under several profiles according to their digital usage and preferences (Cooley, Mobasher & Srivastava 1999, 83). The groups facilitate the analysis of the user behavior and thus the grouping levels can be chosen according to the research purpose in order to facilitate the data analysis and data processing. The profiling is particularly needed when large groups are researched. (Ghosh & Dekhil 2009, 93). The grouping can be done according to the digital skills of the user as well as the digital behavior.

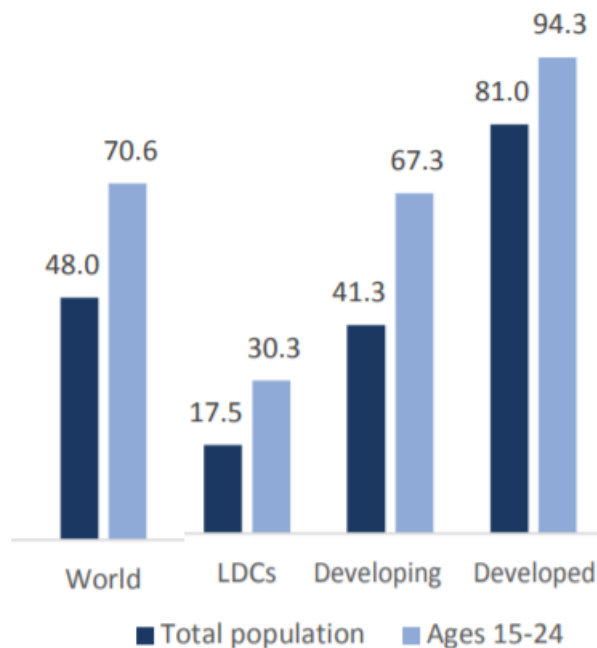


Figure 4 Proportion of individuals using the Internet by age, 2017 estimate (ITU, 2017b)

The gap between the young and old Internet users is significant in both developed and developing countries. As Figure 2Figure 4 states, the proportion of young people aged 15-24 using the Internet worldwide (71 percent) is significantly higher than the proportion of the total population using the Internet (48 percent). Especially the gap is wide in the developing countries where due to educational and infrastructural constraints, which results that the Internet access often requires more personal effort for the Internet usage whereas in developed countries the facilities are often available, but the users themselves want to abrogate from the technology. (ITU, 2017b)

Katharina Klier (2015) has come out with three different types of digital service users, which give good outlook on the different digital user types. The groups presented by Klier are following:

- Digital Natives
- Digital Immigrants
- Digital Pioneers

According to Klier, the users with profile of Digital Natives are characteristically born after 1980 and have since their early childhood been using and engaged with digital services. The Digital Immigrants on contrary refer to a profile group in which the people have been born long before the widespread availability of Internet and who have had to learn the so-called digital language later in their life, often by themselves and due to push factors. The Digital Pioneer's profile is rather more varied. It can refer to people of any age, but who have influenced the digital space with their actions and innovations.

Pehlivan (2011) has suggested that the digital users can be evaluated by their Digital Potential and Attitudes and Usage. Based on this Pehlivan presents six digital user profiles, which are following:

- Digital Outsiders
- Occasional Users
- Professional Users
- Trend Users
- Digital Professionals
- Digital Avant-garde

To the profile of Digital Outsiders often fall people who are already retired, are elderly and most likely live alone or with a spouse. The Digital Outsiders tend to avoid using digital services and lack interest towards them. The profile group of Occasional Users has on average lower education level. The Occasional Users use the Internet and digital services only for a certain need and they actively try to avoid using them. The Professional Users are mostly working people with income higher than on average. They use the Internet and digital services mostly for work purposes only, but they are rather comfortable

with the basic digital activities. The Digital Outsiders, as well as Occasional and Professional users are predominantly women.

The Trend Users have higher income than people on average, although only roughly half of the Trend Users are involved with professional activity. The Trend Users are often pioneers with new technology and try the new digital applications as well as hardware among first. The profile group of Digital Professionals represents the highest household income group of people with a high professional activity level. The Digital Professionals have a deeper understanding on the digital processes and services and they can utilize the digital services efficiently for their own benefit. The Digital Avant-garde refers to people who often can modify and produce software without need for visual operation system. They have a deep understanding of the digital environment and can produce innovative solutions. The group is dominated by younger people. The Trend Users, Digital Professionals as well as Digital Avant-garde are predominantly men. (Haasio 2007.)

2.3 Digital divide correlation with indexes

According to the literature sources (see, for example Hargittai 2003, Anderson et al. 1995, Dewan & Riggins 2005) appears that the digital divides are correlating with people's level of education, incomes and citizen equality. The correlations can also be easily identified in following Figure 5, Figure 6 and Figure 7, in which the level of digitalization of a country is measured with ordinal number in ICT Development Index, as per results of 2016 (ITU 2016b). The IDI Ranking is then paired with GDP (World Bank 2016b) for the income level comparison, with PISA results (OECD 2015a) in ordinal order for education level comparison and with GINI index (OECD 2015b, World Bank 2015) to display the correlation with inequality in society. In the figures the industrialized and developed countries are displayed with red dots and the developing countries are displayed with blue ones. The division to developed and developing countries is made according to the Economy cards in the ICT Development Index ranking (ITU 2016b). Following figures are visualizing dependency between width of digital gap and the environmental variables.

The IDI is ranking the countries according to their level of ICT infrastructure, citizen's digital skills and governmental digital service provision. The countries in the focus of this research are Finland and India. Finland is ranked in the IDI ranking to the place 21 in the global comparison and to place 15 in Europe. India is ranked globally to the place 138 and regionally, in Asia Pacific, to the place 25 (ITU 2017c, 63.). While the regional rankings are not drastically different, the global disparity in Finland's and India's ranking is significant.

The indicators used in comparison with the IDI index are the GDP of the country, PISA ranking and GINI index. The gross domestic product is a basic economic indicator often used for measuring level of total economic output in relation to the population of a country. The indicator is also often used as a reflector for country's total well-being of the population. PISA, or The Programme for International Student Assessment is an international survey conducted every three years, which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students. The GINI index is a statistical indicator measuring distribution. The index is often used as a gauge of economic inequality measuring income distribution.

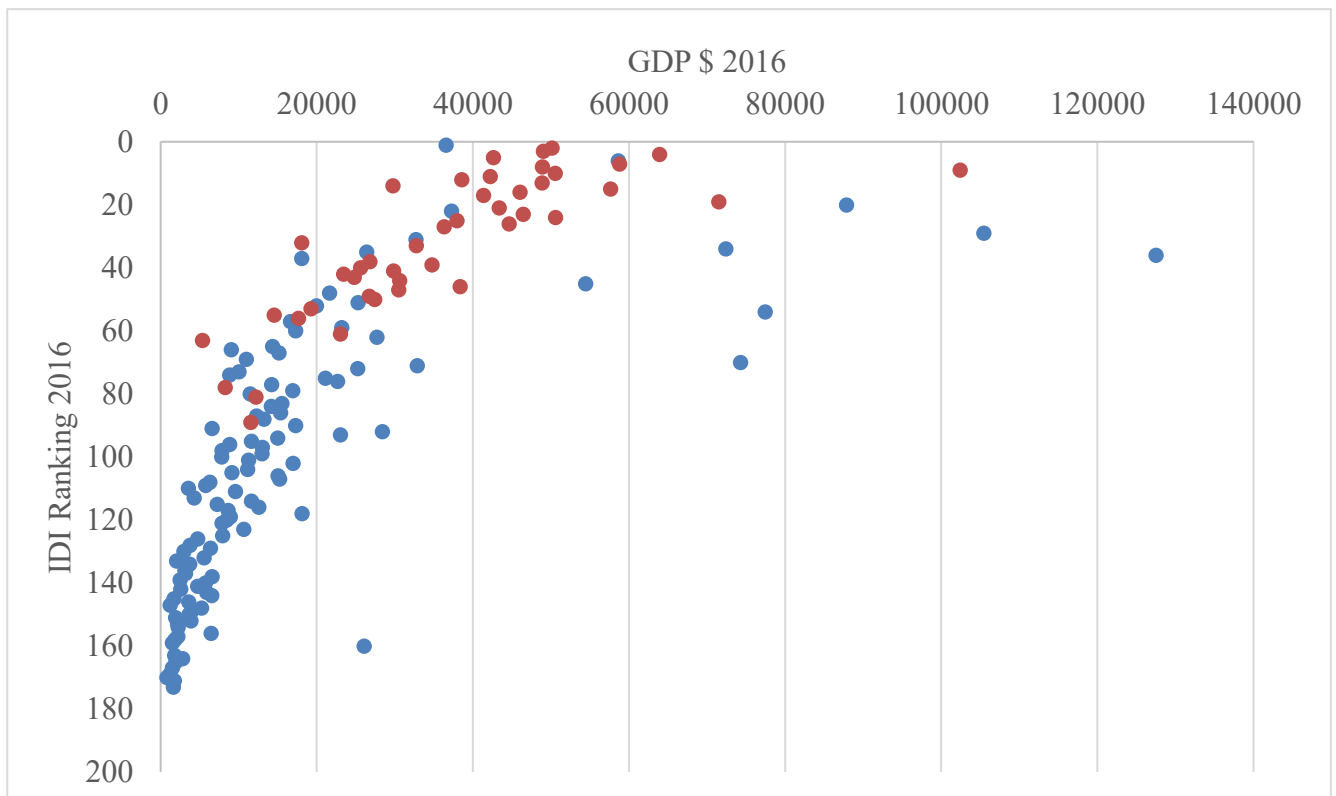


Figure 5 ICT Development Index to GDP

In Figure 5 the ICT Development Index is paired with the countries' gross domestic product per capita. The figure indicates, that generally the countries with higher GDP have also higher IDI ranking. Also, the developing countries with higher GDP have clearly higher digitalization ranking as compared to the countries with lower GDP

As per Finland and India, the difference in the countries' GDP is vast. In 2016 Finland's GDP per capita was approximately 43 000 USD while in India the respective amount is just 6 500 USD. This goes well together with the vast IDI ranking disparity.

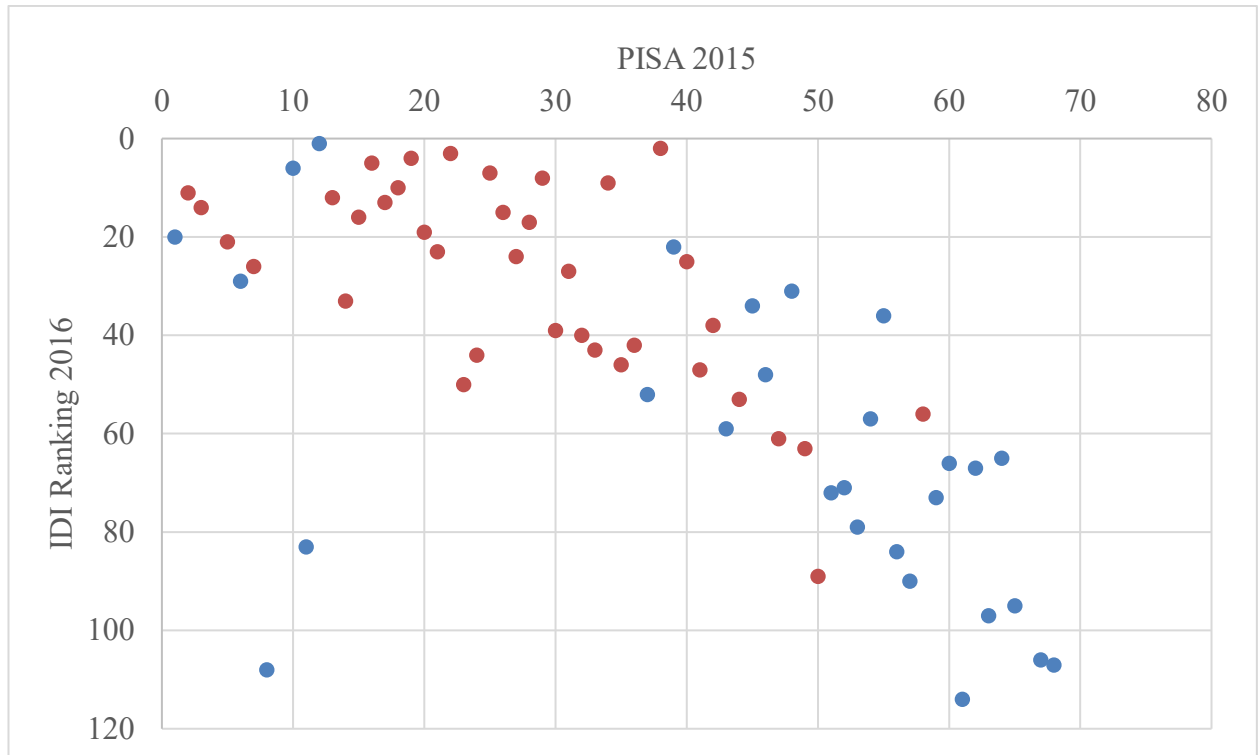


Figure 6 ICT Development Index to PISA results

Figure 6 is pairing the digitalization ranking with PISA test result rankings in order to visualize the correlation between the digitalization level of the country with the overall education level of the country. The figure shows, that the countries which have ranked high in the PISA tests are also ranked high in the IDI ranking.

Finland has traditionally ranked high in PISA tests, while India has struggled with poor results and as a consequence the country has boycotted the PISA tests after ranking second last in the tests in 2011.

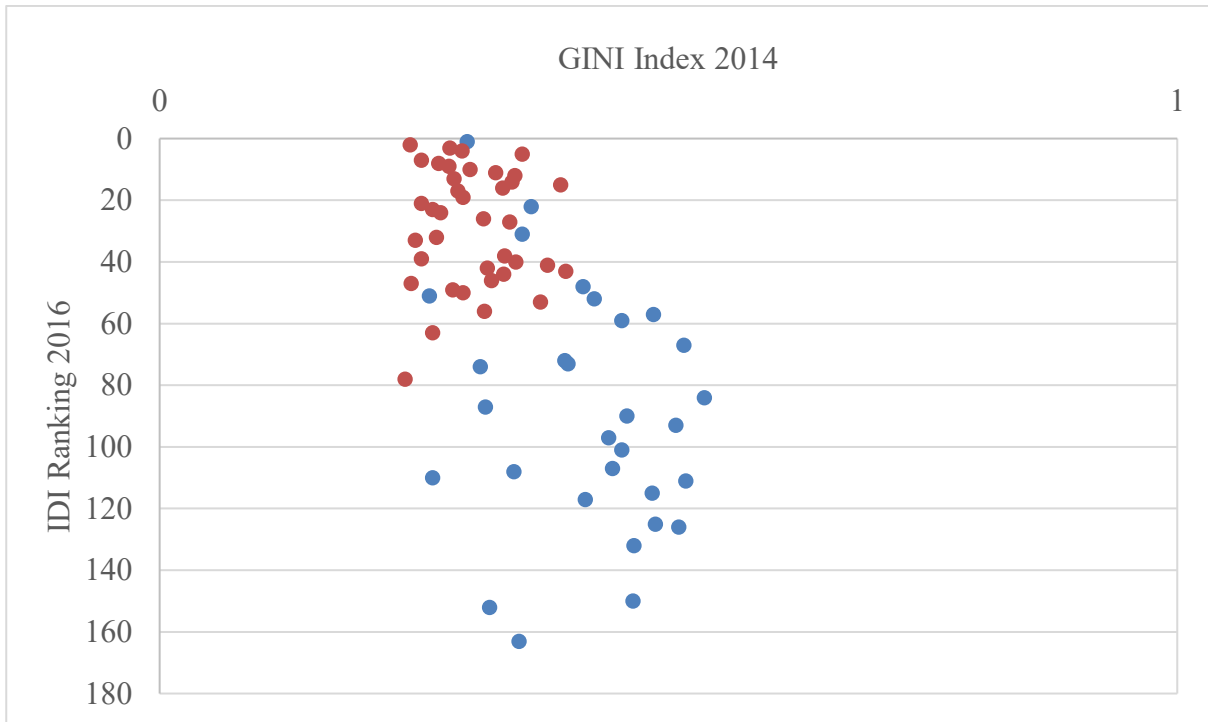


Figure 7 ICT Development Index to GINI Index

The GINI index ranges from 0 to 1, with 0 representing perfect equality and 1 representing perfect inequality. In Figure 7 the GINI index is paired with the IDI ranking. It can be seen in the figure, that the countries with lower GINI index are also in general ranked higher in the IDI ranking, suggesting that the lower inequality in the society is also contributing to higher digitalization ranking.

Finland has traditionally had a low GINI index indicating low economic disparities in the country. In 2014 Finland's GINI coefficient was 0,257. In India the economic disparities are high, and country had the GINI coefficient of 0,339 in 2014. Although the general wealth in both of the countries has grown over the years, the GINI index has also started to grow in both Finland and India indicating the growth in the inequality.

2.4 Industrialized countries and the case of Finland

Globally, and especially in the developed countries, the digital information and the digital systems have spread throughout the governmental infrastructures, organizations and people's everyday work and free time. This kind of societies are often characterized as information societies, as the information and information technology have a significant role in the development, structure and infrastructure of the society.

