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Article

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Business Challenges of SMEs Providing ICT-Solutions for Wellness and Healthcare Domains

Päivi Jaring · Minna Pikkarainen · Timo Koivumäki

Abstract: Thanks to improved nutrition, healthcare and sanitation average life expectancy of humans has raised from 47 years in 1900 into more than 80 years today. The global population over 65 years of age is expected to more than double between 1990 and 2025. ICT (Information and Communication Technology) solutions are increasingly needed in order to guarantee better life quality and possibility for elderly people to stay at home longer. This is important for both elderly people themselves and the society. Clever business modelling (i.e. providing right products, to right customers with right partners) is a way for SMEs (Small and Medium-sized Enterprises) to guarantee success in the complex and fragmented wellness market. As the way how SMEs in the wellness sector deal with their business models and challenges is not well known, this paper aims to increase understanding of the business challenges by focusing on SMEs having less than 250 employees. In this paper twelve Finnish SMEs and one funding organization functioning in wellness domain present the challenges they have encountered.

Keywords: Wellness · Healthcare · Business · ICT

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Introduction

Due to improved nutrition, healthcare and sanitation, average life expectancy of humans has raised from 47 years in 1900 into more than 80 years today (Coughlin 1999). The global population over 65 years of age will according to forecasts more than double between 1990 and 2025 and this will have large impact on national economies and business productivity (Hooyman & Kayak 2002). In the near future, increasing amount of elderly people will substantially increase the costs of healthcare and caretaking of the aging population. By e*lderly people* is meant in this article people who are over 65 years of age. Table A1 in appendix summarizes the concepts used in this paper. As enabling elderly people to live at home as long as possible, improves their quality of life and provides considerable financial savings, new technological concepts e.g. AAL (Ambient Assisted Living), telemedicine and eHealth have emerged.

The field of eHealth services adoption has become a significant area of research, with contributions from many different scientific areas and analysis perspectives. Jayraman et al. (2008), Ferrer-Roca et al. (2010) and Lear et al. (2009) focused on the geographic distance between the service provider and patients and found that health care organizations can take advantage of ICT to offer telemedicine services to patients in their homes, particularly to patients in rural and remote communities. The effects of demographic variables have also been analysed. In their study on telemental health solutions, Simms et al. (2011) found out that specific client characteristics make some clients unsuitable candidates for telemental health. Sorensen (2008) found out that the reluctance towards telehealth solutions was higher among older people and people with no education beyond primary school, ICT related skills and other eHealth service adoption related capabilities (Shaw et al., 2008; Simms et al., 2011, Lear et al., 2009; Hebert et al., 2006). Factors, such as service implementation skills and capabilities, networking and partnerships and adoption management, affecting eHealth adoption and service implementation have also been considered. For example, Singh et al. (2010) concluded that extensive collaboration among local-level actors and technology push can enable sustainable rural telehealth innovation. Despite of this abundance of existing research, the analysis focusing on the business factors and challenges related to eHealth services is still relatively scarce, especially when considering SME (Small and Medium-sized Enterprises) service providers.

Wellness means “an active process through which people become aware of, and make choices toward, a more successful existence” and healthier life (Hettler 2013). *Healthcare* that is part of wellness is the “diagnosis, treatment, and prevention of disease, illness, injury, and other physical and mental impairments in humans” (Amsamani 2011). In this paper wellness means activities aimed for enabling quality of life and independent living of elderly people at their home. As aging impacts physical health, it greatly affects individual’s capacity to interact with the physical environment and often causes isolation (Coughlin 1999).

ICT (Information and Communications Technology*) solutions* that enable communication between elderly people, physicians and the caretakers (i.e. relatives of the elderly people and personnel of e.g. care taking homes that are in direct contact with the elderly people) already exist, but as the wellness and healthcare market is

quite fragmented and horizontally and vertically integrated solutions are missing, making cost-saving innovations in the domain is reasonably difficult (Herzlinger 2006). According to Coughlin and Pope (2008), technology-based solutions are not widely used by elderly people in spite of the fact that some of the technology is more than 40 years old. In the ICT solutions for elderly people there is clearly need for solutions that provide contents and prevent isolation. More diversity on the solutions would also remove the labelling of the solutions as the 'last option' before ending up to an elderly home. To improve more wide adoption of ICT solutions among elderly people and their caretakers, Coughlin and Pope (2008) suggest defining broadly the potential adopters, developing a comprehensive approach to health and wellness services, and delivering technologies and services by a wide variety of sources. The early adopters of ICT wellness solutions for elderly people are often not the elderly people themselves, but their younger relatives, who are familiar with technology and want to use it to take care of and communicate with their parents and/or grandparents. The most successful wellness ICT solutions will likely be built around the already existing technology. (Coughlin and Pope 2008)