According to Comin and Mestieri (2016) the technology spreading has been the main factor affecting disparities in incomes during the past two centuries. Many countries have

successfully managed to harness the developed production technology and so boost their infrastructure, industry, education and job market. However, not all the countries have been successful in adapting the new technologies and it has even been stated, that the technological development has only benefited the developed countries (Norris, 2001, 6).

According to the UNCTAD (United Nations Conference on Trade and Development 2017) report, the factors contributing to the digitalization level of an industrialized country are skilled population and high level of education. Also, a large and developed financial market is playing a role in the digitalization level of a country. Another common factor for the highly digitalized developed countries is the governmental commitment to the digitalization and contribution to make governmental services accessible digitally. A developed structure is also a major enabler along with a tradition of innovation, favourable business environment, high GDP figures and a strong interest in international trade.

In general, the more developed a country is, the higher is the overall level of the digitalization in the society. Although the general level is high, there are groups of people who cannot keep pace with the technological development and they fall back from the society which requires more and more digital skills. The major such group worldwide is the elderly, followed by the people from lower social classes.

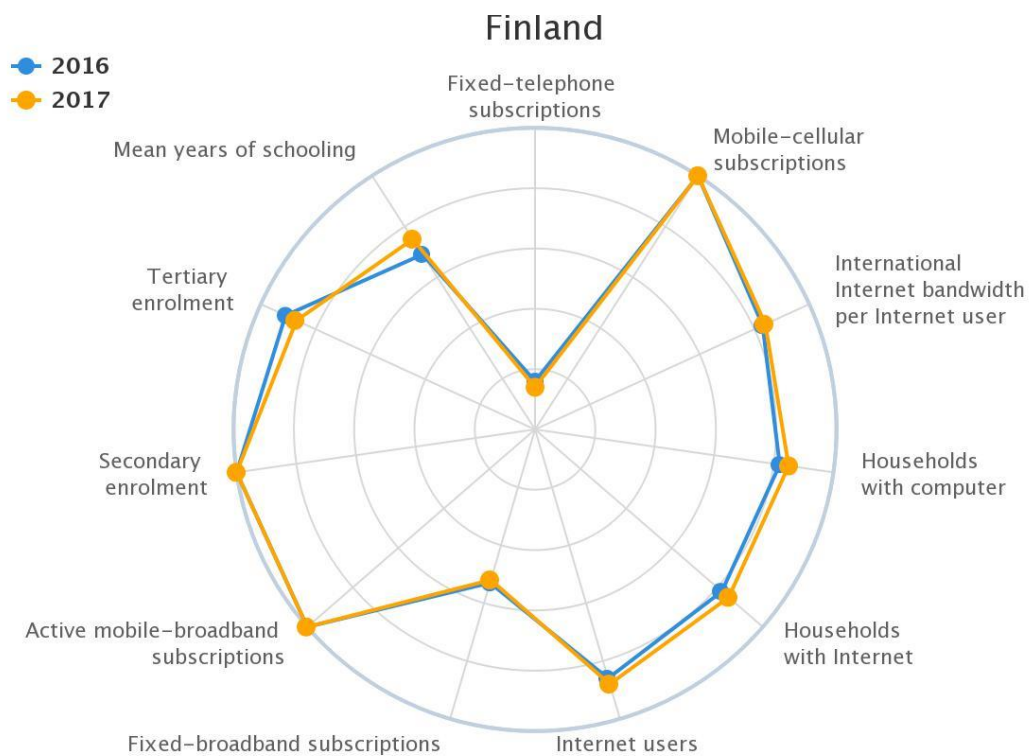


Figure 8 Digital asset profile of Finland

Finland is one of the most advanced digital economies in Europe. (ITU 2017c., 63.) There are several contributors to this position. Finland has a high level of education which creates a good base for utilizing the digital technology as well as improves the willingness

of people for adopting the new technologies. Finland was a forerunner in embracing new technologies being the first country to launch tender for 3G licenses in 1999 and is one of the first countries to issue the licenses for 5G trials. The GDP per capita is relatively high which also enables the population to have the required hardware for using the digital services. The infrastructure is developed providing the high-speed fixed and mobile Internet connections widely throughout the country, excluding only the most distant and hard to reach sparsely inhabited regions. The Finnish government is putting emphasis on ICT development and especially high-speed broadband roll-out by providing funds for underserved areas. Finland has a goal to achieve 99 percent of all permanent residences and offices to be located within 2 km of an optical fiber network or cable network that enables connections of 100 Mbit/s. Local municipalities are considered to be important players in broadband roll-out. (ITU 2017c., 63.)

When it comes to technology and Internet connectivity, Finland is among the top countries in the world. Finland has the second highest public service provision in Europe. Also, Finland from all the European countries has the highest skills for utilizing the information technology. (The Digital Economy and Society Index 2017.) Finland ranks fourth most digitally most competitive country in the world (IMD World Digital Competitiveness Ranking 2017). Also, Finland has the second most mobile subscriptions per capita in the world (Digital Economy Outlook 2017).

According to Statistics Finland, in 2016 88 percent of Finnish people under the age of 55 are using the Internet. About half a million people at the age over 65 lives without the Internet or information technology. The Internet use in older age groups is also slowly increasing, but as the age gets higher, the Internet use is dropping dramatically. 74 percent of people in the age group of 65-74 is using the Internet, but in the age group 75-89 only about a third is utilizing the Internet. This is problematic, as the services are transferred to the online form and basic Internet skills start to be a necessity for the everyday life. However, according to the statistics, over a half of Internet users aged 75-89 use the Internet several times a day. In 2015 Finland had approximately 400 000 people without electronic bank ID, which is the most common of the electronic identifiers. The Finnish Union for Senior Services Valli ry has conducted a report on the electronic services usage among elderly people in Finland. Out of almost 900 survey replies over a half was received in paper format. According to the report, a quarter of the survey respondents have never used electronic identification. The threshold for using the technology may be high, but it can be overtaken with good assistance and easy to use devices. The technology use is enhancing the functionality of the elderly by providing tools for coping with everyday life and communication. Outsourcing the tasks that need technology for example to other family members are predisposing to passivity, while learning new things can create a vital feeling of usefulness and keeping up with time. Currently the technology use of the elderly is strongly dependent on the support from family and close ones. Although the

electronic devices cost money, the life without digital services is expensive as well, as for example the medical prescriptions can often be renewed for free only online. The coming social welfare and healthcare reform with the option to select the source of medical services is also hoped to promote digital healthcare applications and remote access use for accessing the medical services. However, these require access to an Internet-enabled device, whether that would be a PC, mobile device or a public service outlet. (Isotalus & Jurvelin 2017.)

The typical profile of Internet user of the age over 75 years is well educated, high income urban citizen (Suhonen 2016.). While there are people not utilizing the digital services Finland is being transformed into a digital society where more and more tasks can be performed online. According to the survey (2016) by The Finnish Association for the Welfare of Older People, most of the elderly people without Internet access have however interest for using the Internet and digital services. Still, there is a large marginal group of the elderly who are not interested in the digital services and the Internet. The accessibility of the Internet is particularly problematic in the sparsely inhabited areas and small communities. The services are being transferred to a larger centres. Without the guidance from relatives or other dedicated help, the elderly is not likely finding the benefits of the computer use and the Internet. (Rantanen 2016.)

The elderly cannot be considered as a homogenous group in their digital service use. Some people in high age feel relatively comfortable with online information search, e-mail, news and streaming services. Some are comfortable using smartphones while others stick to basic phones and even landline connection. (Suhonen 2016.) The digital skills of the elderly population are constantly improving, as the currently employed and accustomed to digital environment population is retiring. However, a challenge emerges from the deterioration of motoric skills and senses. For example, using a mobile phone gets difficult if the user cannot hit the right keys, see them properly or hear the calls. (Rantanen 2016.)

The social and healthcare sectors provide a vast variety of digital services ranging from appointment reservations to peer groups. However, the service provision is not equal, as there are serious regional and service type disparities. Also, not all the people groups have the skills or tools for using the digital services. About a half of the population with deteriorated health does not have the electronic bank ID, which is a prerequisite for accessing the digital health services. Also, every fifth unemployed person lacks the electronic bank ID. The services should be ensured for the people who cannot use them digitally, but currently there are disparities between people groups and living areas. The urban residents tend to use the digital services more often as opposed to their rural counterparts. Also, the urban citizens often experience that the digital services are more useful than the rural population. (Hyppönen & Ilmarinen 2016.)

A significant digitalization of services in the near future will happen in the field of remote medical appointments. In Finland in the community health care alone there are annually 6,6 million doctor appointments. Basing on research data and empirical experiences as much as 75 percent of the basic healthcare appointments could be dealt with remote consultation. The remote consultation does not affect the fundamentals of the patient care, the through interviewing of the patient and utilizing the existing health data. However, it could significantly improve the efficiency of the resourcing and time allocation of the medical personnel. With help of simple algorithms and artificial intelligence the medical appointment processes and patient tracking could be automated and standardized. The patients would benefit from this with better service access. With more frequent communication the care service would also gain more timely and accurate information on the patients which in turn would enable to respond more swiftly to the changes in the patient's health conditions. As compared to the traditional way of working, the remote healthcare services are not bound to a physical location which means that they can be scaled flexibly according to the current demand. This means, that the service accessibility, medical care integration and effectiveness are improved. The digital services are especially suited to the basic healthcare services which requires new solutions to tackle the rising costs and health issue prevention. The digital services can significantly improve the efficiency of reception, healthcare processes and affect the time between the patient's medical appointments. (Tikkanen 2018.)

The digital services in healthcare are pushing the customers to new service models. In this situation it is essential to avoid the formation of digital dropout group. New forms of service enable medical appointments from home regardless of patient's location, which is an important aspect in sparsely inhabited Finland. This also improves the everyday life of people needing special medical attention. (Tikkanen 2018.) To avoid formation of dropout group, service platform with low entry barrier is essential. The assisted e-commerce kiosks are essentially such entry points and could be used to facilitate the use of the transformed healthcare service without the need to learn the technology by the user himself.

The major problem with the digital services seems to be that the requirements of the elderly and other technologically unadvanced people are not considered in the technology development. Often the technology is developed separately from the service, which creates friction in user experience, which is further emphasized when the user has low technical skills and adaptiveness. (Suhonen 2016.)

2.5 Developing countries and the case of India

In the developing countries, the digital divide has traditionally been wide, as the inequalities in the society are often high and people have different premises for life. It has been argued, that the technology development has only benefited the developed countries (Norris, 2001, 6). In general, it takes longer time for the developing countries to adapt the new and more effective technologies (Comin & Mestieri, 2016, 42). The reason for this might be the social, economic and political problems of the country. These are the main factors which have affected the developmental disparities between the countries worldwide. Also, the inequality in general between the developed and developing countries has been affected strongly by the technological development of the past century (Jaumotte, Lall & Papageorgiou, 2008, 74).

The educational background, gender, and income level are the primary dividing factors in the society, also in what comes to the digital use in the developing countries. Also, lack of infrastructure is a major hindrance of the digitalization. Low income levels of the people and even basic lack of electricity are common limitations of the digital connectivity. (ITU, 2016; Jaumotte, Lall & Papageorgiou, 2008, 72-75.) In addition, the Internet connection expenses are higher for the end users in developing countries due to expensive international bandwidth, inefficient state-owned monopolies, lack of proper peering points, low user density and poor provisioning. Due to the high price to the end users the Internet connection in developing countries is often provided at public facilities such as libraries or Internet kiosks. (Reda, Noble & Haile 2010.)

Limited local infrastructure is also a common constraint to digital accessibility. In 2015 there were still estimated 350 million people without mobile connectivity. Less than a third of world's 3,4 billion rural population has access to 3G network. (ITU, 2016.) Often the ICT expansion to cover all the regions is considered inviable (Azam 2008, 30). However, in the long run the investment in low-cost reliable and international connection is essential, as it ignites the economic growth, enhances productivity, creates jobs, enables markets to work more effectively and improves the life premises of the people with access to ICT.

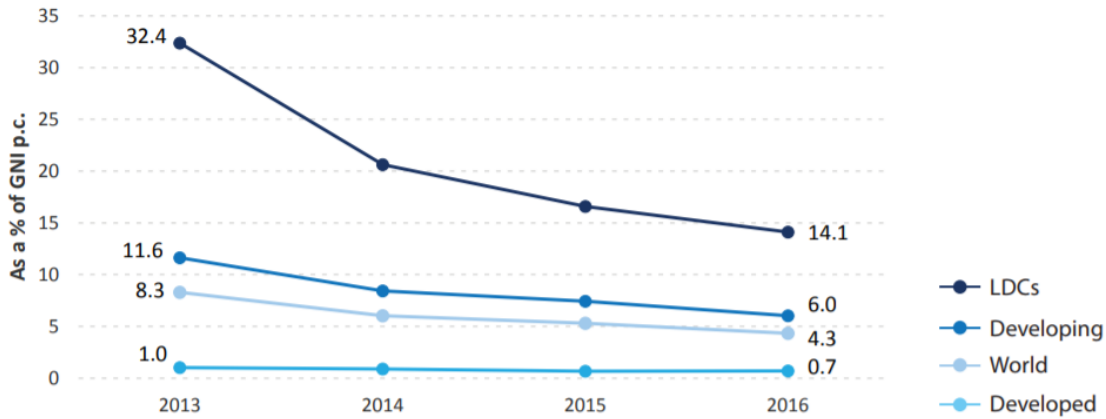


Figure 9 Mobile broadband price percent of gross national income per capita, 2016 (ITU, 2017b)

In developing countries, the Internet use growth has accelerated due to the mobile revolution, which facilitates the access of the users to the Internet as well as cuts costs for the Internet use. Figure 9 pictures the development of mobile broadband prices worldwide. The figure shows, that the mobile broadband costs have been cut dramatically in the least developed countries and the price decrease has also been significant in developing countries.

The digital divide can be observed at both the national and regional level. The regional level refers to the digital divide disparities between the countries. At the national level, the largest digital divide is usually the urban and rural areas. (Rao, 2005). In developing countries in particular we see clear tendencies of increased concentration of information flows to urban and central areas (Wong, 2002; Mwesige, 2004).

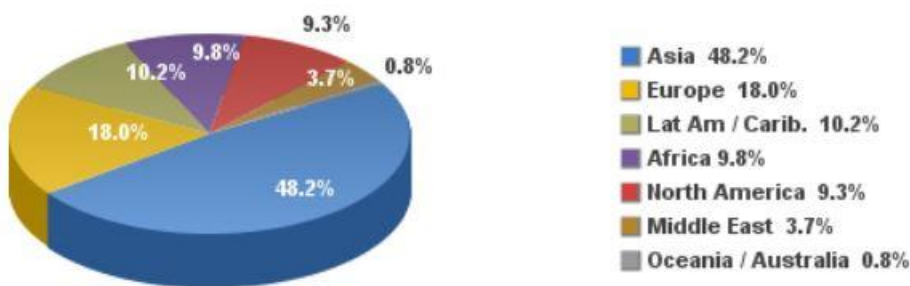
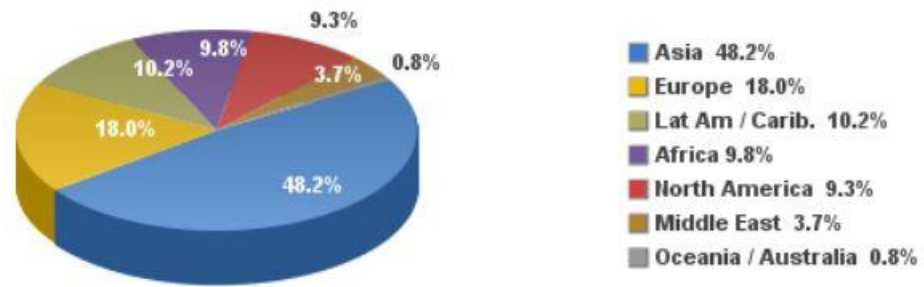


Figure 10 Internet users by regions (Internet World Stats 2015.)



As seen in

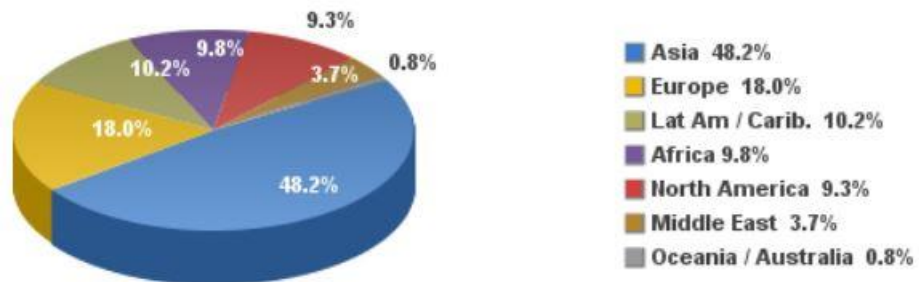


Figure 10

Figure 10, most of the Internet users are based in Asia, as it is the most populous continent. However, the network connectivity in the region is lower than in other continents with on average higher GDP per capita. According to Network Readiness Index, India stands on the 89th place in the world ranking. The NRI index is constructed annually by World Economic Forum and it measures the digital divides and use of online connectivity across the globe. (World Economic Forum 2015.) It is estimated that in 2016 34,8 percent of Indian population has access to the Internet.

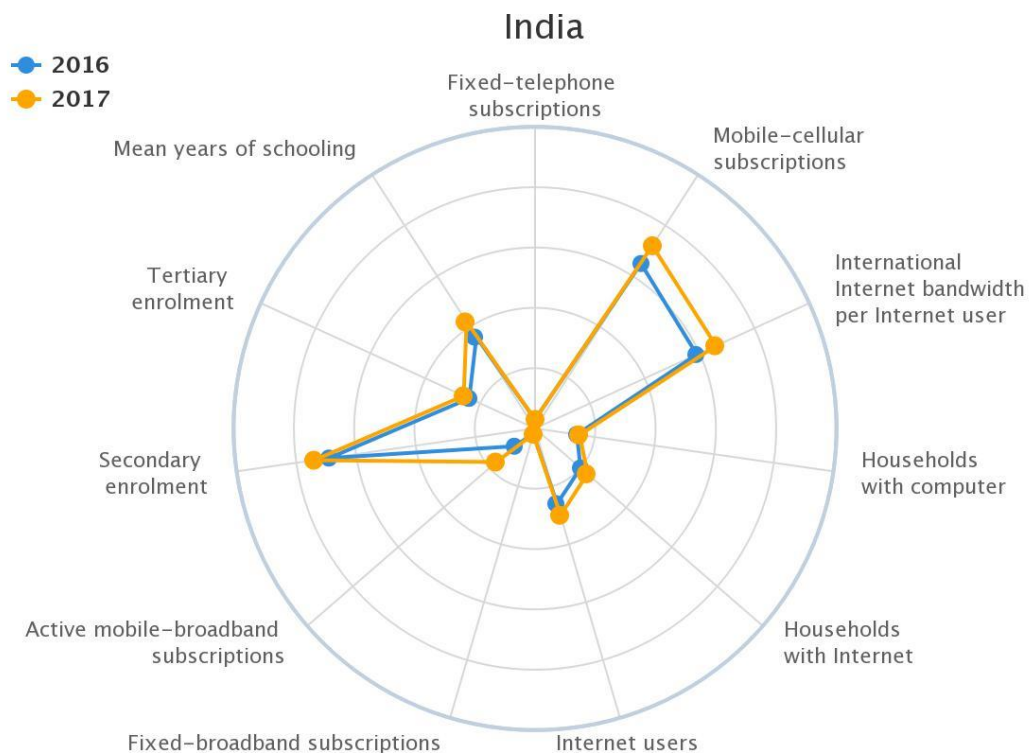


Figure 11 Digital asset profile of India

In the number of mobile subscriptions, India holds globally second place. Mobile broadband in the country for using the 3G technologies were initiated in 2008. Since 2012 the country has hosted a significant number of spectrum auctions for 4G frequencies, and operators have gradually been launching LTE using different frequencies throughout the country. There is still room for growth in the area of mobile connectivity, as only 59 percent of mobile Internet subscriptions in India were broadband in 2016. Optical fibre is representing only 2 percent of all the fixed Internet connections, and the fibre connections are concentrated in few metropolises. India has several public private partnerships aiming to extend the optical fibre connections to rural areas. The Indian government has a Digital India government programme with a vision to transform India into a digitally empowered society and knowledge economy. The program's goals are providing the digital infrastructure as a utility for every citizen, providing governance and services on demand and of overall digital empowerment of citizens. Enabling greater economies of scale is expected to result in lower costs and greater affordability in the ICT infrastructure and likely to narrow the gap in ICT access between rural and urban areas. (ITU 2017c., 90.) Although the number is low, India has world's second largest number of Internet users after China, which it is likely to surpass in proximate future. Also, India was the sovereign leader in the growth of the Internet users with 30,5 percent. (Internet Live Stats 2016b.)

There are several problems which lead to India's poor ranking in the NRI index. One of them is low literacy rate across India. In 2001 the literacy rate in India was on average 86 percent in urban areas and 71 percent in rural areas. As well the literacy rate among male population is 83 percent while among women the level is only 67 percent. Also, the regional differences between states are significant. (Economic Times 2015).

Another major issue affecting the digital divide gap is the education system in India, which causes high dropout rates on the undergraduate level. This combined with ICT introduction on the late stages of education has for years been contributing to the large digital divide in India. Recently the Indian government has however started tackling this issue by including the information technology education in the school level education in order for the students to be able to know various strategies of searching the Internet. (Panda & Mharana 2013).

The lacking infrastructure contributes as well to the digitalization problems. As the majority of the Indian population is living in rural areas many of which are distant and difficult to reach, it is difficult and often economically inviable to ensure the digital connectivity of all the areas equally. Such areas also often experience more urgent problems than just digital divide, such as lack of power facilities, education or healthcare. (Lalmas, Bhat & Frank 2007.)

Another issue contributing to large digital divide gap is the language environment of India. While in the territory of India mere 1000 languages are spoken, most of the Internet

content is produced in English. This makes the content of Internet unavailable to vast number of Indians who do not know English on the sufficient level.

(Panda et al. 2013, Gorzelanczyk 2008.)

The Indian government has recently prioritized the tackling of digital divides in India. In recent few years several initiatives have been emerged in order to improve the IT-skills of the Indian population, including open libraries and education in different levels. However, the problems are major, and the results can be seen only in longer time period. There are several methods of bridging digital divide. One of them is improving the ICT infrastructure. Power failures, lack of peering points etc. are a common hindrance for the digitalization. In addition to lack of infrastructure, also the infrastructure planning failures can be an obstacle for digitalization. Another bottleneck for the Internet penetration is the people's soft skills needed for managing the ICT. (Azam 2008.) Another way to bridge the digital divide is to provide communal access points of the Internet in schools, libraries, museums etc. (Selwyn & Facer 2007, 52-53.)

Agarwal et al. (2008) points out, that currently the developing countries have tried to bridge digital divide in the country by establishing information kiosks or knowledge centers in rural areas to remove the problem of lack of hardware and assistance for the people. These kiosks offer services such as email, chat and browsing to agricultural and governmental services as well as services for distant education. An information kiosk typically contains a computer with printer, web camera, and multimedia system connectivity. The kiosk reduces the need for covering infrastructure concentrating the digital services at a particular location. As the mobile phone penetration in rural India is significant and increases constantly, the current trend is transferring the eKiosk services to the mobile form so that the end users do not need to travel to the kiosk location in order to access the service. Also, the kiosks often have an option to use voice interaction (VOI) in their service palette, which can be accessed through a phone call. According to several field studies and literature reviews, semi-literate and illiterate people are often more comfortable in the digital environment of they can operate with speech-based interfaces. An advantage of VOI Kiosks is that they are not dependent on the Internet connection and are automatically located conveniently to the end user. (Agarwal et al. 2008.)

Tackling the digital divide is relatively easy on the school level by including the ICT to the school curricula. However, reaching people beyond the school age can be more difficult. In India the number of illiterate and people without ICT skills is large in the age groups beyond the school age and reaching them is vital for bridging the digital divide. Another issue to consider in bridging the digital divide is availability of affordable hardware. Solution for this is developing affordable hardware as well as providing a covering public municipal hardware. (Magnier 2011.)

As it can be seen, Finland and India have a very different digital environment, yet still both countries experience the digital gap. In Finland the digital gap is mostly an issue for

the elderly. Services are increasingly being digitalized and coping in the everyday life without skills or willingness to use the Internet and digital services becomes increasingly difficult and, at times, expensive. Analog options are often priced, and they can be poorly available or lack completely. In India although the rapid digitalization in recent years, the digital use is still low. The disparities between areas are vast and people often have lacking skills to benefit the Internet and digital services to their full extent. In order to gap the digital divide and provide digital services to those who would normally be digital outcasts, a model of assisted e-commerce has been developed. Next chapter will dig deeper in the core of the emerged service model.

3 ASSISTED E-COMMERCE IN SOCIETY

3.1 Characteristics of assisted e-commerce from public sources

The e-commerce refers to the process of buying and selling of goods and services, or transmitting of funds or data, over an electronic network, primarily the Internet. These business transactions occur either as business-to-business, business-to-consumer, consumer-to-consumer or consumer-to-business. The beginnings of e-commerce can be traced to the 1960's, when businesses started using Electronic Data Interchange (EDI) to share business documents with other companies. E-commerce is done taking benefit of a variety of applications, including email, online catalogs and shopping carts, EDI, File Transfer Protocol, and web services. This holds within business-to-business activities and even using email for unsolicited ads, which are considered spam by the receivers, be they consumers or other business prospects. E-newsletters to the subscribers fall also often under the category of spam. More companies now try to approach consumers directly online, using tools such as digital coupons, social media marketing and targeted advertisements. (Rouse 2012.)

The m-commerce (mobile commerce) refers to buying and selling goods and services through wireless handheld devices such as cellular telephone and personal digital assistants or PDAs. M-commerce, often referred as next-generation e-commerce, enables users to access the Internet wherever they are without need to find a place to plug in. The emerging technology behind m-commerce, based on the Wireless Application Protocol (WAP), has made far greater progress in Europe, where mobile devices equipped with Web-ready micro-browsers are much more common than in other parts of the world. (Rouse 2015.) While in the past the mobile devices were primarily used for browsing the products and services and the actual purchase was made with a personal computer, more and more often the purchase is made nowadays from a mobile device. One contributor to this is the growth of the mobile device, especially smartphone, screens and the improved user friendliness of mobile purchase services. The less the customer needs to click around and search for payment codes, the larger is the probability of the purchase. (Orpana 2015.)

In general, the key for any successful e-commerce product is the technology and functioning platform. They are the key to the superior customer experience. The customer experience, including ease of use, perceived reliability and user interface are the trigger factors for the customer purchase and service use, which take over in customer behaviour values the price point of view. In other words, the most easies and pleasant to use platform will eventually gather more users than a platform with lower prices, but with complex user experience. In e-commerce the competition is high, so the stores need to differentiate themselves in terms of product or service variety, price or customer experience. E-store

can also be targeted solely for information sharing and gathering customer feedback and not so much as the traditional retail or service provision. (Luoma 2015.)

Improvement of Internet access in poor and underdeveloped areas are currently facilitated by arrangements for public use, such as Internet kiosks, cybercafés, or multipurpose community telecentres (Rogers & Shukla, 2001). The Internet café, or cybercafé, concept has been successfully introduced to countries with digital disadvantage mainly because it combines an affordable priced access to the Internet with comfortable environment of a coffee house or a bar, which also provides an opportunity socialize with fellow users and to pick up new knowledge and ideas in computer usage. Ideally, Internet cafés in developing countries represent affordable access points to information sources for personal development, business start-up and growth, political participation and the progress of civil society. In practice, only a few of these characteristics usually happen at once, but the benefits are regardless undisputable. Information has become one of the primary inputs in economic processes, and information and communication technologies have gradually become more vital for enterprises, communities and individuals to participate successfully participate in the global economy (Hollifield & Donnermeyer, 2003).

The assisted e-commerce concept is regular e-commerce facilitated by an agent. The various assisted e-commerce applications have been in use for years, such as virtual chat assistants, e-kiosks and others. However, the assisted e-commerce kiosk brings together the benefits of the electronic services paired with the physical store. The assisted e-commerce kiosk setup is often based on a mobile platform, such as tablet and located in side of a physical store, where it can be managed by the shopkeeper as agent among regular activities. The customers can use the assisted e-commerce either on their own or with the help of agent. The target users for the service are people who lack IT-skills or equipment, or are unwilling or unable to use electronic services. Benefits of the service for the consumers include larger variety of products and services available and bringing the assortment closer to the consumer removing the need to travel long distances in order to make the purchase. As there are more products available this also often reflects to the consumer prices and quality by lowering the prices and improving quality on average. On the other hand, for the companies the assisted e-commerce opens a wider market to people offline. Also, the service can be used as a market place especially for local producers for selling their products or over-stock without investment in own e-store. Also, the assisted e-commerce terminal can be a shipping point for the orders, which reduces the shipping costs for the producers. (Bhushan 2016.)

3.2 Forms of assisted e-commerce

The initial goal of the assisted e-commerce is to assist the customers in making informed buying choices and decisions. It is empowering a commoner with E-commerce by providing customer centric services (iPay 2018). The transactions are made in physical stores, which reduces the need in IT skills of the customer. The delivery of order can be to the home address of the customer or centralized to the assisted e-commerce terminal. (SpiceDigital 2015; DNA 2015a.)

Assisted e-commerce aims on reaching people who are either not using the Internet or shop online. The reasons for not shopping online can be several ranging from lack of IT skills to lack of trust towards the vendor, as in transactions the customer has a retail outlet medium to do the transactions. It provides also an opportunity to use the digital services and stores for the people who do not own the hardware, such a computer or a smartphone, needed to access the digital service. The assisted e-commerce can work also in urban and semi-urban areas due to the presence of a technology averse population, such as the elderly, migrant workers et cetera. (SpiceDigital 2015.) The end goal of the service is to bring the people to the range of electronic commerce and digital services (Rajgalopan 2015).

Eventually, assisted e-commerce is a form of offline e-commerce, which has been practiced occasionally as a side business of online stores with physical stores as well via a mobile hardware such as a tablet. The normal e-commerce consists of the trading steps such as online marketing, ordering, payment, support for the delivery, after-sales support and legal help (Timmers 1999). The assisted e-commerce model is also added with the real-time support throughout the user experience. For the companies engaged with the electronic commerce the benefits include:

- low entry cost
- fast return on investment

In the assisted e-commerce the sales platform is also available often to the local producers. Especially this is beneficial to small retailers, who can conveniently place their overstock for sale without setting up expensive or complicated online sales platforms. The vendors manage to reach new auditory with help of the service while the platform provider has the commission for sold items in the amount of 2-14 percent of the purchase price. Assisted e-commerce kiosks can easily be used to provide multi-purpose transactional services by addressing most of the concerns or constraints to the e-commerce, namely, the access to the Internet, all kinds of payment instruments including cash, the order delivery and logistics and customer support by an agent who creates confidence and trust. (Indo-Asian News Service 2015.)

An advantage of the model is also that it provides guidance with more complex purchases, for example in electronics. In mobile sales for example the assisted e-commerce

agent may explain what the technical characteristics mean in practice. Also, in the rural areas the delivery time is not the key issue, as the availability of goods is limited. This is opposite to the urban environment, where the fast delivery is vital competitive attribute. The immediate access to goods is mostly an urban phenomenon, while in rural areas people are ready to wait for few days just to get the product they need. (DNA 2015a; Indo-Asian News Service 2015.)

Assisted e-commerce creates eventually a "Virtual Mini Mall", which needs very limited space but can still provide a wide range of products to the customers. From that virtual mall, every village has a facility where the companies can "rent" shelf space for products display. The high real estate costs are one of the main reasons why organized retail is unable to expand at speeds in sparsely inhabited areas. The service provider who manages the process of acquiring virtual orders from consumers are willing to pay the 'shipping and handling charges' using their own network of Agents, who in turn can convert the real-estate of their existing businesses into a "Virtual Mini Mall" for providing 'assisted e-commerce services' to the surrounding population. (DNA 2015b.)

The e-commerce has been growing in recent years especially as m-commerce. One reason for this is, that the developing countries have often skipped the e-commerce phase and jumped directly to m-commerce. Assisted e-commerce aims to bring people to the normal e-commerce or its adaption, empower them and bring equal opportunities to use the new types of e-commerce. Another trend of recent years is the growing importance of web 2.0 and s-commerce, namely social commerce. The s-commerce integrates social features to e-commerce allowing consumers to share their experiences and information with other customers and also with company (Dennison, et al., 2009).

Table 1 Integrated Model for E-commerce Competitiveness (Sahin 2012)

Resources		Capabilities		Knowledge
Tangible	Intangible	Organizational	Managerial	Domain
Technological resources	Reputation	Convenient web site value added content	Strategic business plan	Knowledge
<i>E-commerce system with supporting back-end operation</i>	Brand name and awareness	Customer relationship management	Valuable business idea	Information flow
Financial resources and control	Trust Policy of recall/withdraw of products	Order fulfillment	Management commitment	Training and development programs for employees
<i>Human resources</i>		Technological issues	Marketing and Sales Related Activities	Monitoring firm performance, industry developments and competitors' activities
<i>Strong customer service team</i>		<i>Internet connection speed</i>	Choice of product	
<i>Strong IT personnel</i>		<i>Scalability and Flexibility</i>	Large /unique product selection	
<i>Strong sales force</i>		Partnership / strategic alliances	Competitive price	Innovativeness
Market Position			Delivery	Database management
<i>First mover advantage</i>			Advertising and Sales promotion	

Sahin's (2012) Integrated Model for E-commerce Competitiveness described above in Table 1 is listing the competitive factors of e-commerce from resources, capability and knowledge point of view. The table describes, which factors need to be considered for making the e-commerce-based service models attractive for their users. The factors range from tangible and intangible resources to company's capabilities and knowledge. Consideration of the competitive factors are vital for the transferability of service models.