Various papers (e.g. Burgess 2002, Lee et al. 2012, Longenecker et al. 2007, Scott and Bruce 1987, Stokes and Wilson 2006) have handled the general challenges of small businesses, but papers about the intersection with business model elements in the wellness domain does to our knowledge not exist. We have defined in this section a classification for the **business challenges** that SMEs functioning in healthcare and wellness domain encounter. In wellness ecosystems a general challenge is *market fragmentation* (Herzlinger 2006). Due to fragmentation, SMEs often face a situation in which an individual SME must fulfil needs of different players going simultaneously to different directions. Misunderstanding the conflicting stakeholder needs and missing interface information can easily lead SMEs into complex solutions that are built based on the needs of the financial decision makers -not the end users and specialists. When starting their business, SMEs providing ICT solutions often have to *fight with the market balance and bureaucracy*. In many countries there are few big players (ICT companies, hospitals and medical schools) that monopolize running this business. Sometimes SMEs can even be played 'out' from the domain if they change the market balance (Herzlinger 2006). *Selling healthcare and wellness solutions* is challenging as ICT solutions for elderly are often seen as "last" option enforced by the bad physical state of a person. Additionally, technology is often seen complex, difficult and impossible to understand (AbuKhousa et al. 2012). *Technology driven ICT solutions* are often considered to cause extra work and therefore they *are resisted among the professionals* on the field, which makes collaboration with them difficult (Melkas 2011; Herzlinger 2006). *High security and privacy requirements* of ICT solutions developed for healthcare domain can slow down the technological development (Coughlin & Pope 2008). New players, especially SMEs, often face big problems in this field due to the time needed to follow the legislation rules (Herzlinger 2006). *Getting external funding* is sometimes difficult as financiers are impatient e.g. on pharmaceutical development (Herzlinger 2006). At the same time, there is increasing pressure on greater use of ICT in healthcare and wellness area due to aging population and consequently raising healthcare costs. Figure 1 below summarizes the main business

challenges of wellness and healthcare and maps each challenge into the building blocks of business model canvas (BMC).

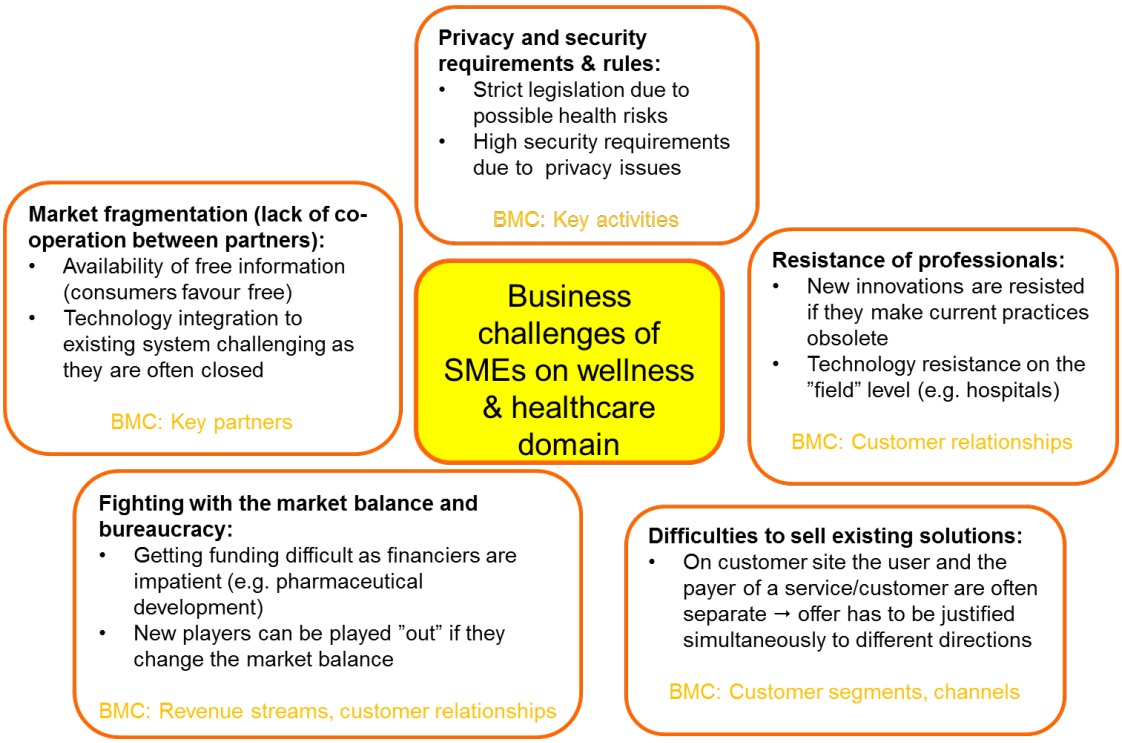

Fig. 1. Business challenges of SMEs on wellness and healthcare domain

The *business model canvas* is a strategic management template for developing new or documenting existing business models. Business model canvas describes a firm's value proposition, infrastructure, customers, and finances and assists firms in aligning their activities by illustrating potential trade-offs. (Osterwalder 2004; Osterwalder & Pigneur 2010) The goal of this paper is to answer to the following research problem: "What are the main business challenges and future activities of SMEs providing ICT solutions into the wellness domain?"

This paper has been structured as follows. The next section describes research approach introducing the Osterwalder business model canvas and the context of the studied companies. Subsequently, the key findings of the study are discussed, and finally, the manuscript concludes the results with the final remarks.

Research Approach

This section introduces the research approach including the description of the business models and business model canvas as the used research method and the interviewed companies.

Business Model and Business Model Canvas

It is becoming increasingly important to be able to improve company's business model in current competitive market situation. Previously, it was enough for an SME to have one dominant business model, but today, companies use multiple business models in competing against each other. Business models have been defined in the scientific literature in numerous ways (cf. Cartwright & Oliver 2000, Chesbrough & Rosenbloom 2002, Hamel 2000, Mahadevan 2000, Mintzberg and Quinn 1996, Tapscott et al. 2000, Timmers 1998). We use in this article the business model definition of Osterwalder and Pigneur (2002): "the conceptual and architectural implementation of a business strategy and the foundation for the implementation of business processes".

The business model canvas was initially proposed by Alexander Osterwalder based on his earlier work on business model ontology (Osterwalder 2004). The business model canvas consists of the following building blocks:

- Customer segments mean identifying the customers a company wants to serve.
- Value proposition means collection of products and services a business offers to meet the customer needs. According to Osterwalder (2004), a company's value proposition is what distinguishes itself from its competitors.
- Key partners are the most important partners of a company. Organizations usually cultivate buyer-supplier relationships so they can focus on their core activity.
- Key activities that are the most important activities in executing a company's value proposition.
- Key resources are the resources that are necessary to create value for the customer.
- Customer relationship means identifying the relationship type the company wants to create with their customer segments.
- Channels means channels through which a company delivers its value proposition to its targeted customers.
- Cost structure describes the most important monetary consequences when functioning under different business models.
- Revenue streams are the way a company makes income from each customer segment. (Osterwalder & Pigenur 2010)

Business modelling can be a challenge for a technology driven ICT-company in which the stakeholders typically pay less attention to project's business aspects than the technical aspects. Often, decision makers who do not understand business modelling, end up to a situation in which they are doing continuous hidden changes to the company's business targets just by focusing on the conflicting customer demands, costs and delays that the functional changes cause to the company. Incremental functional changes to the product and budget are seldom enough for a company to survive in the situation in which the competitors are better aware of the business model opportunities. (Wallin et al 2002).

Research Approach

This article uses business model canvas of Ostervalder (2004) as a structural analysis tool to analyse business challenges of Finnish SMEs providing in healthcare and wellness domains ICT solutions that enable living of elderly people at home as long as possible. The data for the study was collected from 12 SMEs and one funding organization by using semi structured interviews that were conducted during 2012. The target group of the interviews were SMEs as they are often more innovative, open-minded and flexible than bigger companies and provide more cost-effective and adaptive solutions to be used by elderly people and caretakers e.g. in small care taking homes.