3.3 Assisted e-commerce business model

According to Timmers (1997) a business model is an architecture for a product, service, and information flows including the description of various actors and their roles, potential benefits for the various business actors and sources of revenue. In the traditional assisted e-commerce model there can be recognized following three main actors

- digital dropouts,
- intermediate businesses,
- displaying companies at the kiosks (Rajgalopan 2016).

The digital dropouts are the people with no Internet access or skills towards whom the assisted e-commerce services are primarily targeted to. Their motivation is getting access to Internet with its services, for example for electronic purchases or payment of the bills. The intermediating businesses are the stores where the assisted e-commerce kiosks are located. The kiosks expand the service range of the intermediary but may also require extra efforts from the intermediary for assisting the kiosk users and being a point of delivery for the electronic purchases. The displaying companies are the businesses which provide their services at the assisted e-commerce kiosks displaying their goods and services. They are often involved with their entire delivery chain, as the kiosk user is operating from the public location and often requires lots of assistance for the kiosk usage. The main benefits of the assisted e-commerce kiosks are to deliver the online services to the digital dropouts in the secure and reliable form. The kiosk operators are benefiting from the service expansion due to the kiosk terminal service offering and the displaying companies are gaining more users and also have the publicity from being displayed in a kiosk. Although the kiosk operators receive very little monetary endorsement for kiosk operating, the added value for the kiosk operators comes in form of increased traffic to their actual store. The displaying businesses get their services displayed in the kiosk for a nominal fee, which can be correlating with either amount of traffic and purchases and use of their services or billed on a monthly or periodical basis. (Rajgalopan 2016).

Electronic commerce has several different e-commerce business models, which of most can be also executed in the assisted e-commerce model. In my thesis I am mostly concentrating on b2c business models. The business models are (Timmers 1999):

- e-shops
- e-malls
- e-auctions
- virtual communities
- collaboration platforms
- third-party marketplaces

The qualitative mapping of the Internet business models is visualized in the matrix of Degree of innovation and Functional integration below in Figure 12.

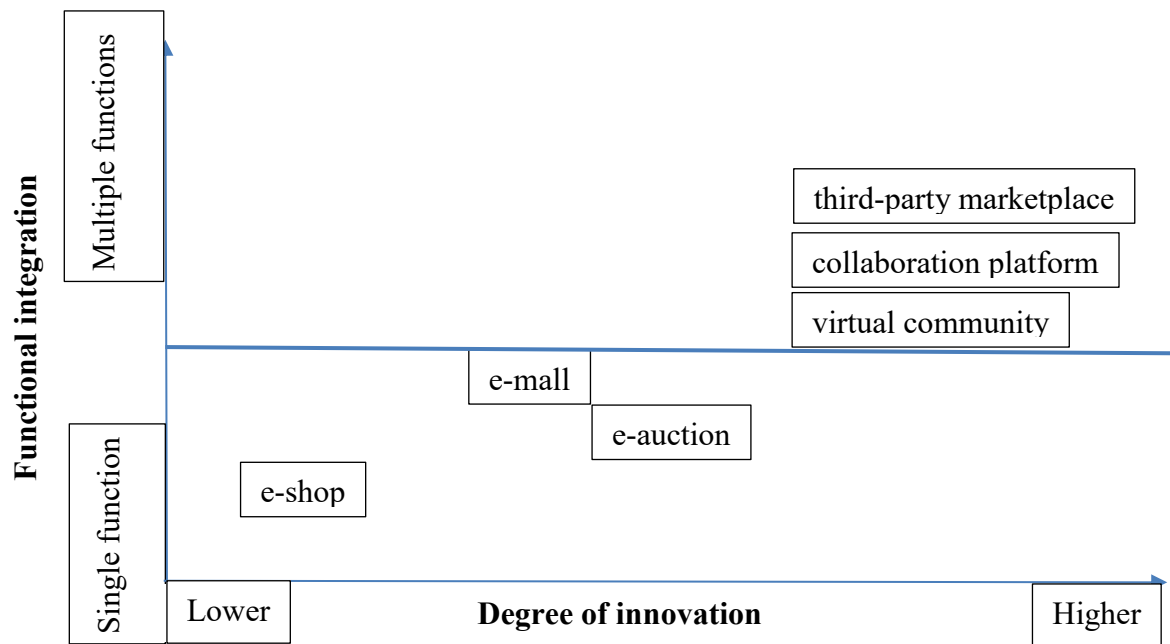


Figure 12 Classification of Internet business models (Timmers 1999.)

The first dimension is innovation, which ranges from electrical but traditional way of doing business to more innovative ways, for example by outsourcing Internet functions that were formerly performed within a company, or by offering new functions that did not exist before. The second dimension is the extent of functions integration, ranging from single function business models to fully integrated functionality.

In the lower left corner of the matrix there are e-shops, which are at the core electronic versions of traditional ways of selling. The e-shops provide only marketing function over the Internet; thus, their level of innovation and functions is low. In the upper right corner of the matrix are the models which are critically dependent on information technology for information flow and value adding process, such as third-party marketplaces which whole business model is based on the networks and data exchange. In between of these extreme ends there are business models that have some degree of non-electronic business added with the electronic services.

The e-shops refer at their simplest to the website of a company. Sometimes the e-shops are added also with the basic web store functionality. The e-shops enhance the user experience, potentially enable global presence at very low cost and may also lower the costs for the consumers. Also, the company has 24-hour availability and acquires an advertising advantage for the company. The e-shop model is seeking demand, or in other words it is available for the customers to find it.

The e-malls portray a wider collection of e-stores usually enhanced by a common umbrella, for example a well-known brand. The user experience can also be enriched by a common guaranteed method of payment, common platform and for example a common method of delivery. The customer value is added by enhancing trust and ease of use in

customers, as the stores and services are bunched together under a common larger brand. For the retailers the benefit is, that they do not need to set up their own electronic store allocating resources to it, but they rather can benefit from the larger platform paying just the commission or subscription fee. Also, the retailers do not need to consider traffic changes in peak seasons. For the consumers the benefit is to find a vast selection of products in one place, being easy to switch between different stores. This results a better readiness to buy thanks to enhanced trust and known brand.

In e-auctions the transactions are based on the similar bidding mechanisms to the traditional auctions. The products out for bidding can be accompanied with multimedia presentation of the goods. There also can be an offered integration of the bidding process with contracting, payments and delivery. The e-auctions yield their profit from transaction fees, advertising and selling the technology platform. The suppliers and buyers are benefitting from increased efficiency and time savings. Also, there is no need to transport the goods until the deal is established. Because of smaller cost, it becomes feasible to sell smaller quantities of smaller value, for example surplus stock. Sources of income for suppliers include reduced surplus stock, better utilization of production capacity, and lower sales overheads. The buyers benefit from lower purchase costs.

The ultimate value of virtual communities comes from its members, namely customers or partners who add their information to a basic environment provided by a company operating the virtual community. The revenues are generated from its users via membership fees and advertising. A virtual community can be value adding add-on to other marketing operations, for example customer care or user reviews. It can be used as a tool for building customer loyalty and receive customer feedback. (Hagel & Armstrong 1997).

Collaboration platforms provide a set of tools and an information environment for collaboration on a certain topic. In b2b world the companies are having membership or usage fees, whereas in b2c or c2c world the usage is often free, and revenues come from advertising. (Timmers 1999.)

The third-party marketplaces are often addition to businesses other existing channels, including physical outlets. At their simplest they work as a user interface to supplier's product categories. The third-party mall manager sets up an online version of the set of shops with a support for ordering and payments. Then each shop owner can enhance the basic web site and product offering with own promotions and brand enhancement. This business model is particularly beneficial to small businesses. (Timmers 1999.)

The assisted e-commerce kiosks often function on the base of the virtual mini mall or third-party marketplace business model. The problems of elderly population concerning the electronic services are surprisingly similar. The assisted e-commerce may create a platform for local small farmers and producers to sell their production without excessive bureaucracy. Also, the service and product variety could be improving, the availability of the products could increase.

3.4 Assisted e-commerce value chain

Porter (1985) divides value chain into core activities and supporting activities. The core activities include inbound and outbound logistics, operations, marketing and sales, and services. The supporting activities include firm infrastructure, HRM, technology development and procurement. The concept of value chain was primary dedicated to manufacturing firms to analyze physical flows of materials. Analyzing different stages allows managers to redefine processes and improve efficiency and effectiveness. (Porter, 1985).

The development of communication technology and increased importance of information flows have changed the value chain. Most significant factor has been the Internet, which has rapidly become the most powerful tool for enhancing operational effectiveness by speeding and easing the exchange of real time information (Porter, 2001). Traditional, physical value chain sees information as a supporting element for the value adding process, while information is the main object in the virtual value chain concept, as introduced by Rayport & Sviokla (1995). According to them, “virtual value chain consists of gathering, organizing, selecting, synthesizing and distributing of information” Rayport & Sviokla, 1995, 76). While the physical value chain is linear with a sequence of activities, virtual value chain is non-linear and enables potential inputs and outputs to access and distribute by a wide variety of channels. (Fletcher, Bell & McNaughton, 2004.)



Figure 13 E-commerce value chain (Plumley 2000, 21)

The Internet is predicted to expand the education opportunities and development, open the job markets, create new jobs and improve the health of people in general. The communication through the world wide web has developed rapidly and connected people across countries and societies. (DiMaggio & Hargittai, 2001, 3; Norris, 2001, 10.) The information technology and solutions based on it can be used in a variety of services and applied in various contexts. In the global scale, the information technology is applied to tackle the economic disparities of the people, income disparities as well as economic

applications, trade industry, science, communications, entertainment, culture etc. (Niniluoto, 1998, 9.). Also, as the digitalized services are often easily duplicated and scaled, the economies of scale are easily enabled for various services. Also, digitalization enables a whole new level of customization, quality and speed for services. Due to this the assisted e-commerce could potentially be a platform for a variety of services especially in the sparsely inhabited areas and provide a set of services which would not be viable to deliver in a physical form. (World Bank, 2016a, 31.)

The basic e-commerce buying cycle has four steps, namely

1. Need recognition
2. Information gathering
3. Evaluating information
4. Making a purchase

In the need recognition phase the customer identifies the need for a purchase. In e-commerce the buying cycle begins even before the first step of the cycle with customer seeking the website. The customer proceeds to the website which he believes to satisfy his needs. In this phase the user interface, including fonts, colours and visuals, is very important. The interface determines the first impression of the customer of the store. The assisted e-commerce platform may have direct links to the prompted partner services and websites, which in a way makes assisted e-commerce function more like traditional commerce. However, it is not limited just for prompted services but also enables the customers to seek the web on their own for their own preferences.

The information gathering phase is the phase when the customer is searching for the information related to the service or product of the interest. At this stage the website navigation is in an important role, which needs to be logical, easy and have a clear and visible structure, namely an index.

When making a purchase, the customer goes to the checkout and makes the purchase. The payment is not necessarily made at this point. At this point the website trustworthiness is at the core. The trustworthiness can be evaluated through following aspects:

- the ease for the customer to make the order, covering the whole process of making the order
- the means of the company to repeatedly fulfill the customers' orders in whole and fulfill their part of the agreement. (Bekker & van der Merwe 2003.)

At the information evaluation phase, the customer makes a comparison of the possible stores of making the purchase. A customer selects from where he wants to purchase and order the service or product. At this point the information at the website, its quality and quantity are at the tipping point of the customer's purchase decision. (Bekker & van der Merwe 2003.)

3.5 Assisted e-commerce in India

Assisted e-commerce as a service model has emerged in India to respond a need to bring the electronic services to the vast Indian population without the means to use the services on their own. Only a fraction of the Indian population is truly comfortable with using the Internet. The service model has been particularly developed to address the local problems, such as large and distant rural areas, cash-based society, illiteracy, lack of digital skills and electronic devices. Also, the high real estate cost is an issue in many areas in India and a solution, in which the products are shipped only after the order help to minimize the stock space. This also makes the assisted e-commerce service addition is side of shopkeepers' own activities rather easy. Although the service model is primarily targeted to b2c commerce, in India the b2b has also a steady base in assisted e-commerce platform. (DNA 2015b, Vishant 2015.)

One of the largest Indian e-tailers Flipkart has teamed up with Spice mobile company to provide the showroom for the mobile phones sold online and offer the customers assisted e-commerce service. Another major Indian e-commerce actor Snapdeal has launched a good 5000 assisted e-commerce kiosks across tier I and II cities across India. The assisted e-commerce pioneer iPay on the other hand has a major presence in the states of Andhra Pradesh and Telangana. Gradually the service model is spreading across the country and becoming a part of customer service palette for other e-commerce companies as well. (Vishant 2015.)

For the Indian e-commerce stores to reach the full potential in terms of size and scale it is necessary to improve the telecom infrastructure as well as improve population's digital literacy and awareness. The technological infrastructure in India is insufficient and the country ranks 91 out of 139 countries in terms of digital readiness (ITU 2016b). The smart phone penetration rate and the ability for electronic payments is still low in India, particularly in the rural areas. There is also a cultural factor of Indians, that even the literate and tech-savvy population may averse the self-service concept in digital services and would rather have a person providing the services for them. The main reasons for not making purchases online are no instant gratification, no touch and feel of the product and lack of awareness. The people accustomed to doing the online purchases are also commonly "showrooming" or going to the physical store for getting the touch and feel of a product and then purchasing it online. The information search online for the product specifications, price, user reviews, and comparison, has become rather common but the actual purchase is preferred to be made offline in a physical store. Cash on delivery (COD) is the most preferred method of payment in the e-commerce, although its popularity has started gradually decline following the demonetization measures in November 2016. Also, the electronic wallets, such as PayTM, have become more common, although their use is mostly limited to the large cities. The COD mechanism as such is reducing the e-

commerce's cost differential in online and offline sales, making the hybrid models more feasible. (Singh 2017.)

Recently the assisted e-commerce has spread more and more to the large cities of India, such as Delhi and Bangalore, where the physical stores have started integrating more omnichannel strategy with binding together digital aspect to the physical store. The sales staff is encouraged to drive traffic offline and the stores are integrated with television screens providing more information about the product, touch screens which allow the customers to browse for the product they are interested in and virtual games and raffles to win store and online discount coupons. There are also solely e-commerce companies which also have physical stores with limited selection of the products offered online for the buyers to authenticate their purchases. The customers can verify the quality and specifications of the product they are interested in and then proceed with the purchase online. The numerous laptops and touchscreens encourage the shoppers to make their purchase online. The people with none or little digital skills can go to such a showroom store and get the staff to order them a product they want. (Singh 2017.)

3.6 Comparison of Finland and India

Although the assisted e-commerce service model has emerged from the need to bring to the sphere of influence of e-commerce and digital services the vast population of India with poor prerequisites to use them, the model can be viable in the Finnish environment as well, in spite of rather marginal direct target group of digital dropouts. In spite of being developed for rural areas, it also fits in the urban context. The beauty of the assisted e-commerce service model is that it does not limit the service just to digital averse people but it can rather be expanded to provide remote digital services to the other consumers as well (Vishant 2015). There can be several scenarios when a person comfortable in the digital environment could resort to the assisted e-commerce kiosk, including the hardware and network problems, being on the road and having limited access to own devices etc.

As an environment, Finland and India are obviously very different, but the assisted e-commerce target group behaviour can be surprisingly similar in both countries. The following Table 2 is comparing the two countries in terms of digital development. The customer behaviour analysis is following later in this chapter. Finland has for years ranked globally high in the IDI ranking and the variance has been very little. India has a significantly lower ranking, but the ranking is on an improving trend thanks to the government's actions and campaigns to improve digital infrastructure and literacy.

Table 2 Comparison of Finland and India (ITU 2016b)

	Finland	India
ICT Development Index 2017 rank	22	134
ICT Development Index 2016 rank	21	138
Fixed-telephone subscriptions per 100 inhabitants	8.35	1.88
Mobile-cellular telephone subscriptions per 100 inhabitants	134.48	86.95
International Internet bandwidth per Internet user (Bit/s)	216391.39	15956.28
Percentage of households with computer	84.54	15.20
Percentage of households with Internet access	84.57	22.64
Mean years of schooling	11.20	6.30
Secondary stage education gross enrolment ratio	149.46	74.28
Tertiary stage education gross enrolment ratio	87.29	25.54

The fixed telephone subscription percentage is low both in Finland and India. In Finland the fixed subscription rate has been high, but the more developed and fast mobile connections have spread rapidly to the country and practically replaced the landline connections. Still, the landline phones remain in use in some companies and at homes of the elderly population, in spite of higher cost and constant push from the operators to migrate to mobile connections. In India the fixed telephone subscription rate is low, as the infrastructure is inadequate, and people have often directly jumped to the mobile connections skipping the need for own landline phone.

The largest disparity in numbers is in the percentage of households with computer and Internet in the households. While in Finland the numbers are rather high and similar in these two categories, in India a mere fifth of the household has Internet access and only 15 percent has a computer. The gap in numbers is explained by the leap directly to mobile devices, namely smartphones skipping the need for a computer.