The research method in this paper is a case study, which was applied by using theme interview as a data collection mechanism. Most of the interviewed persons were CEOs (Chief Executive Officer) of the SMEs. Additionally, product managers of some companies were interviewed. During the interview, the interviewed persons were asked to analyse their company based on the business model canvas of Osterwalder. Based on the interviews, a business model canvas of each company was drafted and sent to the interviewed person for possible corrections. The interviewed SMEs were selected into our study based on the following criteria:

- they function in the wellness domain
- they are small and medium—sized enterprises (i.e. turnover <50 million euros/year and less than 250 employees)
- they have an own product or service that they sell to their customers

Additionally it was interviewed on actor that funds Finnish industry on several domains e.g. wellness/healthcare. Table 1 below summarizes the interviewed actors.

Table 1. Interviewed actors

Company id	Established (year)	Nr of employees	Value proposition
1	1995	5	Safety monitoring solution
2	2007	15	Safety monitoring solution
3	2005	6	Product for customer information management
4	2001	200	Personal ehealth solution
5	1994	20	Ehealth solutions
6	2011	3	Communication solution
7	1996	10	Solutions for preventing and monitoring chronic diseases and managing their care

8	2007	4	Integrated PC solution
9	2005	1	Various solutions to healthcare and wellness
10	2007	10	Safety monitoring solution
11	1994	19	Wellness and safety monitoring solution
12	1998	ca.250	Services and service homes for elderly and disabled people
13	1967	120	Funds Finnish industry e.g. in creating an ehealth solution

Findings

This section summarizes the nine blocks of the business model canvas in the interviewed actors and maps the challenges of the wellness domain into the building blocks. Below, the building blocks 'key partners' and 'channels' are combined due to their similarity.

Challenges and Future Focus in Wellness Domain in Finland

This section described the challenges and future focus of wellness domain in Finland. Term *municipality* refers in this paper to a governmental unit of a country; Finland has at the moment 336 municipalities. The concept city means a municipality that calls itself city due to big amount of population and its density. Hospital districts provide healthcare services to one or several municipalities.

Customer Segments

In business market the user is not in direct contact with the end user.

The common opinion of the interviewed CEOs was that the biggest potential will be in the solutions provided for consumer market. Representatives of the five analysed SMEs told us that they (e.g. companies C2, 4, 6, 10-11) are moving or planning to move from B2B (Business To Business) sector to B2C (Business To Consumer) sector due to the increased market potential. The role of private sector (e.g. insurance companies and occupational health care) will also increase in the future consumer market of wellness solutions. Results show that seven analysed SMEs face challenges when transferring from business to consumer markets. Key reason for the problem is that in Finland, moving towards consumer market requires new kind of innovations, technology and system solutions that consumers do not have available due to the fragmented market. *"In Finland most of these services are currently made by the local municipalities"* However, the situation is improving*,… more and more these type of services are bought from the SMEs." (C12)*

The results suggest that there are not enough commercial players who could really take these ICT solutions to the consumer markets. *"Typically, the first player who makes the work is not the one who harvests results. The question is, who has courage to open the game? (C4)*

There are also differences between the findings. Some SMEs explained that their technology is yet too expensive for consumers to adopt. Another problem emerged was that for SMEs it is difficult to sell solutions in the consumer markets, because the needs of consumers are difficult to identify or deeply understand. Although, in Finland there are many small ICT solution providers that have very good products, much expertise and that are more flexible and willing to collaborate than the big players, potential customers are often not aware of these existing solutions.

Value Proposition

Many of the interviewed actors provide a complete solution that includes the solution itself and its installation and maintenance. In future the functionalities of the provided solutions will be further improved by e.g. adding a web-access, mobile access and route optimization.

Results show that the main challenge related to the value proposition of SMEs' lays in the fact that the engineers do not often understand what the users (consumers and professionals) actually need or want in the wellness sector. Furthermore, the user interfaces of the ICT solutions are still not good and simply not good enough for elderly persons to be used.

"*Some companies seem to think that it is possible just to move the same solution from basic consumer to the elderly people." …"once we saw that engineer made a blinking spoon for the demented persons. The problem was that the demented person does not remember why the spoon is blinking and they are continuously destroying them because it is annoying them, this is an example of the ICT solution that is very far from the real user needs*" " *If the person who planned the blinked spoon would have been talking with the relatives of the demented person, they would have never made such a spoon*" (C12).