In terms of education, there are also some significant differences. First, the schooling years in Finland are almost the double to what they are in India. The degree of secondary education in India is rather high, but the number in Finland is almost a double due to free education and studying several degrees due to it. The education gap explodes at the tertiary level, where in India only a quarter of the students proceed to the tertiary level. In

Finland the degree of students that continue their education after secondary level is among the highest in the world, to large extent because the master's degree studies are classified to this level, and students proceeding to secondary level of studies usually finish the tertiary level as well.

What comes to the assisted e-commerce, the target groups in India and Finland are similar only in the way, that they are digital dropouts. In India the group of digital dropouts is massive, as the majority of Indians is still not comfortable using the Internet. Also, many Indians live out of reach of the mobile connections and lack the hardware needed to use the Internet. In Finland the target group is mostly the elderly, which is a growing group, and the outcasts of the society. Also, the growing number of immigrants can be within the target group, as many people arriving have poor IT skills and also the language barrier can cause problems when using services tailored for Finnish environment, as the services are often provided in the basic palette of languages of Finnish, Swedish and English. While in India the assisted e-commerce is primarily aiming to improve the availability of digital services, in Finland the goal would rather be improving the usability of the provided digital services. Also, as the targeted elderly and other digital dropouts are often the most digitally averse people, the attitudes towards using the service should be influenced and information shared. (ITU 2017d.)

In India the government is strongly supporting and subsidizing the improvement of digital infrastructure and literacy working on them under a Digital India umbrella program. In Finland the infrastructure is there, but there are still people groups who select not to use the Internet. Finland and India can be seen similar in a way, that both have distant rural areas, although the scale of distances is different. While in India there are vast distant and difficult to reach regions, in Finland the problem is small population and concentration to southern Finland. Also, in terms of payment there are some similarities. India is to a large extent a cash-based society. Finland has readiness to use electronic money pretty much everywhere, but still there are people groups, especially the elderly, who prefer to use cash at their all or at least most transactions.

In India in 2015 circa 350 million people did not have mobile connectivity and less than a third of the rural population had access to 3G network (ITU 2016a). When in India the limited Internet access is more of a rule than exception, in Finland the 4G network is covering most of the country leaving out only some hard to reach areas and sparsely populated areas. In 2016 88 percent of the Finnish population of the age under 55 was using the Internet, when in the age group of over 65-year-old, there was half a million people living without Internet and digital services (Statistics Finland 2016). Also, 400 000 people were not having an electronic bank ID (Valli 2017). Although the direct target group in Finland is rather small, it is still a group of people that needs to get the digitalized services delivered. Also, the assisted e-commerce is beneficial to other people groups as

well and can be utilized practically by anyone visiting the location with assisted e-commerce kiosk.

The assisted e-commerce target customer group has similar behaviours in Finland and India, as in India there are people aversing the self-service concept of digital services and who like to have a person dedicated for their service. They also like to showroom before making the purchase (Singh 2017). In Finland the similar attitude can be seen among the elderly, as they usually prefer and even demand to operate with a physical person although there is a faster and cheaper digital option available. Also, they prefer to get the touch and feel of the product they are about to buy before doing the transaction.

The communication between people and the relevant information acquired from the retailer are an integral part of purchase decision. The Finnish people in general have wide exposure to digital services, which is why the consumers, also the ones not so familiar with ICT, have high expectations and demand for quality of the digital services. The consumers expect to find the services and products they need in the digital format with ease, fast and using simple tools. One way to assist the customer in their online journey is virtual conference. One form of such conference is the chat option on the website, which instantly connects the consumer with an available customer service representative. The next and more advanced form of a chat service is a video assistant. The goal of such virtual conferencing tools is to enhance user experience and support the customer in the purchase decision. (Lohiniva 2015.)

Most of the brick and mortar stores have some sort of website and presence in social media. With virtual conferencing tools the brick and mortar store can easily extend their services to the virtual tools already in use by them. For example, the customer of the company can contact a company representative via company's Facebook page, where the retailer or company's representative can present the products and services of the company and answer the customer's questions. This enables retailing the company's products without a separate e-store and it also provides customers with product information relevant to them. (Lohiniva 2015.)

According to Lohiniva (2015) the video conferencing solutions are especially well suited for the companies for which the traditional webstore model is not viable due to their inventory turnover or complexity of their product. With digital conferencing tools the web retail opportunities can be utilized although the traditional webstore model would not be viable in own business model.

In e-commerce the purchased products are usually rather trivial (Luoma 2015). As the complexity of the product increases, so increases also the customer doubt for the purchase. With virtual conferencing the retailer can provide exactly the information the customer requires to support the purchase decision. Also, the consultation from the retailer's side brings added value to the customer and enhances the purchase experience. In virtual conferences the retailer and customer can not only engage in the communication via chat

or video, but also the retailer can share the view on his screen and so browse the products and other company content with the customer. Although digitalization is reshaping the communication between people, the need to communicate with other human being seems to stay present. Especially important this is in finalizing the purchase decision. Virtual conferencing is an easy tool for building a two-side communication between the retailer and the customer. The assisted e-commerce is a natural next step for assisting the customers with the online services, combining the existing virtual assistance tools and adding a personal aspect to the assistance. (Lohiniva 2015, Luoma 2015.)

Assisted e-commerce as a concept has evolved on top of the more traditional e-commerce and m-commerce in order to bring the digital assortment of companies to the hands of a digital outcast. Initially created for solving the problem with lack of digital equipment or skills, assisted e-commerce also acts as a solution for people needing the confirmation from another person in their digital transactions and as a mediator for trust in the transaction. While the infrastructural and skills related issues can be a hindrance to digital service use in India, the core hindrance for digital service adoption in Finland is rather trust and personal reluctance. The concept is not only concentrated in selling products or services, but is rather a platform for a virtual mini mall with customer service from real assistants at hand. Virtual or physical human agent facilitates the use of assisted e-commerce kiosk, which can comply of several e-commerce models. Following chapters will dig deeper in the core of assisted e-commerce through interviews of concept developers in India and hear the attitudes of elderly people in Finland towards a theoretical assisted e-commerce kiosk.

4 EMPIRICAL RESEARCH METHODOLOGY

4.1 Research approach

As the concept of assisted e-commerce is rather new, unexplored and so far, applied to reality only in India, I decided to make a qualitative research on the topic. Qualitative data is described as non-numeric information that can include transcripts of an interview or entire policy documents. This gathered information is then analyzed to understand the purposes. Creswell (1994) states that qualitative research is an unfolding research model where researchers are highly involved to gain new experiences and based on that experience come to the conclusions. The area of qualitative research is unpredictable and therefore demands flexibility during the study project. Certain analysis procedures assist analyses and several tools can be found in qualitative research literature. Qualitative research will never be a success, unless the amount of information is processed as a theory. (Saunders, Lewis & Thornhill 2009, 480) The samples in qualitative research are small and selected purposely to generate useful data for the research (Patton & Cochran 2002). According to Strauss and Corbin (1998) qualitative studies are used to explain topics like lived experiences of the research objects, behaviours, feelings, organizational functioning and cultural phenomena. They help to dig in the core of what people are thinking and the nature of experiences. This research is basing strongly on recognizing the opinions of the elderly people in Finland towards digital service models and predicting, what kind of variation of assisted e-commerce service model would suit Finnish environment.

Qualitative research can cover a variety of different areas including case study, phenomenological study, ethnography study, content analysis and grounded theory study (Leedy & Ormrod, 2001). There are two main ways to conduct a qualitative research; the deductive and inductive. Deductive approach means, that there is an already existing theory to shape research objectives and questions. In this approach, beginning of the study can be utilized with the help of existing data or frameworks, which helps to organize data analysis further in the research process. The second approach is inductive, in which the data collection is started before getting information on what the final result is. During the study the final subject becomes eventually clearer, as the research goes on. The theory essentially emerges from the data collection process. (Saunders, Lewis & Thornhill 2009, 490)

The objective of this study is to generate better knowledge on the concept of assisted e-commerce and at the same time gain knowledge on how the digital gap between elderly and young people could be gapped with assisted e-commerce. The empirical study aims to find out the attitudes, interest and obstacles for use of elderly Finns towards digital

services and a concept of assisted e-commerce. Following operationalization chart elaborates the structure of the research framework.

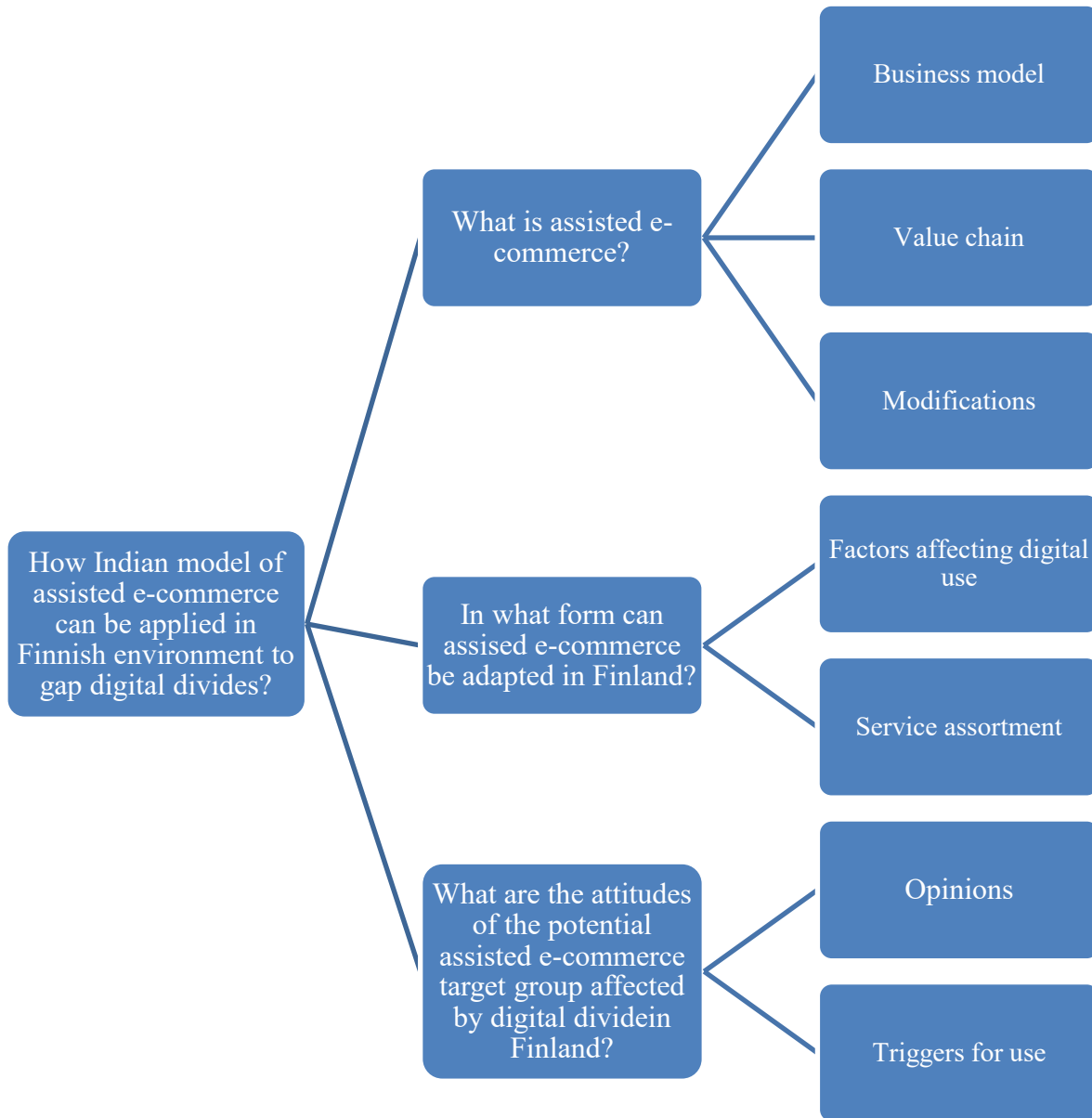


Figure 14 Operationalization of research question

In this study the definition of assisted e-commerce will be cleared by interviewing assisted e-commerce developers in India. The developers will provide their insights on the business model of assisted e-commerce and its value chain. Their insights will also be used to get an understanding in which form the service could be modified for Finland. The research aims to find how the service should be modified in order to bridge digital divides in Finland. The research is considering the end user and the service developers' points of view. The potential end users in Finland will provide insights on the attitudes

and opinions towards digital service platforms and their perception on an assisted digital model.

I have interviewed the major contributors of assisted e-commerce development Mr. Bharath Bhusan from the company iPay and Mr. Jayakrishnan Rajgalopan from the company mVirkarsha. The goal of the thematical interviews were conducted in order to get better understanding on the assisted e-commerce as a model and the extent to which the service model could be modified.

4.2 Data collection

The first step in the research is identifying, whether the research question can be answered with qualitative or quantitative methods. Qualitative research question requires qualitative methods. Samples in qualitative research are usually selected purposefully so that they will likely generate the data for the research question. Sample sizes are small. (Patton & Cochran 2002.) Qualitative research focuses on exploring smaller numbers of instances or examples as compared to quantitative approach. The most common data collection methods are interviews, surveys, observations and information gathering from various documents. These methods may be used alone or together, depending on the research. (Tuomi & Sarajärvi 2009, Blaxter 2010) I have selected a qualitative approach in this research in order to acquire relevant knowledge in my target audience's attitudes towards potential assisted e-commerce service offerings in Finland as well as gaining deeper knowledge on the assisted e-commerce service model and possible adaptations from the service practitioners in India.

In live interviews the interviewees give honest answer as it takes less time and less interaction with a surveyor. Sometimes, respondents may get confused when the interviewer asks the question in a different way or rephrases. Email interview has some disadvantages as compared to live interviews, main being that it gives time to the interviewee to work on his answer rather than give a spontaneous response. In this thesis I am using solely interviews, conducted face to face and via virtual tools of communication. For this thesis I have collected the empirical data with interviews conducted by e-mail, Skype as well as face-to-face. In India the interest group was assisted e-commerce actors and developers, which there are just a few currently. In Finland the interest group was the elderly people in the countryside. The interviews among them were targeted to people aged 64+ years. The interview questions for both target groups can be seen in the attachments.

The target group for interviews was the assisted e-commerce developers and the potential users in Finland. The interviewees for the developers' point of view were found by first mapping companies involved with assisted e-commerce and are active presenting the assisted e-commerce concept online in articles. For the moment of February 2016

found online four companies which are offering the assisted e-commerce as a part of their service palette. Sending the interview requests to all four companies' contact persons by e-mail, two weeks of correspondence yielded three companies interested in providing their insights on the topic, eventually reducing to two of the companies' representatives ready to give interview, Mr. Bhusan from iPay and Mr. Rajgalopan from mVikarsha. Both of the interviewees are co-founders of assisted e-commerce companies and active developers of the service model, thus having the information to share on the service model and its target audience. The interviewees I have chosen are active developers of the assisted e-commerce service and they also have been in the core of the service's development.

The interview with Mr. Bhusan from iPay was conducted by e-mail. Due to the time difference and tight schedules we agreed on the interview in written form with a possibility of stating follow up questions on the topic. The interview was agreed on in the written negotiations via e-mail after academic background of the research had been proved and purpose of the interview was defined to have no commercial interest. The questions sent on 23rd February 2016 were regarding the technical possibilities and modifications that can be made in the assisted e-commerce as a service as well as the practicalities related to the service. The questions targeted to define the assisted e-commerce as a concept and to what kinds of services can it be spread to. The response was received after five days, on 27th February 2017. Both the questions and answers were in English.

The interview with Mr. Rajgalopan from mVikarsha was done via Skype call on 11th of May 2016. The initial contacting and scheduling of the interview were made via social media contact in LinkedIn. In my initial contacts I had presented the theme of my thesis and requested for the interview. Mr. Rajgalopan kindly agreed, but at the end the scheduling took a while. Eventually, the theme interview was made via Skype voice call. During the call there were few connection problems interrupting the call. Total interview duration was 88 minutes and it was conducted in English.

The potential in Finland is among the elderly people, who tend to be the ones affected with digital divide in industrialized countries. The goal of thematical interviews was to find out the attitudes towards digital services and the current extent of use of digital services in the target group's everyday life. For discovering what kind of changes and adaptations to the assisted e-commerce service model need to be done in order to make the model useful in the Finnish environment, ten theme interviews have been conducted anonymously on local elderly citizens with age ranging from 64 to 76 in the village of Pertunmaa in Eastern Finland at a busy supermarket location on Sunday afternoon on 8th April 2017. Following table summarizes the interviews.

Table 3 Interviews in Pertunmaa on April 2017

interview group size	gender	age	duration
1	male	68	11 minutes
2	male	71	7 minutes
2	male	74	12 minutes
3	male	71	15 minutes
3	male	74	15 minutes
1	male	76	5 minutes
1	female	64	6 minutes
3	female	70	5 minutes
1	female	74	5 minutes
1	female	71	11 minutes

In the interviews the questions aimed to map the opinions towards technology, their current use of information technology, computers and mobile devices and possible effects of the assisted e-commerce service on the potential users' lives. As can be seen in Table 3, male respondents tend to give longer responses. The interviewed people were chosen randomly from the elderly supermarket visitors, as they are perceived as the potential target users of the assisted e-commerce service in Finland. The questions also aimed to find out the attitudes towards a potential service similar to assisted e-commerce kiosk. All the interviews were conducted in Finnish and the people were interviewed separately or in small groups.

4.3 Data analysis

As the information has been gathered in forms of the interviews, I am using rhetorical analysis as a part of my research methodology for analyzing the attitudes of the potential target users of the assisted e-commerce services in Finland. The rhetorical analysis is made through analyzing interviewees' ethos, point of view, style, appeals to authority and story. Ethos is reflecting the moral background of the speaker, his confidence and presentation of the message. The point of view reflects the background, from which the speaker is making a point. Speaker's style is covering the word selection, speaking style and presentation. Authority appeals are the justification base for the point. The story covers the actors and consequence of the story. (McCloskey 1994.)

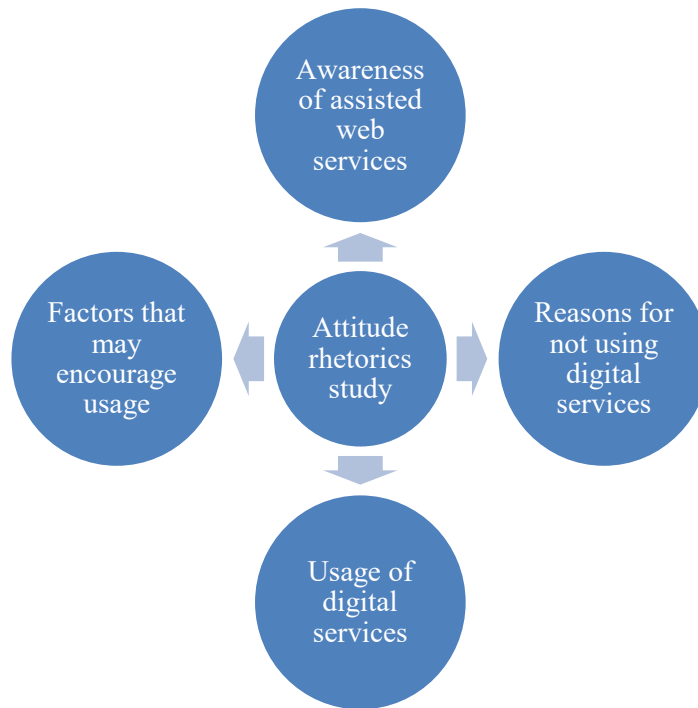


Figure 15 The structure of user surveys

The interviews in Finland are analyzed for the rhetoric in order to analyze the attitudes of the interviewees. The analysis is made for ethos, point of view, style, appeals to authority and story. The ethos is referring to the moral background of the speaker, his appearance as speaking and confidence. Point of view is portraying the base from which the comments are made. Style of speech is revealing attitudes through word choices. Appeals to authority are the argumentation base of the statement. Story includes the actors of the statement as well as the chronological sequence. (McCloskey 1994.)

The data has been analyzed by mirroring the empirical findings to theoretical framework, as well as to previous articles written on the assisted e-commerce service model. As the interview was conducted in written form the literation of the interview was not needed.

In the qualitative research the research topics are often new and lack extensive research. In my paper the goal is conceptualize the assisted e-commerce business model. For this the qualitative research is a suitable research method, as the concept is only few years old and there is no unified definition available to the concept. (Eskola & Suoranta 2008.) This perfectly portrays the first sub-question of this thesis, the core of assisted e-commerce service model to which the Indian developers provided their insights.

Based on the information gathered in thematical interviews a complete picture of the assisted e-commerce service model has been created and the extent to which the model can be modified in order to fit other environments than just Indian has been defined. In the assisted e-commerce developers interviews the answers have been analyzed through the four steps of e-commerce cycle presented by Bekker & van der Merwe (2003) in order

to clarify, how the service works and how the service could be modified in different phases of the cycle. The e-commerce cycle steps are following:

- (0.) Website search
 1. Need recognition
 2. Information gathering
 3. Evaluating information
 4. Making a purchase (Bekker & van der Merwe 2003, 155)

After collecting a clear understanding on flexibility of the assisted e-commerce service model, the potential users of the service in Finland will be interviewed and their rhetorics, analyzed and mirrored to the interview length and gender of the interviewees in order to understand their attitudes towards using digital services with physical assistant or a digital kiosk as such.

4.4 Evaluation of the research

Instead of evaluating qualitative researches for reliability and validity of findings, the qualitative studies are rather evaluated for trustworthiness. While qualitative research has its focus in objectivism, qualitative researches resort to relativistic approach of many experienced realities. Goal of the qualitative research is to present a certain point of view on the phenomenon. (Kvale 1989, Tynjälä 1991, 387-388.) According to Lincoln and Guba (1985) trustworthiness of qualitative researches cannot be evaluated by the same criteria as for quantitative researches. Trustworthiness requires credibility, transferability, dependability and confirmability. (Lincoln & Guba 1985, 301-331.)

Credibility refers to how well the researcher can prove the truth of the findings emerged from the research process (Lincoln & Guba 1985, 301- 316). In this research the credibility has been established by first generating a good basic knowledge on the topic of digital divide and development of e-commerce business models from the academic publications. The interviewees were interviewed against this background. The used research methods have given space to the interviewees to express freely their opinion. Due to the long distance there was no point in face-to-face interviews with the developers. The primary goal was to conduct the interviews with videocall via Skype, as it is the closest to the live face-to-face interview and discuss the assisted e-commerce service model and which services could it provide in future. Due to the tight schedules of the interviewees, the other interview was eventually conducted in written form by e-mail. The e-mail interview gives more time for the respondent to think on the answers, but as the topic was rather general, the longer response time should not affect the results in any significant way. The interviews were done with open questions, which allowed the interviewees to express their opinions. The goal of the thematical interviews in Finland was to find out

the current use of the digital services of the interviewees, awareness of assisted digital services, attitudes towards them and possible factors that would encourage them to use the services. The interviews in Finland were conducted by the local supermarket, so the interviewees may have had time restraints when being interviewed. Also, people tend to have doubts about strangers approaching them on streets, to which a relief was that the researcher presented herself being from university. Also, another confidence building fact is that a researcher is local and although was not directly acquaintance to any of the interviewees, the name was building confidence between the interviewer and the interviewee. As similar themes have emerged throughout the interviews in both developer and user interviews, the results can be treated as credible. Direct interview quotes have been used in the empirical part of this thesis to portray the findings.

Lincoln and Guba's (1985, 316) transferability of findings means that the generalizations based on the research are dependent also on the similarity of the environment of the application. The researcher alone cannot make decisions on generalization, it must rather be made by the party using the findings. This is why the researcher needs to have sufficient documentation on the research and materials in order for the reader to be able to evaluate the transferability of findings to context other than described (Tynjälä 1991, 390). In this research the transferability has been considered by documenting thoroughly the interviews and the data collecting process.

Dependability in qualitative research is based on the reliability of the study (Lincoln & Guba 1985, 317). In quantitative studies the base assumption is, that a similar research in original conditions would generate similar outcomes although conducted at different time period. In qualitative research the similar outcomes are not the core, as the goal is to portray multiple realities. Also, changes in the researcher, research environment or studied phenomenon may occur, thus making it impossible to standardize the outcomes (Tynjälä 1991, 391). The theory part of this thesis provides a deeper outlook on the digital divide framework, although the interviews have been conducted all in the same location. Although the research samples are small, the results can be seen credible as the location for the interviews in Finland is rather typical for the Finnish sparsely inhabited areas, so the results can be expected to be applicable in another similar environment. Also, the goal was not to gather everyone's opinions rather to create a common understanding on the attitudes of a certain group of people towards digital services. The assisted e-commerce concept is also considered from the larger point of view as a natural step in e-commerce service model evolution, rather than just stick to the point of view of two interviewed companies. As the business model is new, the best source of information is the people developing the concept.

Confirmability describes a degree of neutrality of the research or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest (Lincoln & Guba 1985, 318). Qualitative research is difficult to conduct

completely as an outsider. The neutrality is achieved through credibility and transferability. (Tynjälä 1991, 392.) The research process has been described thoroughly in order for the reader to be able to evaluate the neutrality of the research. The research approach has been presented as a reasoning for the research choices made in this study. Direct quotes give reader a link to follow the researcher's extrapolating.

The assisted e-commerce developers and actors were difficult to reach due to differences in time zones and distance, as well as tight schedules of high rank professionals. Eventually an interview was arranged with a leading contributor of the company iPay operating primarily in Hyderabad, India. For the research was interviewed a high-class professional who has been involved in developing the assisted e-commerce concept and being a co-founder of a company, which has patented the assisted e-commerce service model in India. The other interviewee from the company mVikarsha is also a co-founder of a company operating the assisted e-commerce service model in India. The questions were general about service use and its potential to modifying, so there should not be difficult topics or secret information, which could affect the answers and honesty. Also, academic base of the research has been provided in order to exclude possibility of research being conducted by a competing company. As the interviewees are representatives of their companies, it is safe to assume that their answers are also influenced by their role. It is more than likely that the interviewees have provided answers especially from their company's point of view and provided a maximum positive view on their own company.

The written interview method could affect the answers by giving the interviewed excessive time to consider his answers. On the other hand, the written interview can give more time to consider the answers and thus make them more accurate and considered as compared to real-time interviews.

The potential end users for the assisted e-commerce service in Finland were identified as the elderly people primarily in the rural areas. The interviewees were selected randomly by the look from the passing by people. As the questions were dealing with the interviewees' general opinion, the answers should be truthful as well. Also, there should be no issue with mistrust. The delimitation is, that in the spontaneous communication people have less time to think about their answers and they seldom can come up with their best answer right ahead without further thinking. However, in this kind of research where the aim is to discover people's opinions, such delimitation can actually benefit the cause and provide more sincere reactions and answers.

The Finnish interviewees had often very emotional reaction and response on the technology topic, which at times made it difficult to stick solely to the interview topic and get the information the interview was originally targeted for. However, the responses were good at reflecting the attitudes of the elderly people towards new technologies and the major hindrances for applying the assisted e-commerce model in the Finnish environment.

As the assisted web services lack extensive research on the topic, the assisted e-commerce service model presented in this paper is compiled based on the public sources and interviews from the service model developers. The developers essentially represent the company they are operating into; thus, their opinions and statements are strongly embedded in their own company's culture and aim to present themselves in the best way possible.

What comes to the interviews among the assisted e-commerce target group in Finland, the interviewed population is obviously too small to draw any generalizations. Still the interviews provide a cross-section of the target group and their opinions and attitudes towards digitalization and virtual services.

5 ASSISTED E-COMMERCE AND ATTITUDES OF ELDERLY FINNS

5.1 Assisted e-commerce model developers

The company which representative reached for the interview, iPay is one of the leading assisted e-commerce providers in India. Operating mostly in Southern India, in tier 3 and 4 cities, iPay has presented several improvements to the service. In 2005 iPay has presented Assisted Hybrid E-commerce, which enables to large extent the transactions with cash in different service operations. iPay also has a patent for the hybrid model with virtual kiosk, ensuring their market dominance in the area of assisted e-commerce. (iPay 2015.) The other interviewee was from the company mVikarsha, which is a focusing on providing products and services through their assisted e-commerce marketplace to the technologically challenged customers mainly in Southern India (mVikarsha 2016).

5.1.1 Content of the service

As the assisted e-commerce concept is rather new, the service content descriptions are not united and vary depending on the source. This interview has attempted to create a clearer picture of the assisted e-commerce service model content.

The key enabler has been the telecom and internet connectivity outside the Tier 1 /2 cities. (Bharath Bhusan, iPay)

One of the keys to enabling the assisted e-commerce service's existence is improvement of the mobile networks in India. As the service is to large extent based on the connectivity to Internet, the improvement in the network access has been a key issue in emergence and utilization of the concept. As the network coverage spreads from larger cities to smaller centres, the network-based services can be used to bridge the digital divides.

Also, Bharath states that in addition to ease of use a competitive advantage for the assisted e-commerce services is their trust issue. While normally in electronic commerce the customer has to take the risk of choosing the reliable vendor and providing him with the essential information, in assisted e-commerce the responsibility is to large extent transferred to the assisted e-commerce agent.

The buyers have the assurance that they will have a return policy and warranty. (Jayakrishnan Rajgalopan, mVikarsha)

Rajgalopan also stated, that the local offering of merchandise in rural areas is often unbranded products of poor quality. With assisted e-commerce the consumers can browse through the branded products and access the products from their doorstep without the

need to travel to large cities or metropolises. Another vital factor for the service users is the possibility of cash payments.

*So that the consumers in rural markets could understand what brand offers in urban cities. *...* The merchandise offering is why we started initially the offering. (Jayakrishnan Rajgalopan, mVikarsha)*

According to Bhusan, almost everything can be sold through assisted e-commerce platform, ranging from different services, such as insurances, digital commerce, such as mobile bills and physical products, including a variety of products. Rajgalopan stated, that the consumers have two sets of service offerings first one being digital services and second the merchandise sales. The digital services are to large extent mobile recharges and services. Some companies also offer financial services, such as banking and loans.

The second offering is the merchandise offering, which is the initial primus motor of starting the service model.

The main benefit for the product sellers in the service model is the access to new people groups, particularly in rural areas. The main benefit for the consumers, particularly in the Indian concept is trustworthiness and convenience of the operation, as well as local presence.

Price would be the most important factor. (Bharath Bhusan, iPay)

Rajgalopan explained, that at the initial point of setting up the assisted e-commerce kiosks the market was researched for the price point of the consumers, their purchase power and brand, quality and service offering requests. Based on that feedback the merchants and suppliers were acquired for a kiosk in the area. According to Bhusan the product price is the main factor triggering the purchase, followed by product characteristics. As a background factor, also the trustworthiness can be seen as a contributor to the sale. Assisted e-commerce provides possible discounts and offerings that are only available in the web stores to the offline buyers.

The final goal (of the service) I would say is to leverage the local presence of the agent or retailer to move any product or service profitably to end customers. (Bharath Bhusan, iPay)

Eventually the people who have used the assisted e-commerce have more courage to try the web on their own. (Jayakrishnan Rajgalopan, mVikarsha)

The goal of assisted e-commerce is to empower the people in the area. This is risky, in terms that it can be loss in business sense, as people get more accustomed to purchasing online. However, the main goal is to empower the people and gain societal improvements. The shopkeeper agents are benefiting from intermediating the assisted e-commerce kiosk as they get a unique possibility to become a multi-brand retailer which would not normally be possible, as the branded stores in India are often built around one single brand. For assisted e-commerce setup the shopkeeper needs to be educated for using and operate

the service. Then, the resources, being power needed to run the mobile, tablet or a computer for the kiosk along with the Internet connection and data package need to be provided from the shopkeepers' side.

Typically, the delivery is done within 24-48 hours in Tier 1 cities and 4-5 days outside of these areas. (Bharath Bhusan, iPay)

Bhusan did not comment on whether the delivery time is different from the regular e-commerce purchases. However, as stated previously the delivery time does not seem to be the top priority in the rural areas, whereas the main point is just the availability of the certain product. As Rajgalopan said, the alternative for the consumers is to travel to the city or metropolitan area to go to the branded store. Even then there is a problem with limited offering, as the selection is limited only to the specific store's stock and the problems with warranty and return policy, which would require a similar trip to the store.

5.1.2 Space for modifications

The digitalization is currently used mostly for the repeatable and relatively simple conveyor belt type of work. In future, however, with the development of technology and artificial intelligence, more and more services can be digitalized. The benefit of the digitalization is the better accuracy and efficiency of the technology compared to people. This does not mean that every service can be digitalized, but in many cases the digitalization can work as an enabler for several services, for example legal or medical help. These examples cannot be completely replaced with digitalization, but rather the service can be extended to distance consulting and thus provide the service more flexibly without areal restriction. (Fuchs 2016).

Next we are introducing the financial services to the service model. (Jaya-krishnan Rajgalopan, mVikarsha)

Any service that can be digitalized could be implemented. (Bharath Bhusan, iPay)

The current actors in the field of the assisted e-commerce are increasingly expanding their offering towards digital services rather than merchandise sales. Although selling merchandise has been the initial power for starting the service, the new services offered can be financial or related to health consultancy. Globally the remote health consultancy is an emerging trend which is aiming to provide better healthcare and collect more data from the patients in order to prevent the diseases rather than just provide aid to the current ones. For example, the IBM owned company Merge Healthcare is developing a digital medical consultant on the base of the IBM Watson Healthcare artificial intelligence machine. The machine is searching the vast pools with medical information, diagnoses and

personal data to diagnose cancers and tumors. Based on the data, the machine comes up with diagnosis and provide healthcare advice and recommendations for medical health. Currently the machine has been tested in India and the major problem seems to be the vast amount of variations in tumors due to possible mutations, which interferes seriously with correct automatized diagnosing. (IBM Watson Health 2018). However, the technology is developing for the automated diagnosing. For current use, the distanced medical consultation is realistic, viable and user-friendly option which could be relatively easily be integrated to assisted e-commerce kiosks with the consideration of personal information integrity. The chat services with doctors for consultations are already in use, but the service is provided at solely personal devices which can be difficult to use by the technically inexperienced users. Also, the video call opportunity could be an improvement for better user experience and more through medical consultancy.