Key Partners and Channels

Results of this research suggest that key partners of the interviewed actors are subcontractors, equipment manufacturers, sales and marketing channels and other actors of the domain. Additionally there is some interaction with the research field, players of the public sector, e.g. cities and system integrators. In eight of the analysed SMEs (C4-C11) partner network is identified rather as a strategic asset than as a future challenge.

According to this research an internationally oriented SME usually has three partner networks:

- Research network, which consists of individual people, universities and research institutes that has some special knowledge that is needed in company's R&D activities.
- Sales and marketing network including the country specific agents.
- Partner network with the other players in the field e.g. large software houses, hospitals, operators, insurance companies, banks, care taking homes.

Results identify that six of the analysed companies use partnering approach mainly in sales and marketing network creation. For global sales SMEs typically have a sales agent in each target country to assure that the end users and customers can get good service in their own language. When going to foreign markets, it can be difficult to for an SME to know to which players to focus on. Often, the best possible strategy for an SME in wellness domain is to focus on its' own technological or product development and utilize technology knowledge of other players as much as possible. *"Our strategy is to use technology solutions of others as much as possible, it is definitely our strength. It is not possible to do everything by ourselves in this domain" CEO of C4.*

Results indicate that in the Finnish wellness sector many players make decisions about the wellness solutions to be used. Typical decision makers in Finland are local municipalities and cities. Current decision making in wellness sector is slow compared to the working cycle of the SMEs. Small municipalities seem to collaborate with each other better than the bigger ones. As a consequence selling ideas to the care taking homes etc. maintained by bigger cities is challenging.

Results show the personnel of care taking homes and hospitals often resist changing the processes they are using to work with the end customers:

"Employees in the healthcare and wellness field are overloaded with their work. They are even more overloaded when they need to pilot or adopt some new ICT system and change their current processes." Furthermore, employees in this field are typically measured based on how many patients they have been taking care or how many visits they have made in the homes of elderly people. Databases with new patient data is now providing new opportunities to prevent many problems beforehand but it is also causing more responsibilities and more work for the nurses and doctors. However, they are not measured based on how well they managed to take care of the people." (C5)

Although, many of the players in the domain seem to have willingness to collaborate, the market in the wellness and healthcare sector seems to be relatively fragmented:

"In Finland it is difficult to adopt ICT solutions in this domain because everyone is looking only their own perspective. The collaboration does not often happen between the municipalities. In some cases decision making can be made between the 10 municipalities. If one municipality does not make the decision, other will not make it either. Any reasonable, cost effective solutions are not possible. The situation is better in Sweden and Denmark." (C5)

"The situation is difficult in Finland compares to the UK or Denmark (C7)"

"There is some collaboration between the municipalities, there are also some good examples of the working collaboration (C10)"
"Health care districts and municipalities are always fighting against each other in Finland" (C4).

Results show that one reason for market fragmentation of the wellness sector is the difficulty to find partners and partner with companies that are often not willing to co-operate.

We are continuously asked to collaborate with the companies that are asking from us, *"what is the value proposition of this ICT solution that we made during the last two years" "they know the user needs of their own solution only in the higher level" (C4).*

"If a R&D project consists of several actors that cannot be controlled, there is always a risk that something goes wrong as not all companies implement what they originally promised."(C11)

There are two consequences of the market fragmentation. *First* is that the open interfaces between the ICT solutions are often not available for the SMEs in Finland. This becomes expensive especially for the local municipalities, hospitals and care taking homes, because they always need to pay for the system integration.

"*The goal is that in the future all information would be transferred between the different ICT solutions*". (C2)

In the wellness domain each player is often focused only on their own solution and thus an integration platform and willingness to build one is missing. In practice, only few of the small players really use open interfaces and provide open interfaces into the market. *Second* consequence of the market fragmentation is that the information (good or bad) is not transferred between the players in wellness market. Compared to other countries e.g. to Denmark, lack of information transfer makes it difficult for a new ICT provider to sell even high quality wellness solutions in the Finnish market.

In future the interviewed actors would like to find new partners on global level to market and sell their products and services.

Key Resources

All the interviewed actors mentioned personnel as their key resource. Results show that a typical SME has only few employees that according to the interviewed CEOs mostly affect the sales and marketing activities. Many employees focus on maintaining the old systems, taking care of the customer relationships and developing new innovations.

Many of the analysed companies said that they would need more resources and assistance in networking and entering foreign markets. Interviewed persons in four of

the analysed companies mentioned that the best opportunities in wellness sector lay in the foreign markets. Especially India, China and UK were seen as interesting countries to target with the wellness ICT solutions. Entering foreign markets and the communal sector requires more resources and this was mentioned as one of the key activities in the future.

Customer Relationships

There are many "customers" that one SME needs to convince about their ICT solutions in wellness and healthcare markets. In monitoring and expert supporting systems, the typical customers of the analysed SMEs are nurses and doctors of the care taking homes, hospitals, cities, municipalities and elderly people themselves.

It was found out that Finnish SMEs consider important to keep customers happy also after delivery and by providing maintenance. Many of the interviewed companies provide high quality deployment and maintenance services for free or with the very low costs to their customers. Often CEOs see maintenance as a mandatory cost: something that has to be taken care well of, but which is not even meant to bring money for the company.

Some of the interviewed actors considered getting new customers and entering new international markets challenging. In getting new customers the negative image of technological solutions – of which most are focused on tracking and monitoring already demented people- was considered a problem. To make the technology a "happy" thing, there should be more solutions that provide contents and improve interaction among people

Cost Structure

For all the interviews actors, the personnel costs caused most expenses. As minor expenses were mentioned marketing, product development, maintenance and subcontracting. As the personnel costs cause big part (even 80%) of the costs, making cost savings were considered difficult. On the other hand as personnel costs are big, cost savings in the area of more effective use of working time and better work allocation would bring cost savings.

Revenue Streams

The interviewed actors charged for their solution a specific starting fee plus a monthly or yearly running fee. For installation and maintenance was charged additionally a fixed fee. Some actors gained revenue from advertisement and from telephone support.

The analysed companies used the following revenue models:

- Running fixed monthly or annual fees. The advantage of a revenue model based on fixed monthly fees compared to annual fees is a constant income flow. On the

other hand if the monthly fee is very small (like 1-2 euros), annual fee is more rational from billing point of view.

- Onetime fees. Analysed companies used the revenue model 'onetime fee' for 1) installing the system, 2) providing support services and 3) selling physical equipment needed for the solution.
- Running fees based on the amount of used units. In the revenue model based on charging for used units, the companies used various options as a unit base: 1) amount of users, 2) amount of rooms monitored, and 3) amount of customer calls per month. The advantage of this model is that it enables scaling the system based on the needs of the customer.

There are number of challenges that SMEs face related to the revenue streams.

Results suggest that for municipalities the budget is often the most important factor in making decisions and the cheapest solution is selected based on short term decisions even if it is not always the smartest choice. Municipalities often try ideas with public funding; the challenge is that even good solutions that are developed in these pilots are not actually adopted into the real use. "*As soon as the novel technology solution is ready, we found out that suddenly the municipality or city has no money to deploy it to the real environment*". Long term planning of the technology deployment is missing.

Results show also that getting funding for new ideas is complicated. The healthcare sector seems to be focused on taking care of sick people, not for preventive work and therefore there is no money allocated for it. "*Even if we have a very good ICT solution for this market, and we have metrics to prove that this is really good solution to prevent problems, it is still difficult to get money for these types of projects."* (C11)

Additionally, Finland seems to be a difficult country to get into the wellness market as two big players dominate the market and their solutions have closed interfaces.

Although many solutions seem to be relatively closed and difficult to integrate together, only one of the interviewed companies was really willing to open all its' interfaces to other players. Five of the analysed companies mentioned that SMEs in Finland are in difficult position compared to the big players as new offers and contracts are often made between municipalities and big players that are well known and with whom the city or a municipality has already worked before.

Results identify that on welfare states like Finland people are used to the fact that society pays the expenses and they are not willing to pay anything themselves. As a consequence, an individual elderly person does not often find information or know all the opportunities that already exist to solve their problems. Local municipalities or cities often offer people a cheap solution that is not necessary the best or most useful one for the specific purpose of the end user.

Key Activities

For the interviewed actors they most important activity was in most of the cases to find new markets and customers. Additionally seven companies wanted to improve the functionality of their current product instead of developing a completely new product-/ service portfolio.