This is still in existence even though customers can make payments themselves online. (Bharath Bhusan, iPay)

What comes to the content of the service model, it seems that a variety of services and products can be integrated to the platform. However, Bhusan states that the municipal service counters as well as services which can be performed online but are instead using a physical agent are also, in a way, forms of assisted e-commerce. In total, the products offered can be modified to respond best to the needs of local population and services already offered in the area.

Assisted ecommerce is helping connect customers with Brands. (Bharath Bhusan, iPay)

The service is not only providing the customers with larger variety of products but also connects the consumers to brands providing them access to the products that used to be out of their reach. Depending on the use area the stressed services and offers can be designed to generate the most efficient social improvements in the area.

The agents need to only mention about the products or services to those customers who walk in. (Bharath Bhusan, iPay)

According to Bhusan the management of assisted e-commerce takes minimal resources from the side of the operation agent. This gives the agents opportunity to increase their income, attract more customers to their store as well as sell more without additional investments to the inventory. The assisted e-commerce terminals can be either completely agent-managed or the agent can be enabler for the service leaving however plenty of space for the service users to utilize the platform. As the assisted e-commerce addition to a physical store does not take excessive resources providing simultaneously an additional source of income, the service model can be relatively easily integrated to different stores and facilities already functioning in the target area.

Assisted ecommerce complements the physical stores business. (Bharath Bhusan, iPay)

The shop keepers engage in up selling or cross selling. (Jayakrishnan Rajgalopan, mVikarsha)

Assisted e-commerce can be used to complement the existing products and services sold at a physical store. According to Bhusan there is no direct competition, as usually the products offered through assisted e-commerce are not available in the area otherwise. However, there might be indirect competition, which is resulted by larger assortment. According to Rajgalopan, the clientele is acquired either by promoting the service to walk-in customers or with help of various roadside campaigns.

In addition to provision of commercial products and services, the assisted e-commerce kiosks could be used as a gateway to social media, which already has become an important service and information channel especially in sparsely inhabited areas. Social media has become a platform for connecting people for example in a village for information sharing and communicating. For example, in the municipality of Pyhäjoki, in Northern Savonia, the Facebook has been a popular platform for sharing local news, discussing local hot topics, second hand sales, service advertising and sharing old photographs (Korkala 2016). The assisted e-commerce kiosks could help the users to find such local information sharing pools and platforms along with providing support for social media use. This should also be coordinated with the digital strategy of the municipality, which in turn suggests that the municipalities should have the digital strategy to start on.

5.2 Attitudes of target group in Finland

The digital dropouts in Finland are usually the elderly people, people living in rural areas, unemployed, outcasts, immigrants and people with low level of education. The interviewed people were ten randomly selected local by passers at busy supermarket location in centre of Pertunmaa village, located in Eastern Finland. Pertunmaa has a population of mere 1800 people (Pertunmaan kunta 2017). The demographical distribution is pictured below. As shown in Figure 16, the elderly population of the age over 65 years in the centre of the study accounts for a good third of the whole population. The interview respondents were aged 64 to 76 years, a group of people in Finland who are identified to be most likely to left behind in the digital revolution and despite having ease and sometimes free access to the Internet and digital services, choose not to engage in ICT. 60 percent of the respondents were males and 40 females.

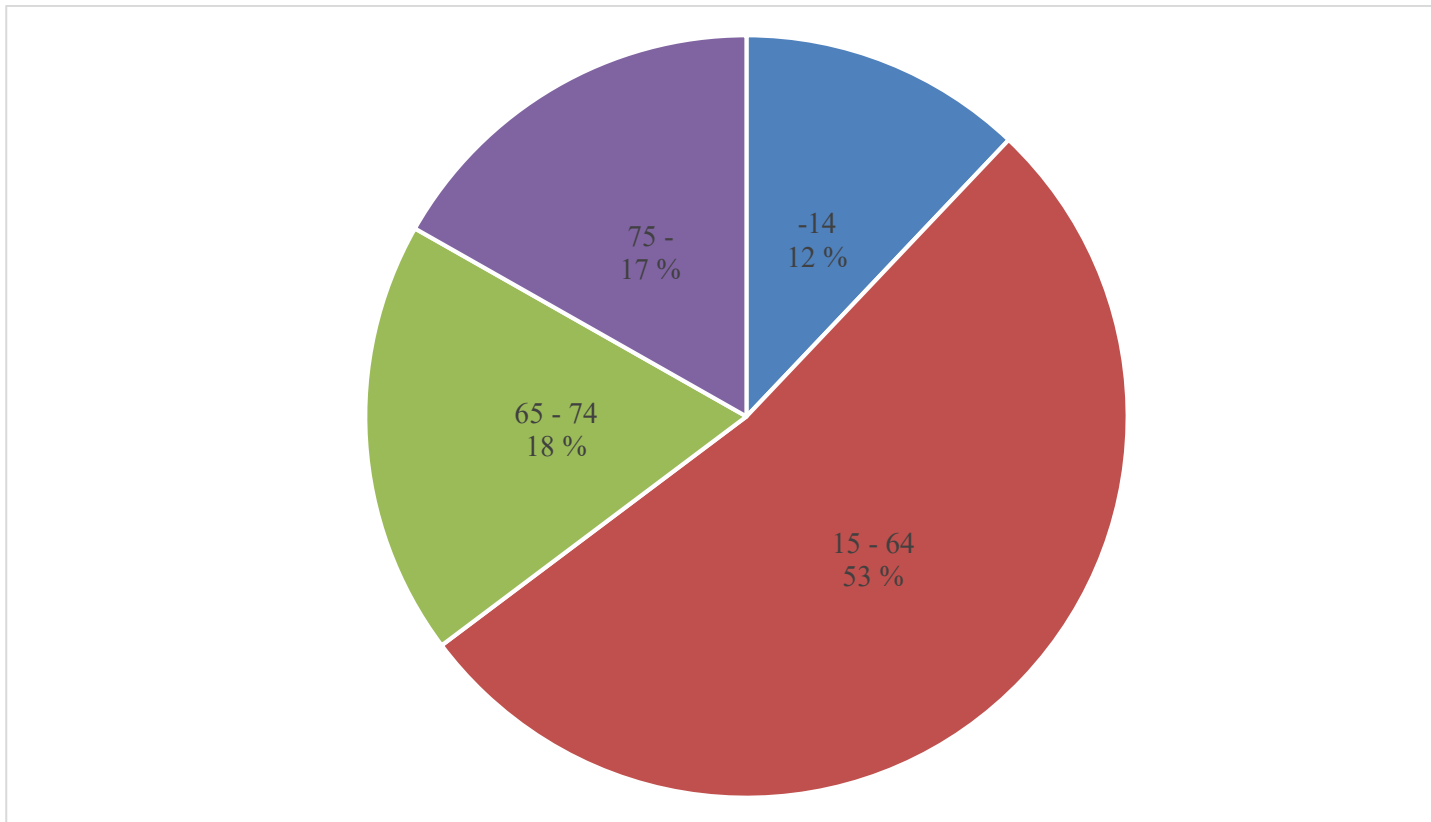


Figure 16 Demographics of Pertunmaa (Tilastokeskus 2017)

The network coverage in Pertunmaa is strong. The major phone operators are covering the whole community with at least 3.5G network, most of it being 4G. Only the most difficult to reach locations with geographical obstacles such as dense forest or rock formations have poorer connectivity. (Viestintävirasto 2018) Also the optical fibre connections are widespread. In spite of having good IT infrastructure, the assisted digital services do not enjoy high popularity among the elderly. The library has free Internet using facilities and there are several free courses teaching the use of mobile devices. Still, the usage of these services is remaining low.

5.2.1 *Current use of digital services*

The people not using digital services can be roughly divided into following categories:

- people who used the Internet before but do not use it anymore
- net evaders
- the “truly disconnected”

The people who used the Internet before and do not use it anymore are often people who have been using the Internet at work and since retiring or quitting the job have seen no other than professional use to the Internet. The net evaders are the people who

reluctantly use the Internet for example for paying the bills in an Internet bank. Also, under this category fall the people who do the Internet searches and use digital services via their family members or other helpful people. The truly disconnected have no direct or indirect experience with Internet. (Lenhart et al. 2003.)

Out of the people I interviewed, seven owned a smartphone, six had a computer at home and three owned a tablet device. The question was, which hardware; namely computer, tablet and smartphone; for using the Internet they have and whether they use it or not.

Oh, I don't understand anything about those machines (mobile devices). (male 68 years)

I don't need that machine (computer) for anything. (female 64 years)

I pay the bills... and sometimes read some news. I'm not that interested in that thing (computer). (male 71 years)

My relatives bought it to me but I don't usually use it (tablet). (female 70 years)

My children and grandchildren use it (computer) when they come for visit. I'm not that interested in it. (female 74 years)

There it stands (computer at home) for nothing. (male 74 years)

The majority of the interviewed had the infrastructure for digital use at home. Everyone had the required hardware, but none of the interviewed was very active in using it. Most of the interviewed had a very indifferent attitude towards the computer or a tablet they owned. The ethos was rather evasive, and the interviewed people seemed to be out of their comfort zone for the interview topic. The interviewees with indifferent attitude had a point of view that they needed to live in today's society by owning a computer, tablet or a smartphone, but using it was not seen as a priority. These people had lived their lives without the digital technologies and they do not see the reason to start using it now. The interviewees were speaking very reluctantly on the topic and did not show any confidence in their answers. The answers were expressing discomfort and willingness to change the subject.

Yeah, I've used it a couple of times for video calls. It's a fun machine (tablet), but I'm not quite sure how to use it. I always use my relatives to help me. (female 71 years)

The respondent with positive attitude towards digital machines was also rather insecure with the responses. The appearance was slightly evasive but at the same time the response was very polite and seemed considered. The point of view of the respondent was of a person who has received the hardware from relatives as a gift rather than out of her own choice and will. The responses were expressing curiosity towards the possibilities of the Internet but also lack of experience in its use and hesitation to try online services on their own. The respondent was truly disconnected until getting the tablet device and

assisted in its use. The respondent is an occasional Internet user and the family is a strong catalyst for using the Internet. In the story of the respondent the family plays a significant role.

I will not read any news (from computer or mobile device)! The important news can be seen on television! (male 68 years)

It's irritating that even in TV nowadays they tell us to read the news from Internet. I can't even watch it in peace! (male 74 years)

Well I had to get one as XX (operator) didn't let us have landline phone anymore! They force us to use these new machines! ... Phone is for phone calls! (male 71 years)

There were also few very opinionated respondents with aggressive attitude who were passionate in their response. They presented the point of view of net evaders who only use the Internet out of necessity and try avoiding it at all means possible. They dislike the digital services and are very vocal about it. While neutral and positive attitudes were expressed rather briefly, the negative opinions were expressed with passion, blame and were easily distracted to bunch the question responses together with the unrelated topics. Blame was common storyline, have it been targeted to companies, communities or government as whole.

5.2.2 Awareness of assisted web services

The assisted web services include chat windows with customer service or chat-bots on websites, public computer outlets with assistant and virtual kiosks. The service was described to the interviewees and the question was, whether they would use an assisted web service.

I wouldn't use it. (female 71 years)

I would never use it! (male 74 years)

Why on earth would I use it? (male 74 years)

I don't need that (kind of service). (female 64 years)

All of the interviewees had initially a negative response on whether they would use assisted web services. The male respondents seemed to be more opinionated and especially the respondents with the most negative attitudes had the strongest negative response on the question. The female interviewees expressed their negative responses in more subtle way and they were evasive towards the whole topic. The responses remained unchanged when the question was, would a virtual assistant encourage their use of digital services. The respondents who had a neutral attitude towards the ICT stated with confidence that they would not be interested in virtual assistance. The interviewees with clearly

negative attitudes were also strong in their opinions, but the response was once again very emotional and blaming. The Virtual assistants were said to take people's jobs and destroying the customer service.

I'm staying away from those machines! (male 68 years)

I might use it. I often need someone to confirm what I'm doing (on computer). (female 64 years)

Yes, I'd be more likely to use it. But I wouldn't try it unless I would have some real business to do. (female 74 years)

Yes, I might be interested if he (the assistant) really would help me. (male 76 years)

After changing the question to if a physical assistant would increase their interest to use digital services, the opinions with digital evaders remained the same and they were triggered to rant on the horrors of digitalization, such as deterioration of services, information security and push of society towards digital services. They seemed to be angry as they were feeling forced to use the digital services at the occasions when they would prefer to operate with a physical person, causing them to averse everything with digital aspect.

With the interviewees with more neutral attitudes a question if a physical agent would encourage them to use the computer and digital services the responses changed from negative to positive with even hints of curiosity. A physical assistant was described to improve the interviewees' confidence to use the services and it also lowers the barrier to start using the computer or other virtual device. The assistance was requested to be clear and targeted especially for the user and not just generic guidance from an outsider. A video assistant was also increasing the willingness of the interviewees of try assisted web services, but less than a physical assistant. Several interviewees mentioned, that although the assistant with a face would increase their willingness to try the service, they were unlikely to do so unless they had some agenda for doing it. No one expressed the will to try the service out of curiosity.

5.2.3 Reasons for not using digital services

The reasons for not using the digital services can vary widely. They can be related to not taking up the use, lack of promotion and marketing of the services, different challenges for the users to use the services and perception of value for Internet use by the users (Devins et al. 2003). According to Pastore (1999) there is a "solid pool of non-users who believe they have no need for the Internet" They are the resisters who simply do not want to use the Internet. There is also a group of rejecters who have tried the Internet and are not expecting to get in it anytime soon as they have experienced problems in using the

Internet, have received unwanted information, have not found what they were looking for or just to keep their personal information secure (Wyatt et al. 2002). The respondents were interviewed on the topic, what are the reasons for them to not use digital web services.

I want real service from a human, not a machine. (male 74 years)

I prefer to deal with a real person. (female 71 years)

The Internet is stealing my information. (male 68 years)

The machines follow you! (male 71 years)

All of the interview respondents stated, that they would prefer to deal with a person rather than a machine. The responses were confident, and everyone was sure that dealing with a physical person would be the most efficient way to conduct their business or fulfill a request. The point of view of the respondents stems from their previous experiences of not needing the Internet or ICT, so that they are reluctant on taking on the use now. Also, fear for own information integrity and adequacy of skills can be seen behind the comments made. The respondents with most aversive attitudes towards ICT have stated directly that their fear is to lose control of their information to third parties. The actor stealing their information ranged from the hardware to corporates and even governments, portraying strong case of distrust. Although face to face customer service, or even service via phone is often costing more as compared to the digital self-service, the interviewees still preferred to pay more in order to get a person to engage with their problems. Other storylines for not using digital services included not having anyone in their closest everyday social circle using the web, as well as simple lack of interest, devices and confidence in the benefits of the Internet. The variable most nominated was simply “not interested.”

In general, in the background of the responses seemed to be that the people not so familiar with digital services do not see the ICT as a tool designed for their convenience, rather than a tool for companies and government make their lives more difficult. The fact that the information systems were originally designed to be a tool for facilitating people’s everyday lives and work seems to be unknown. The ICT should perform the required tasks instead of human in faster, more efficient and precise manner. It should also enable communication with other people and systems and combined with Internet it creates unlimited opportunities for gathering, transferring and analyzing information. (Goodhue, Wybo & Kirsch, 1992, 9). The digital service use can be reasoned with the positive effects the digitalization of services has brought to the users on the personal level and not the companies and communities in general scale. The digitalization has improved the communication and information access of the individual. New free digital services have appeared, the life quality of individuals has improved as well as new forms of leisure have appeared. (World Bank, 2016, 28.) Also, the general Internet accessibility in general has improved, which in turn has facilitated the job vacancy search and provision. The

products, services, communications, delivery as well as internal organization of the companies and retailers have improved due to digitalization, which in turn reflects to the average users through better products and services. Still in this interviews' responses from the target group, the benefits of the ICT are still easily overpowered by doubts and fears of the users.

5.2.4 *Factors that may encourage usage*

Initiatives to address the digital divide have ranged from computer access at cybercafés, city libraries, apartment blocks and community centres. Liff and Steward (2001, 9) note that the social nature of the space in which a public network outlet operates is significant. The outlet should be non-threatening and community-managed public place. The “third places” (Oldenburg, 1991) for Internet use have following characteristics:

- a neutral place away from home and work where people feel comfortable and can come and go at will
- little interference from a host
- social inclusion in terms of membership/participation
- stimulating connection with others
- accessibility in terms of hours and locations
- frequency of regulars

Although the digital skills vary and the used services are also different, the common factor seems to be the lack of trust in digital service use and need for external verification before decision making, especially with money involved. This can be seen in frequent use of external help, if possible from trusted sources, such as relatives or officials. The digital services should have a sandbox platform for practicing with no real money or liabilities involved, for example in electronic banking. (Suhonen 2016.)

The interview respondents were asked, what could encourage them to use a virtual service.