Healthcare focused solutions are due to possible health risks ruled by strict legislation and have due to privacy issues, e.g. patient information high security requirements. Perhaps surprisingly, the biggest selling point of the Finnish ICT solutions seems to be the overall quality of the provided systems: *"we have thought that Finnish software does not have any possibilities to be adopted in India but our strength is that over there, Finnish ICT solutions are respected due to the high quality…" (C7).* Five of the analysed SMEs said that they follow quality certificates e.g. ISO standards. Two of the interviewed persons (in C4-C6) told that the quality certificates are in some solutions not mandatory and sometimes they are really expensive to follow for the small players.

Our analysis provides an evidence that one clear future emphasis in six of the analysed companies (C1, 2 4, 5, 10, 11) will be making more user centric ICT solutions. For instance in C1: "*In our case, the nurses are checking what kind of solutions are needed for each care taking care, not that our sale manager will tell them what kind of solution they will need*" and in C10 "*In the future we will more and more focus on usability, this is the biggest challenge in this market. There is no silver bullet how to make monitoring device that is really nice to carry with*".

Summary of the Analysis

As a summary of the analysis, it is found (see Figure 2) that the core challenge in most of the SMEs is currently their position related to the big players and their difficulties to move from B2B sector to B2C sector.

Concerning future actions or targets (see Figure 3), most of the analysed companies saw the partner network as an important success factor for Finnish small and medium sized ICT-solution providers. Another goal of the companies was to emphasize quality of the solutions and services and to create even more user centric solutions than before.