*Nothing! (*What if you could have a personal agent do it for you?*) No! I will not give my information to machines! They only remove services from us... (male 74 years)*

*Nothing! (*What if you could have a personal agent do it for you?*) Well, maybe then. But I don't want to touch that thing. (male 74 years)*

If someone would show me how to use it and tell me if I'm doing it right, then maybe. (female 64 years)

I should get proper service. And it should be on my way! I'm not going to go anywhere separately for that. (female 74 years)

Initially all of the respondents had a very strong opinion that as they do not feel the need for virtual services, there is also nothing that would make them use them. When the question was asked again and changed to accentuate the presence of the human agent and the possibility to have a person to do the virtual part for them, the attitudes took the turn towards more positive in most of the interviews. The majority, 80 percent, of the interview respondents said they could imagine themselves using a digital service with a human mediator. Even one of the interviewees with openly negative attitude towards ICT expressed a possibility that he could use virtual services if there would be a human agent between him and the machine.

All of the interviewees seemed to have a clear opinion on how the assisted virtual service should be presented to them, that being with a focus point on human agent. One of the respondents with extremely negative attitudes towards anything digital was really difficult to interview as he was strongly rejecting any kind of possibility of him using digital services in any form. Eventually his opinion was that there is no way for him to use such service model. For the people who are willing to drive long distances, wait in line and pay extra fees just for the joy of operating with human, it is not very easy to introduce a virtual service which is eventually based on the self-service model. The human agent in between a customer and machine is a facilitator, who lowers the barrier to use the digital service as well as provides a channel for quickly finding verification for own actions and doubts. The respondents who indicated positively that they were interested in assisted virtual service did not see a problem in public location of a virtual kiosk. In contrary that seemed even to be a positive factor providing outside help and verification for using the service. The third-party location was considered to be a neutral ground which could be used upon request and keeping own home a sanctuary from surrounding digitalization. Still, it came up in several interviews, that the location should be easy to access, and it should be located conveniently on their normal everyday routes.

People's attitudes seem to be the major hindrance for implementing any kind of digital service, be it based on self-service or operated by a mediating agent. The interview respondents all failed to see the digital services as a tool for their convenience which would save them time and money. The attitudes were in several cases even hostile and it took a long explaining, that the service is designed for their convenience rather than to hinder them from getting proper customer service. The main factors for encouraging interviewees to use assisted digital services were listed as "proper help from the agent" and "convenient location" respectively as the two top encouragement factors.

6 CONCLUSIONS

6.1 Theoretical contribution

The assisted e-commerce model is very versatile tool which can be used in multiple environments in order to improve living premises of the unprivileged people in the digital divide. The model is very new and so far, used only in India under the name of assisted e-commerce. Although the term assisted e-commerce has emerged in 2015 only, the elements of assisted web services, such as chat-bots and virtual chat assistants, have been in use already for a decade for enhancing customer experience. However, the assisted e-commerce as a complete service model integrated with physical stores is rather a new implication. The assisted e-commerce has been developed to specifically respond to the needs and problems of the rural population of India. The digital divide gap is usually largest in the rural areas where also the network coverage is poor. This is also a part reason for the large divide. In India in recent year the mobile network coverage has spread rapidly to the rural areas, which has enabled such service also for people who have not before used the online services. The similar digital gap can be seen in developed countries as well.

Although Finland is one of the world's most digitally connected countries, the digital divide is a present problem, especially among the elderly population. Often it is the so called secondary level digital divide where the people could theoretically have all the means to use the information technology, but for one reason or another are not using it on their own (Hargittai, 2003, Dewan & Riggins, 2005). Partly the digital gap roots to the skills divide, but most often the reluctance to use digital services is in user's own attitude. The technology use of the elderly is often strongly dependent on the support from family and close ones. Although the electronic devices cost money, the life without digital services is expensive as well, as for example the medical prescriptions can often be renewed for free only online. The coming social welfare and healthcare reform with the option to select the source of medical services is also hoped to promote digital healthcare applications and remote access use for accessing the medical services. However, these require access to an Internet-enabled device, whether that would be a PC, mobile device or a public service outlet. (Isotalus & Jurvelin 2017.)

The assisted e-commerce can be used to provide all kinds of services and products. The platform and concept are very versatile, and it can be included with a variety of services which can also be designed. The limiting factor for the assisted e-commerce assortment is rather legislation rather than issues related to the service platform.

In India the population experiencing the digital divide is vast, while in other countries the similar groups are most likely way smaller in numbers. This however in my opinion

does not make the model less useful in other societies as well, as it does not exclude any people groups and rather improves the living premises for new people groups.

About half a million people at the age over 65 lives without using the Internet or information technology. The Internet use in older age groups is also slowly increasing, but as the age gets higher, the Internet use is dropping dramatically. Following

Table 4 has been compiled on user interviews and their perceived attitudes towards digital services. The attitudes range from --- being strongly negative and even aggressive to + being cautiously curious. o is portraying indifference in opinion.

Table 4 Interviewees demographics and attitudes

gender	age	duration	attitude
male	68	11 minutes	--
male	71	7 minutes	o
male	74	12 minutes	--
male	71	15 minutes	---
male	74	15 minutes	---
male	76	5 minutes	+
female	64	6 minutes	-o
female	70	5 minutes	-
female	74	5 minutes	o+
female	71	11 minutes	+

From the table above, it can be seen that in general the interviewees with strong negative opinions towards digital services have given longer responses. They have been strongly vocal about their opinions, talked a lot and were reluctant to think further on the questions presented to them. The interviewees with neutral or positive opinions were more careful with their responses but were also often reluctant to voice their opinion. They were often evasive with the questions and would often discard their answers by stating that they do not understand anything in the topic.

In total, with help of the interviews I have managed to get a better insight on the assisted e-commerce service model. With help of the interview I have managed to create a common understanding on the model and its utilization possibilities. Also, I have discovered to which extent the model can be altered in order to make it suitable to different environments. In general, the model can be extended to cover a large variety of products and services and it can be used practically to everything that can be sold through regular e-commerce. Although initially the model was specifically developed to bring the merchandise sales to the reach of rural citizens, the trend is now towards integrating various healthcare services to the model. The added value of assisted e-commerce is however, that it helps the retailers to reach whole new people groups, along with gaining monetary benefits from it. Simultaneously the people not used to or unwilling to participate in digital economy can find the services and products they need without additional restraint.

6.2 Managerial implications

Solely from theoretical point of view, the assisted e-commerce is a perfect tool for integrating digital outcasts in the digitalizing society. The service model provides a low-barrier entry point to using the web encouraging the users to try the Internet on their own as well. The assisted e-commerce kiosk set up does not require extensive efforts and resources and it can be run in side of the shopkeepers' main business potentially attracting new customers. However, in practice and based on the target group interview outcomes the attitudes of the users and the resistance among the users seem to be strong in a digitally developed environment such as Finland and implementing such a service model in an environment with adequate infrastructure could require lots of targeted marketing and low-barrier entry points.

The major digital resistance factor in Finland among the elderly digital outcasts seems to be not as much lack of skills or infrastructure, rather than attitudes. Quite a large number of digital outcasts lack the motivation to use the digital services. They are the Resisters who simply do not want to partake in the digital society. The lack of interest may reflect the fact that the Internet and the digitalized services provided with it have not been "sold" persuasively and clearly enough to the people, who are not actively taking up the technological implications.

The simplifying opinion of the digital "haves" and "have nots" that is rooting solely from physical access and the belief that all want to participate in ICTs is error prone. As this research shows, not all "have nots" necessarily want to become "haves" and participate actively in the digital society. These people also fail to see engagement in ICTs as a positive force that would improve the quality of their life and transform the ways they operate in day to day lives. A small but significant minority of people who do not have a computer and are not planning to get one seems to be content with their digital abstinence and they rather spend extra time, money and efforts to conduct their business without the need for engaging with digital operations themselves. This group believes they are able to continue their everyday lives and communicate. In former researches such group generally answered "no" when asked if they felt left out of the world revolving around them. While these interviews have not aimed to measure contentment, the finding that the majority of respondents answered "not interested" to the reason for them not using the web would indicate that whatever their contentment rating, ICT participation was not of interest to them and made no contribution to their social world.

While in Indian assisted e-commerce the focus is on improving the availability of goods and services and targeting people with little to none technical skills, in Finland the technical skills might be present, and the infrastructure is steady, the digital outcasts have often mistrust related to digital transactions. The doubts might be related to their own lack of skills, needing a verification to their actions, or towards the web and service providers,

when the focal point for worry is switched to the integrity of personal information and security of own assets. These doubts may be present with complete non-users of the web as well as people who have for example used a computer at work but have not seen any need to use it after the retirement. A strong storyline present in the interviewees' responses is, that they want to operate with a human rather than a machine. The cost is not the essential trigger for using the service for the people who often use in everyday life extra time, cost and effort to conduct their business without the need to resort to the Internet. The major factor seems to be, that the service is provided via an agent who either removes the need for the customer to operate with machine or provides help and support for the customer to use it on their own. The interviewees who had rather indifferent and neutral attitude towards digitalization and web services stated that having a human agent intermediating the digital service would significantly increase the probability of them using the service. Even some of the respondents with strongly negative attitudes towards ICT were open to a possibility to use a digital service if there is a human intermediary.

The human intermediary is also a common way of building trust for the digital users with lack of experience and skills. An agent is a verification point for the client to confirm the actions to be done correctly and safely. The social aspect also plays a role in public outlet services such as assisted e-commerce. An essential criterion for effective Third Places are social inclusion in terms of participation and stimulating connection with others, which were also found to be valued by the interviewed target group.

Assisted e-commerce service provides a good framework for setting up offering of web services with a human agent, but in order to reach the target group the service needs to be marketed with heavy emphasis on the human actor between the customer and the machine. The interviewed target group stated all that they would prefer dealing with human rather than a machine, although some of the interviewed were also ready to opt, although reluctantly, for digital self-service. The assisted service should be presented in the way, so the end users see and understand the role of the agent in the service's value chain and not concentrate on the virtual part. The attitudes of the interviewees ranged from neutral and indifferent towards strongly negative and even hostile. The idea of having more and new kind of services in the area was generally welcomed, but the attitudes towards digital service offering were negative. If although the message about assisted e-commerce kiosk could be delivered to the target audience as an agent operated service with optional own participation in the activity, the assisted e-commerce kiosk could be a cost-effective outlet for a variety of services in the sparsely inhabited areas.

To set up the assisted e-commerce kiosks in the Finnish environment, a market research is required to comply the virtual kiosk with the services requested in the area. The kiosk can contain a variety of digitalized services them being limited only by the country's legislation. For example, remote medical consultation could be easily set up as a service in a virtual kiosk, as long as the user integrity can be maintained, for example

with a closed conference booth. Considering the potential user attitudes, virtual video assistant would be an easy one-click solution for assistance and would also have that “real person -feel”. Opening the virtual assistant does not require extensive skills from the user, but it can easily prevent an unnecessary trip to another town in simple cases. Another practical implication could be integration of banking services, particularly payment of bills to the assisted e-commerce kiosk. Many banks offer virtual kiosks at their facilities solely for bank payments already but integrating the service to assisted e-commerce kiosk with the virtual assistance, also preferably in video form, would boost also user confidence which is a major concern when operating with money issues.

7 SUMMARY

Digitalization of services is a current trend and services and products are being increasingly digitalized. Still, there are large amounts of people with either no means, skills or will to use information systems. Such digital divide between digital “haves” and have-nots” is a global problem and is causing inequalities. Although Finland is one of the most digitally connected countries in the world, the problem of digital divide is present here as well. Especially it is the problem for elderly population in sparsely inhabited areas, as the services are being digitalized and physical outlets are centralized to larger centres. In India the digital gap is vast and number of people with insufficient skills, hardware or infrastructure is large. To bridge this gap, a business model of assisted e-commerce has emerged. It combines virtual services with assistant and works on the side of a physical business, providing the skills, hardware and trust for its user. This research aims to clarify the concept of assisted e-commerce for transferability to another environment and researches the attitudes of elderly population in Finland for such a business model in order to gap the digital divide for them.

The empirical part of this research is based on thematic interviews in India and Finland. As the concept of assisted e-commerce is relatively new, two interviews have been conducted with Indian developers of assisted e-commerce concept in order to clarify the model and get an understanding, how the model can be modified for transferability to another environment, for example, Finnish. The core finding was, that the assisted e-commerce is a light service which can be integrated on the side of another physical store without excessive inputs required from the agent. Also, the end goal for the model is to empower people digitally and give them more confidence in operating in digital environment. In Finland goal of the interviews was to find out the attitudes and current use of digital services among people of age 65+ years. Ten thematic interviews were conducted to randomly selected people who visually fit into the age profile. The topic was considered very uncomfortable and the people were either reluctant to talk about digital related topics or had very strong negative opinions towards them.

The assisted e-commerce model is very versatile and can contain almost any services that can be digitalized. The assistants can be either physical person, or what is a more likely and cost-effective option, virtual with video or chat support. The largest hindrance for adapting the service model in Finland is the attitudes of potential user group, who often select in their day to day lives a more expensive, time-consuming and ineffective method of dealing when there is a digital option provided. The elderly tend to be reluctant to use the digital devices, have little or none interest for learning to use new digital services or have no courage for operating with online-services. Family and other close social networks influence is important in encouraging for digital service use, but the priority still seems to be operating with a “real” physically present person.

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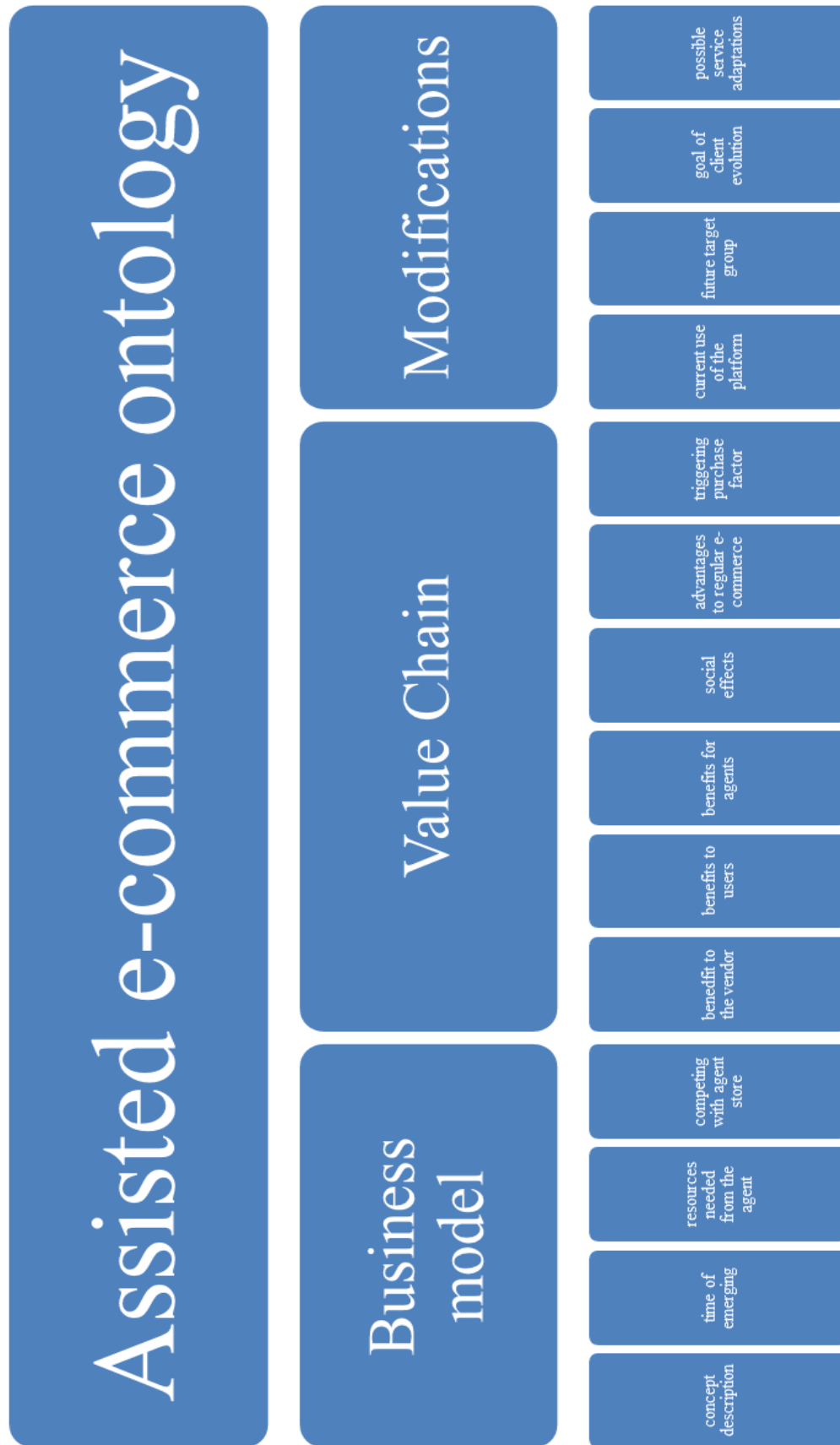
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APPENDIX 1 INTERVIEW THEMES FOR ASSISTED E-COMMERCE DEVELOPERS



APPENDIX 2 INTERVIEW THEMES FOR ELDERLY FINNS