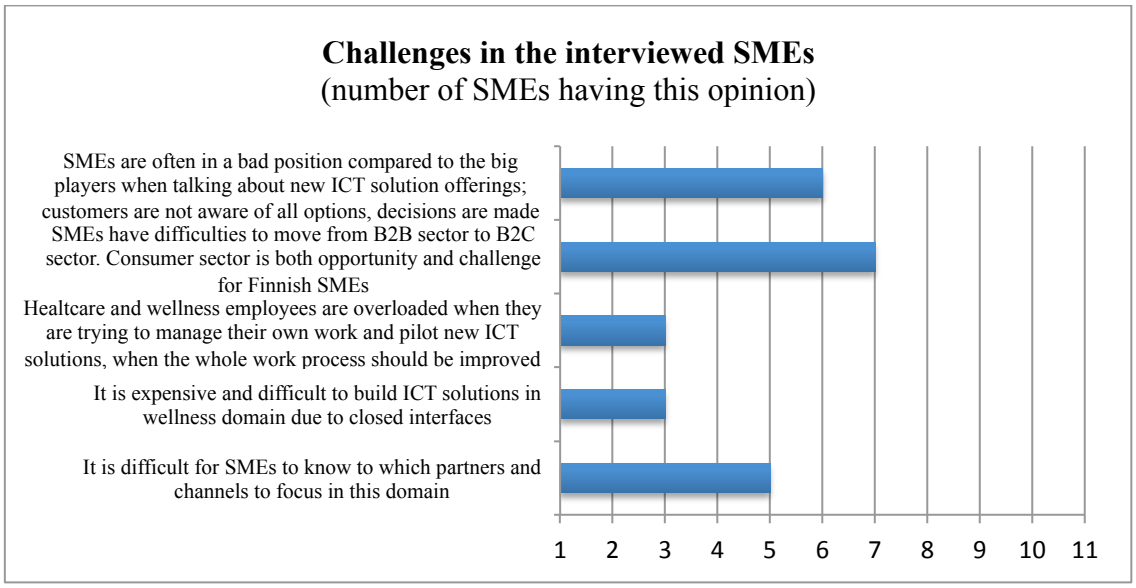

Fig. 2. Challenges in the interviews SMEs in wellness and healthcare sector

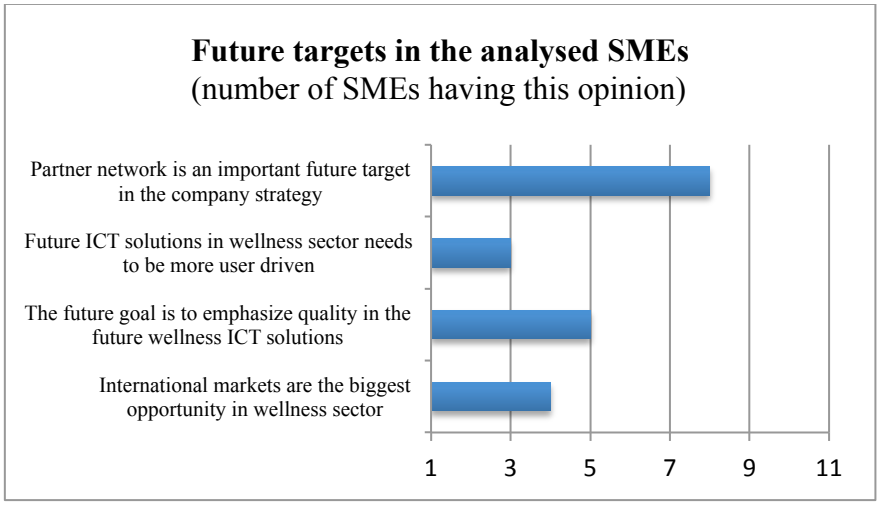

Fig. 3. Future actions in the analysed SMEs.

Conclusion and Future Work

The amount of elderly people and expenses on taking care of them will explode in the future. This paper describes results of the business model analysis of 12 Finnish SMEs providing ICT solutions in wellness and healthcare domain.

The business challenges found in this research are summarized in the following:

- Getting funding for a starting SME is difficult and bureaucratic.

- Making new innovations was considered difficult and companies often just focus on improving the features of the current product.
- Fighting with the market balance and bureaucracy: few big players who dominate the market have systems with closed interfaces and they are not willing to co-operate.
- Selling to consumer market is difficult as the needs of the users are not knows and end users are not aware of existing solutions or willing to pay for it.
- Shifting from B2B to B2C is difficult due to fragmented market: there is not much co-operation between the companies and municipalities/cities.
- Technology resistance: end users and care takers are not willing to take into use new solutions as they cause extra work and are difficult to use and maintain. Especially the healthcare personnel are already overloaded and want the technology to make their work easier- not more complicated.
- Decision making in governmental organizations is slow and bureaucratic and pretty much defined by the budget limitations- not by the quality.
- Getting to international markets is difficult due to missing partner network and lack of knowledge of the local requirements. Creating a partner network was considered the biggest challenge in the interviewed companies.

The identified challenges imply that establishing suitable value network is perhaps the greatest factor in determining success in future markets. Finding effective means to integrate end users in the value creation process would help companies in creating better solutions and thus pave the way to easier transition to consumer markets. Also, finding the right partners to assist in R&D, in service provisioning, in marketing and in other key activities within the value networks help SME companies to find their niche in the markets controlled by big players.

Furthermore, to succeed in the wellness market, companies should develop end-users high-quality applications that are easy to use and improve their quality of life instead of monitoring and controlling their moves as an aim to prevent the inevitable death. Especially social media solutions would prevent elderly people from becoming isolated from the society and decrease loneliness that is considered as one of the biggest societal problems.

A limitation of this research is the small size of the sample and its local character. In further research we are going to interview more actors on European markets to make the sample bigger in order to confirm the findings of this research and to figure out the market/country related differences. As limitation of this research can also be considered the fact that this research did not involve the biggest players of the field, but for us this was an intentional decision due to the reasons explained in the introduction section.

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Appendix

Table A1: Concepts used in this paper

Concept	Definition
AAL = Ambient Assisted Living	Technological solutions and media support that will enable the elderly population to maintain their independence and stay at their homes longer (O'Grady et al. 2010; Fuchsberger 2008).
Business model	The conceptual and architectural implementation of a business strategy and the foundation for the implementation of business processes
Business model canvas	Strategic management template for developing new or documenting existing business models
Caretaker	Refers both to relatives of the elderly people and personnel of e.g. of care taking homes that are in direct contact with the elderly people.
City	Municipality that calls itself city due to big amount of population and its density.
eHealth	Use of electronic technologies in health, health care and public health (Baur et al. 2000).
Elderly people	People who are over 65 years of age
Healthcare	The "diagnosis, treatment, and prevention of disease, illness, injury, and other physical and mental impairments in humans (Amsamani 2011).
ICT	Information and Communication Technology
Municipality	Governmental unit of a country
SME = Small and Medium-sized Enterprise	An enterprise with <250 employees and turnover of < 50 million €/year.
Telemedicine	Use of telecommunications technologies to provide medical information and service (Perednia & Allen 1995)
Wellness	Activities aimed for enabling quality of life and independent living of elderly people at their home.